No. 19-70115

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

NATIONAL FAMILY FARM COALITION, *et al.*,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*,

Respondents,

and

MONSANTO COMPANY,

Intervenor-Respondent.

ON PETITION FOR REVIEW FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PETITIONERS' EXCERPTS OF RECORD VOLUME I of IX

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[1] Unless otherwise specified, the document identifier numbers refer to their document numbers as listed in the Certified Indices, ECF Nos. 26-3 (Sections A through P), 34-3 (Section Q).

[2] Respondent United States Environmental Protection Agency (EPA) did not produce, but only provided hyperlinks to, publicly available documents. *See* ECF No. 26-3. For the Court's convenience, Petitioners have produced those hyperlinked documents in their entirety in the Excerpts of Record.

10/31/2018	P.1131	Attachment to 00025600 - revised terms and conditions	ER 0504
10/31/2018	M.10	Public comments from Center for Food Safety	ER 0509
10/31/2018	M.10	Public comments from Center for Biological Diversity	ER 0510
10/31/2018	M.10	Public comments from R. Coy	ER 0515
10/30/2018	P.220	E-mail from R. Baris to T. Marvin re: terms of registration	ER 0516
10/18/2018	P.694	E-mail from M. Thomas to R. Baris re: EPA label edits	ER 0521
10/11/2018	P.880	E-mail from David Scott to Reuben Baris re: Dicamba registration	ER 0522
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10/5/2018	P.4	E-mail from Mark Corbin to J. Norsworthy re: phone call	ER 0526
10/1/2018	P.194	E-mail from Nancy Beck to S. Smith re: Thank You	ER 0527
10/2018	O.95	EPA/BEAD Summary of 2017 & 2018 Incidents by State	ER 0529
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9/26/2018	O.38	Office of the Indiana State Chemist. 2018. Dicamba Discussion 2017-2019. Indiana State Pesticide Review Board Meeting. September 26, 2018.	ER 0540
9/13/2018	O.271	Presentation by Ruben Baris, EPA/RD, to Pesticide Inspector Regulatory Training: "EPA's Considerations for Over-the-Top Dicamba Registrations (EPA Auxin Updates) 2018 Basic Inspector and Use Concerns"	ER 0575
9/6/2018	P.925	E-mail from M. Sunseri to R. Baris re: Minnesota comments	ER 0596
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8/29/2018	P.173	August 2018 AACPO Letter to then-Acting Administrator Wheeler re: dicamba decision	ER 0615
8/29/2018	P.14[3]	E-mail from R. Baris to R. Keigwin re: articles of interest	ER 0618
8/22/2018	P.253	E-mail from T. Gere to R. Baris re: update	ER 0627
8/21/2018	P.1232	E-mail from C. Wozniak to EPA recipients re: Drifting Weedkiller Puts Prized Trees at Risk	ER 0628

[3] This e-mail contains a hyperlink to an online article that Petitioners have produced in its entirety. For the Court's convenience, Petitioners have produced relevant hyperlinked articles in their entirely in the Excerpts of Record. Throughout the index these documents containing hyperlinks are noted with a double asterisk (*e.g.* __.__**).

8/21/2017	K.92	E-mail from Nicholas Sorokin to EPA recipients of Office of Public Affairs media clips re: Reuters: Exclusive: U.S. farmers confused by Monsanto's weed killer's complex instructions	ER 0637
8/15/2018	P.1060**	E-mail from R. Robinson to R. Baris re: Dicamba 2018 – The Iowa Experience (Attachment)	ER 0639
8/15/2018	P.1060	E-mail from R. Robinson to R. Baris re: Dicamba 2018 – The Iowa Experience	ER 0642
8/16/2018	Q.67	Polansek, Exclusive: U.S. seed sellers push for limits on Monsanto, BASF weed killer	ER 0643
8/16/2018	P.251	E-mail from S. Jewell to R. Baris re: Call: Brian Major and OPP	ER 0650
8/16/2018	P.1034	Attachment to 00022969: Illinois Fertilizer & Chemical Association comment letter	ER 0625
8/14/2018	P.1212	Attachment to 00030074August 2018 Letter from Association of American Pesticide Safety Educators re: efficacy of dicamba training	ER 0656
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7/20/2018	Q.35	Unglesbee, When Drift Hits Home	ER 0727
7/19/2018	O.24	Bradley, K. 2018. July 15 dicamba injury update. Different year, same questions. University of Missouri Integrated Pest Management	ER 0732
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10/10/2017	K.36	E-mail from J. Green to R. Baris re: FW: New Dicamba non-crop complaints	ER 0952
10/9/2017	K.52	E-mail from P. Perry to M. Knorr re: Implementation Terms and Conditions	ER 0953
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8/31/2017	K.79	E-mail from TJ Wyatt to J. Becker and to other EPA staff forwarding Washington Post article on Dicamba	ER 1060
8/29/2017	Q.45	Horstmeier, Dicamba's PTFE Problem	ER 1066
8/29/2017	K.51	Ten articles on Dicamba sent as a Google Alert to R. Baris	ER 1068
8/28/2017	P.1186	Illinois Fertilizer & Chemical Association 2017 survey results	ER 1073
8/23/2017	K.101	Notes from EPA meeting with various state officials mentioned in Doc. 91 of the Supplemental Material	ER 1093
8/22/2017	K.38	Email from J. Green to D. Kenny re: FW: Off-target Movement of Dicamba in MO. Where Do We Go From Here?	ER 1096
8/22/2017	K.31	Email from J. Green to D. Kenny (EPA) re: FW: Letter to Topeka paper	ER 1101
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7/28/2017	K.66	Email from R. Baris to D. Rosenblatt re: EPA notes taken during dicamba teleconference with state extension representatives	ER 1148
7/12/2017	K.5	E-mail from D. Kenny (EPA) to state representatives regarding EPA Dicamba Meeting with States	ER 1152
5/4/2017	Q.34	News.utcrops.com, Recent Midsouth Studies Show Dicamba not Very Effective on some Populations of Glyphosate/PPO-Resistant Palmer Amaranth.	ER 1155
5/2017	Q.47	Hagny, DICAMBA & PALMER PIGWEEDS	ER 1157
3/10/2017	Q.38	Bennett, First Signs of Dicamba Resistance?	ER 1160

11/8/2016	A.674	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Refined Endangered Species Risk Assessments for New Uses on Herbicide-Tolerant Cotton and Soybean in 34 U.S. States....to Account for Listed Species not included in the Original Refined Endangered Species Risk Assessments.	ER 1167
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6/10/2016	A.581	Comment submitted by S. Smith for Save Our Crops Coalition,	ER 1307
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2016	E.527	Reiss, R.; Sarraino, S. (2016) Downwind Air Concentration Estimates for Dicamba Formulation #2 (MON 119096). Project Number: 1505538000/1236, WBE/2015/0221, WBE/2015/0311. Unpublished study prepared by Exponent	ER 2085

Registration Decision for the Continuation of Uses of Dicamba on Dicamba Tolerant Cotton and Soybean

Approved by: _____

Michael Goodis, Director
Registration Division
Office of Pesticide Programs

October 31, 2018

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I. Summary

This document announces that the U.S. Environmental Protection Agency (the EPA or the Agency) will be granting requests by Bayer CropScience (formerly Monsanto Company), Corteva (formerly DuPont), and BASF to amend their existing conditional registrations that contain expiration dates of November 9, 2018, and December 20, 2018, respectively. The existing registrations are for pesticide products containing the herbicide dicamba for use on cotton and soybeans that have been genetically modified to be tolerant to dicamba in the following states: Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and Wisconsin. Three registrations, EPA Registration Number 352-913, 524-617, and 7969-345, are impacted by this decision. The amendment applications include requests that the expiration dates be extended to December 20, 2020 along with requests to amend the terms and conditions of the registration as well as labeling restrictions to further minimize the potential for off-site movement of dicamba from the treated fields. As of the publication of this decision document, EPA has reviewed these applications as well as new information and data, and has decided to extend these registrations until December 20, 2020 adding changes to the registrations and labeling.

EPA first registered dicamba for applications post-emergent over-the-top (OTT) for soybean and cotton in 2016, as described in the document *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean* (available on regulations.gov, document ID: EPA-HQ-OPP-2016-0187-0959). EPA Registration Number 524-617 (M1768 Herbicide) was the only registration included in the 2016 decision; two additional OTT dicamba use registrations were approved after the publication of the 2016 decision (EPA Registration Numbers 352-913 and 7969-345). The restrictions for all OTT registrations of dicamba were amended in 2017 to include labeling restrictions to further minimize the potential for off-site movement of dicamba. The approved amendments in 2017 continued to include the 2018 automatic expiration dates. These registrations would have automatically expired, unless EPA acted to extend these dates on all three registrations for the use of dicamba for OTT applications to dicamba-tolerant soybean and dicamba-tolerant cotton. As noted above, as of the publication of this decision document, OTT registrations of dicamba are being extended by approximately two years.

During 2016-2018, EPA received numerous reports of crop injury alleged to be related to off-target movement of dicamba. EPA's examination of this issue included collaborating with a wide range of stakeholders. As part of this effort, EPA also made field visits to Arkansas, Iowa, Nebraska, Georgia, Mississippi, Missouri, and Tennessee to meet with growers, researchers, and state regulators. After considering all of this information, EPA and the registrants have agreed to additional label changes intended to further minimize the potential for off-site movement from the use of these registered products. Further details regarding the Agency's registration extension decision, required label updates, and the rationale for those mitigation measures can be found in this decision document.

II. Chemical Information

This registration decision refers to all current dicamba registrations for OTT uses on dicamba-tolerant soybean and dicamba-tolerant cotton. This includes three pesticide products (EPA Registration Numbers 352-913, 524-617, and 7969-345), as described below.

Chemical Names:
The three pesticide products covered by this decision contain a total of two forms of dicamba, as seen in Table 1 below:

Table 1. Chemical Name Identification for Dicamba

Chemical Name	Alternate Chemical Name	Common Name	Chemical Abstract Service (CAS) Number
Dicamba (benzoic acid, 3,6-dichloro-2-methoxy-, aka 3,6-dichloro-*o*-anisic acid)	Diglycolamine salt of dicamba (3,6-dichloro-o-anisic acid)	Dicamba DGA salt	104040-79-1
Dicamba: N,N-Bis-(3-aminopropyl) methylamine salt of 3,6-dichloro-o-anisic acid	None	Dicamba BAPMA salt	1286239-22-2

Mode of Action: Dicamba is in the Benzoic Acid family that is used post-emergence for selective control of broadleaf weeds. Like the phenoxy herbicides, dicamba mimics auxins, a type of plant hormone and causes abnormal cell growth by affecting cell division.

Registrants: BASF; Bayer CropScience (formerly Monsanto Company); and Corteva Agriscience (formerly E.I. du Pont de Nemours & Company, aka DuPont)

Product Numbers:

1. EPA Reg. #352-913: FeXapan herbicide Plus VaporGrip Technology
2. EPA Reg. #524-617: M1768 Herbicide (Xtendimax with VaporGrip Technology)
3. EPA Reg. #7969-345: Engenia Herbicide

Summary of Product Information:
The information from this chemical information section is summarized in Table 2 below:

Table 2. Master Table of Dicamba Products Registered for OTT Use

EPA Reg. #	Product Name	Registrant	Form of Dicamba
352-913	FeXapan herbicide Plus VaporGrip Technology	Corteva	DGA salt
524-617	M1768 Herbicide (Xtendimax with VaporGrip Technology)	Bayer	DGA salt

7969-345	Engenia Herbicide	BASF	BAPMA salt

III. Background

In January 2015, under the Plant Protection Act, the United States Department of Agriculture (USDA) deregulated the genetically modified dicamba-tolerant cotton and dicamba-tolerant soybean seeds. This seed was sold commercially in late 2015 and 2016 prior to the pesticide product registration. In late 2016, following a public comment period,[1] EPA registered dicamba for use with the dicamba-tolerant trait in soybean and cotton (see *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean*, on regulations.gov as EPA-HQ-OPP-2016-0187-0959). These registrations were time-limited with an automatic expiration date of either November 9 or December 20, 2018, depending on the registration, unless EPA granted an extension of this time limitation (EPA Reg. #352-913, 524-617, and 7969-345).

Prior to the 2016 registration actions for dicamba, dicamba uses on soybeans and cotton was limited to use on preplant and preharvest soybeans and on preplant and postharvest cotton. The new uses registered in 2016 under FIFRA section 3(c)(7)(B) expanded the current timing of dicamba applications to post-emergence OTT applications to dicamba-tolerant cotton and dicamba-tolerant soybean crops. Registrations for the OTT uses were granted only for the three formulations discussed in this document because the agency has data to show that these formulations demonstrate lower volatility when compared to other dicamba formulations. It is important to note that using registered dicamba products on dicamba-tolerant cotton or dicamba-tolerant soybean crops that are not registered specifically for post-emergence use on dicamba-tolerant cotton or dicamba-tolerant soybean crops is inconsistent with the pesticide's labeling and a violation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

2017 crop injury and label updates for the 2018 season: In 2016, EPA began receiving reports of crop injury alleged to be caused by off-target movement from the use of dicamba on dicamba-tolerant cotton and soybeans. Because the registrations for OTT use had not yet been issued, these incidents were related to illegal use of previously registered dicamba pesticide products. In 2017, over 2,700 official cases of crop damage were reported to state departments of agriculture, estimated to be over 3.6 million acres of soybeans.[2] There is a lack of scientific consensus regarding the cause of these reported incidents. Input from state agencies, farm bureaus, associations, industry, farmers, and non-governmental organizations indicate that causes could include poor adherence to the label (*e.g.*, not following the label or use of an older more volatile formulation), physical drift, tank contamination, temperature inversions, and/or volatility. In response, the EPA worked with the pesticide registrants to strengthen the pesticide label application directions for the 2018 season to further minimize the potential for off-target movement.

[1] FIFRA does not require a public comment opportunity for any proposed decision to register a pesticide. EPA took public comment on its proposed dicamba decision under its public participation policy (see: https://www.epa.gov/pesticide-registration/public-participation-process-registration-actions). The action taken under this decision document did not include a public comment opportunity, but EPA did receive over 120 comments from stakeholders and EPA considered the content of these submissions.

[2] *Dr. Kevin Bradley Univ. of Missouri, IPM,* https://ipm.missouri.edu/IPCM/2017/10/final_report_dicamba_injured_soybean/

2018 incidents of crop injury: Information for the 2018 growing season provided by state agencies and others also included reports of crop injury alleged to be related to off-site movement of dicamba. All three registrants also submitted adverse effects aggregated reports to EPA as required by FIFRA section 6(a)(2). The Association of American Pesticide Control Officials (AAPCO) reported that approximately 1,400 official complaints of alleged dicamba injury were reported to the state regulatory authorities. Of the 34 states where OTT dicamba use is registered, only 16 states consistently reported incident information to AAPCO and EPA. Damage alleged to be related to OTT dicamba applications was reported not only for non-tolerant soybeans but also for neighboring trees, orchards, vineyards, berries, orchards, melons, tomatoes and other vegetable crops. As to reporting of crop injury in general, AAPCO, university researchers, and some growers believe that these complaints alleged of crop damage tend to be underreported. These reasons include: fear of losing crop insurance; a desire to maintain good relationships with neighbors; fear that a damaged crop will be considered adulterated and cannot be sold; fear that the grower will lose their organic certification; and grower perception that no action will be taken in response to filing a report.[3] Others believe that there may be issues of overreporting. These reasons include: damage blamed on dicamba but actually caused by other chemistries; and damage reports given in terms of acreage that reflects the size of an entire crop field and not just the portion of the crop field that is actually damaged.[4]

IV. Stakeholder Feedback

EPA did not provide a formal public comment period prior to the current decision, but did receive a variety of comments from the public in the form of calls, emails, and letters concerning the registered uses for dicamba OTT on dicamba-tolerant cotton and soybeans. The feedback EPA received included comments both in favor of and opposed to the continued registration of dicamba OTT uses on dicamba-tolerant cotton and soybeans.

Included in these comments was correspondence from a variety of stakeholders seeking to share their experience with dicamba, including state agencies (nine commenters), farm bureaus (five commenters), trade associations and coalitions (42 commenters), industry (62 commenters, including farmers, seed companies, crop consultants, *etc*.), non-governmental organizations (888 commenters, including 9 organizations and 879 signatures included as part of a mass comment campaign), one written comment from academia, and five comments from individual concerned citizens. These correspondences can be found on regulations.gov (Docket ID: EPA-HQ-OPP-2016-0187). The information provided allowed the agency to consider different viewpoints from their unique perspectives, and EPA reviewed this feedback prior to issuing this regulatory decision.

Some of the topics that emerged from stakeholder comments and calls, in no particular order, included the following:

General Comments in favor of OTT registrations of dicamba:

[3] Ford Baldwin, Practical Weed Consultants, LLC, Letter dated 2018

[4] Monsanto. 2018a. The Scientific Basis for Understanding the Off-Target Movement Potential of Xtendimax, MRID 50642701, received 3 Aug 2018.

- Requests to extend the registrations but add additional label restrictions in order to decrease the potential for damage from off-target movement.
- Requests to keep the labels as is with no additional restrictions, due to concern that additional label restrictions for dicamba would increase the regulatory burden for growers.
- Growers are experiencing challenges with weed resistance to other herbicides.
- Growers have experienced success using dicamba OTT technology in cotton and soybeans to control weeds with very little off-target movement
- Concerns regarding potential crop losses if the decision is made to not continue the registration.
- Claims that mandatory training has been helpful and enable users to follow the existing label with limited incidents of off-target movement.
- An assertion that with proper stewardship, application training, and education, damage from off-target movement of dicamba can be minimized.
- Claims that using a dicamba OTT herbicide system can result in increased yields for growers.

General Comments expressing concerns and/or opposition to OTT registrations of dicamba:

- Requests to let dicamba OTT registrations of dicamba expire, based on the argument that although dicamba works well on resistant weeds, the extensive reports of past damage and potential for future damage from off-target movement is too great to justify continuing the registrations.
- Other pesticide options are successful at controlling resistant weeds when used properly.
- Claims regarding the limits of training in limiting off-target movement of dicamba.
- Claims that using a dicamba OTT herbicide system does not result in increased yields for growers.
- Concern that dicamba OTT uses pose a threat to farms growing various non-dicamba-tolerant crops, and native flora and fauna.
- Some soybean growers report feeling pressured to purchase dicamba-tolerant seed as a protective measure to avoid dicamba off-target movement from their neighbors.
- They believe that damage from dicamba threatens farmers' right to grow crops of their choosing, such as specialty and organic crops.
- Concern that off-target movement of dicamba from OTT uses is responsible for injuring native habitats, forests, aquatic systems, flora, and fauna.
- Two poultry farms stated that reported dicamba damage to non-dicamba-tolerant soybeans was making it difficult for livestock operations to source non-GMO feed.

V. Risk Assessments

A. Human Health

The potential for human health risks from pesticide uses of dicamba was assessed in EPA's March 2016 document *Dicamba and Dicamba BAPMA Salt: Human- Health Risk Assessment for Proposed Section 3 New Uses on Dicamba-tolerant Cotton and Soybean* (available on regulations.gov, document ID: EPA-HQ-OPP-2016-0187-0009). This document was cited in the Agency's 2016 *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean* (available on regulations.gov, document ID: EPA-HQ-OPP-2016-0187-0959). As noted in these

documents, the toxicology database for dicamba is complete and sufficient for assessing the toxicity and characterizing the hazard of dicamba.

The Agency's human health risk conclusions for dicamba remain unchanged since the publication of the 2016 registration decision document for OTT uses on dicamba-tolerant cotton and soybean. The Agency has not identified a reason to update its 2016 health risk assessment for dicamba, and is, therefore, relying the findings in that 2016 assessment to support this decision. Because no human health risks of concern have been identified, the Agency is not proposing new human-health focused mitigation measures as part of this decision.

B. Ecological

A summary of the environmental fate and ecological effects, and potential environmental risks from the use of dicamba on dicamba-tolerant cotton and soybeans was previously provided in EPA's 2016 *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean* (available on regulations.gov, document ID: EPA-HQ-OPP-2016-0187-0959).

Additional ecological risk assessment information on dicamba can be found in the following Agency documents:

- *Ecological Risk Assessment for Dicamba and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed New Use on Dicamba-Tolerant Soybean (MON87708)* and
- *Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 87701)*, and its addendums entitled,
- *Addendum to the Environmental Fate and Ecological Risk Assessment for the Section 3 New Use of Dicamba on Dicamba-Tolerant Soybean* and
- *Dicamba DGA; Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean* and
- *M-1691 Herbicide, EPA Reg. No. 524-582 (Active Ingredient: Dicamba Diglycolamine Salt) and M-1768 herbicide, EPA Reg. No. 524-617 (AI: Diglycolamine Salt with VaporGrip™) – Review of EFED Actions and Recent Data Submissions Associated with Spray and Vapor Drift of the Proposed Section 3 New Uses on Dicamba-Tolerant Soybean and Cotton*.
- *Summary of New Information on Analysis of Dicamba Use on Dicamba-Tolerant (DT) Cotton and Soybean Including Updated Effects Determinations for Federally Listed Threatened and Endangered Species*

These documents are in docket number EPA-HQ-OPP-2016-0187, available at regulation.gov.

EPA's 2016 registration action included a screening-level risk assessment for the use of diglycolamine salt of dicamba (dicamba DGA) on dicamba herbicide-tolerant cotton and an addendum to the 2011 Section 3 screening-level Risk Assessment for the use of dicamba DGA on dicamba herbicide-tolerant soybeans. Concurrent with these two actions, the agency issued three addenda to the risk assessments that refined the screening-level risk assessments to include species-specific assessments for threatened and endangered (hereafter referred to as "listed") species present within the 34 states included in the Section 3 registrations on dicamba-tolerant crops (Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Iowa,

Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia and Wisconsin).

The screening-level risk assessments concluded that potential direct risk concerns could not be excluded for:

- mammals (chronic, from the soybean use only, due to residues from dicamba's metabolite, DCSA, rather than from parent dicamba);
- birds (acute from parent dicamba for both soybean and cotton uses; chronic from DCSA residues only in soybean but not in cotton), considered surrogates for reptiles, and terrestrial-phase amphibians; and
- terrestrial plants (soybean and cotton uses)

In the screening-level risk assessments, indirect effect risk concerns for all taxa were possible for any species that have dependencies (e.g., food, shelter, and habitat) on mammals, birds, reptiles, terrestrial-phase amphibians, or terrestrial plants.

Additionally, the screening-level assessment showed that direct risk levels of concern were not exceeded for:

- mammals (acute) and (chronic—for the cotton use only);
- birds, reptiles, and terrestrial-phase amphibians (chronic from parent dicamba or DCSA degradate from use on cotton);
- terrestrial insects (acute and chronic);
- freshwater fish (acute and chronic);
- aquatic-phase amphibians (acute and chronic);
- estuarine/marine fish (acute and chronic);
- freshwater invertebrates (acute and chronic); estuarine/marine invertebrates (acute and chronic); and
- aquatic plants (except for non-vascular plants, for which there are no listed species)

In the screening-level cotton risk assessment and soybean addendum as part of the earlier public comment process, the agency concluded that mitigation measures, including the use of rainfast mitigation to limit runoff exposure, limiting nozzles to those that restrict droplet spectra to extra-coarse and ultra-coarse, restricting applications under certain wind conditions (*i.e.* only apply when wind speeds are between 3 and 15 mph), and the use of a 110-foot buffer (for a 0.5 lb a.i./A application) in the direction of wind to account for spray drift and applying that buffer in every direction to account for potential volatilization (a discussion of the updates to this assessment is provided below), would limit any exposures beyond the treated field to levels below thresholds that would trigger any risk concerns for any taxa. These assessments concluded that by applying the rainfast mitigation and utilizing the spray drift and volatility buffer as setbacks from the edge of the field ("in-field buffers"), exposures that could potentially trigger risk concerns would be limited to the treated field. With these labeling restrictions, EPA determined that the vast majority of listed species would be off-field and therefore would not be part of the action area and consequently reached a No Effect decision for those species. Species that were potentially on the treated field or utilizing resources from the treated field and for

which the screening-level risk assessment indicated concerns for that taxa underwent further refinement to determine the potential for risk.

Subsequent to the screening level risk assessments and refined endangered species addenda, EPA issued several additional addenda including the evaluation of field volatility (flux) studies for DGA formulations, bridging data and volatility analysis for dicamba BAPMA salt and an additional refined endangered species addendum that covered listed species that were newly listed between the Section 3 registrations of dicamba DGA salt on dicamba-tolerant soybeans and cotton and the Section 3 registration of dicamba BAPMA salt. The evaluation of the flux studies for DGA and the volatility analysis for both DGA and BAPMA concluded that volatility buffer setbacks were not needed to limit exposures off the field to below the threshold level.

By limiting the action area to the treated field, the refined endangered species addenda concluded that all but 27 listed species were outside of the action area. Overall, of the remaining 27 species, one likely to adversely affect (LAA) determination was made, two not likely to adversely affect (NLAA) determinations were made, and no effect (NE) determinations were made for the remaining species. For one species, EPA consulted with U.S. Fish and Wildlife Service and they concurred with the NLAA Effects Determination, and no further action was needed for that species. For the remaining species, county prohibitions restricting use in areas where the species were known to be present addressed the other NLAA and LAA determinations. Therefore, these species were no longer inside the action area of the dicamba OTT uses on cotton and soybean.

However, since the 2016 registration of dicamba OTT uses on cotton and soybean, reports of alleged plant injury in 2017 and 2018 of dicamba off-target movement (either from physical drift, volatility, or a combination thereof) have led EPA to conduct an updated analysis of information regarding the potential impact of dicamba OTT uses on soybean and cotton on listed (threatened or endangered) species. An overview of these new reports of off-target movement, as well as updated information on potential endangered species concerns from the use of dicamba OTT registrations, appears in the following sections of this decision document.

1. Dicamba Use During 2017 and 2018

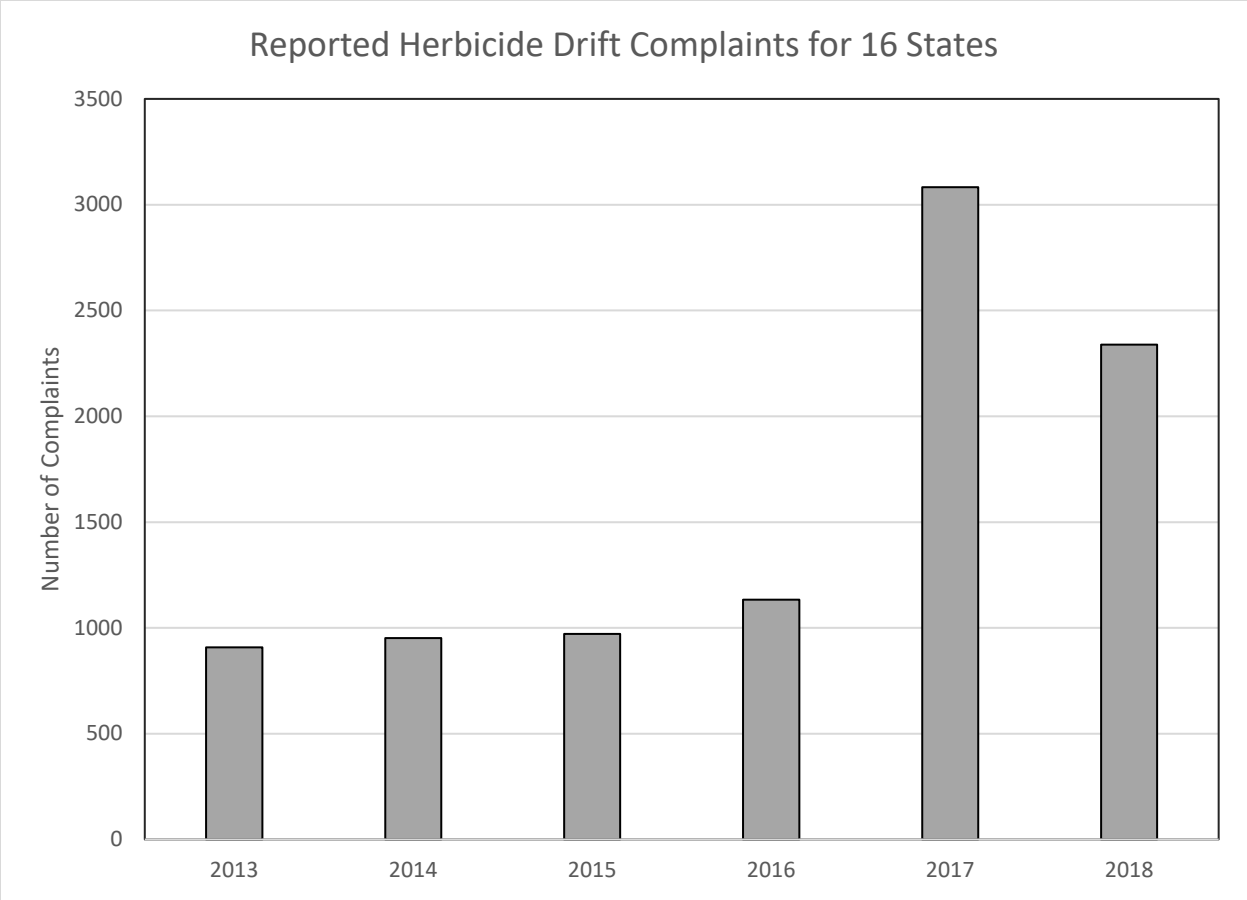
Following the registration of dicamba OTT uses, incident reports received in 2017 and 2018 suggest that damage from off-site movement attributed to dicamba has occurred. According to AAPCO, approximately 1,400 official complaints have been reported to state agencies claiming that crop injury was caused by off-site movement of dicamba in 2018. These incidents may be due to misuse (e.g., not following the label or use of an older more volatile formulation), drift to adjacent crops or sites, tank contamination (e.g., dicamba was not completely removed from the spray equipment and is sprayed on the next field at a lower concentration), or volatility (the dicamba was applied and then moved off the treated area after the application process was completed). Some pesticide products containing earlier formulations of dicamba have been known to be volatile (e.g., losing nearly half of the applied material due to volatility (Burnside et. al., 1966)). Newer formulations of dicamba, such as the products being addressed in this decision approved for OTT uses, show significantly lower volatility.

After the registration of OTT uses of dicamba, reported cases of agricultural pesticide off-target movement rose substantially after 2016 in many states where OTT dicamba was registered for

use (Figure 1). A large proportion of cases of off-site movement reported to state departments of agriculture were attributed to off-site movement of OTT applications of dicamba to dicamba-resistant crops. Alleged damage reported to state agencies included impacts to natural areas and numerous crops such as non-tolerant soybean, non-tolerant cotton, tobacco, alfalfa, vegetables, peaches, ornamentals and residential areas. In soybean alone, millions of acres were alleged to be damaged in both years since the registration of OTT dicamba products (Bradley 2017c, 2018). In addition, the Agency is aware of literature and investigations indicating that exposure to dicamba can have effects on soybean offspring from plants exposed to dicamba, such as reductions in vigor and health (Thompson and Egli, 1973; McCorn et al., 2016). These cross generational effects may impact breeding programs and occur in other crops, as well. According to the AAPCO, university researchers, and some growers, the number of cases reported to state agencies may be substantially lower than the actual incidents (WSSA Survey, 2018; AAPCO Pers. Comm. August 13, 2018) observed in the field for several reasons. These reasons include: fear of losing crop insurance; maintaining good relationships with neighbors; fear that the crop will be considered adulterated and cannot be sold; fear that the grower will lose their organic certification; and grower perception that no action will be taken. Others believe that there may be issues of overreporting. These reasons include: damage blamed on dicamba but actually caused by other chemistries; and damage reports given in terms of acreage that reflects the size of an entire crop field and not just the portion of the crop field that is actually damaged.[5]

Figure 1. Agricultural Herbicide Drift Complaints for Sixteen States

[5] Monsanto. 2018a. The Scientific Basis for Understanding the Off-Target Movement Potential of Xtendimax, MRID 50642701, received 3 Aug 2018.



Majority of states reported total agricultural herbicide drift complaints. States included in this figure are: AL, AR, AZ, IA, IL, IN, ND, MO, OK, GA, SC, MS, NC, NE, TN, and SD. Incidents occurred in other states for these years but data were incomplete for every year and were not included. Dicamba is registered for OTT use in 34 states. Data are current as of September 2018.
Sources: AAPCO 2018; Missouri Dept. of Agriculture, 2018

2. Summary of Effects Determination for Endangered Species

New information that is now available appear to show that dicamba emission (through spray drift, volatility, or a combination) from the use of these registrations on dicamba-tolerant cotton and dicamba-tolerant soybean fields has resulted in effects to non-target terrestrial plants offsite from the treated fields. This new information demonstrated the need to reevaluate the 2016 Endangered Species Act (ESA) effects determinations involving Federally listed threatened or endangered terrestrial plants for any new regulatory decision involving the use of these registrations on dicamba-tolerant cotton and dicamba-tolerant soybean fields.

EPA evaluated new data, including field volatility and vapor exposure toxicity studies submitted by the registrants and large field studies conducted by academic researchers. Additionally, much of the incident and some of the field study data described effects solely in terms of visual signs of damage, rather than effects to apical endpoints such as plant height and yield, EPA considered open literature data relating visual signs of damage to these apical endpoints.

EPA concluded that the new information supported the need for an additional in-field 57 foot omnidirectional buffer in areas where listed dicot plant species are present to support the previous No Effect calls. This buffer determination was based on a distributional approach combining the direct effects (based on the most sensitive endpoint of plant height) to distance data for all the available field studies. Accounting for the small number of studies and limited geographic distribution, EPA decided to evaluate the distribution of the direct measurement approach distances at the 95%-tile to calculate a reasonable and protective distance to the 5% apical effects threshold.

EPA established the geographic extent of the potential action area using the for expected terrestrial plant effects into Use Data Layers (UDL) for all of the 34 labeled states for dicamba uses on dicamba-tolerant cotton and dicamba-tolerant soybean. The UDL data layer was extended outwards 30 meters in all directions to incorporate the off-site distance of 57 foot or a minimum resolution distance for species action area overlap, whichever is greater. This area was then compared with the geographic area for the known listed terrestrial plant species ranges and all counties with a species with greater than 1% overlap with the action area in the county were established as within the action area and identified as "may affect."

Of the 69 listed species co-located with the action area described as treated cotton and soybean fields with an additional omnidirectional 30 meter boundary;

1. 69 species would be may-affect with no additional mitigation,
2. 1 species (the spring creek bladderpod) would be May Affect and 68 species would be No Effect with the imposition of a 57 foot omnidirectional in-field buffer and
3. all 69 species would be No Effects with the imposition of the 57 foot buffer and the continued labeled county prohibition for Wilson County, Tennessee (for the endemic spring creek bladderpod)

Of the 14 designated critical habitats co-located with the action area described as treated cotton and soybean fields with an additional omnidirectional 30 meter boundary;

1. 12 critical habitats would be "Modification" with no additional mitigation and 2 critical habitats would be "No Modification" by virtue of not having primary constituent elements related to non-monocot plant species
2. 14 critical habitats would be "No Modification" with the imposition of a 57 foot omnidirectional in-field buffer

These effects determinations, critical habitat modifications, and mitigation measures have considered the uncertainties in the analysis as noted throughout the document. These included, but are not limited to interpreting the incident data (largely due to the nature of incident observations being limited to visual signs of injury), field study limitations (*e.g.* varying environmental conditions in field studies, nature of subjectivity in estimates of visual symptoms of injury between different observers, etc.), and geospatial analysis (*e.g.* species are presumed to be distributed throughout their range at all times of the year).

VI. Benefits and Impacts Assessments

A. Benefits of the Registration of Dicamba OTT Uses Cotton and Soybeans

In accordance with FIFRA, EPA must consider both risks and benefits when considering the registration of a given pesticide. A summary of the benefits of dicamba OTT uses on cotton and soybeans appears in this section. To see EPA's current assessment of the benefits and impacts of OTT uses of dicamba, as updated since 2016, please refer to *Over-the-Top Dicamba Products for Genetically Modified Cotton and Soybeans: Benefits and Impacts (October 31, 2018)*.

As noted in the 2016 *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean* (available on regulations.gov, document ID: EPA-HQ-OPP-2016-0187-0959), cotton and soybeans are extremely important agricultural commodities. USDA estimates the gross value of soybean production at approximately 48 billion dollars in the United States, and the gross value of cotton production at over 6 billion dollars in the United States.[6] However, growers throughout the United States have experienced, and continue to face, crop yield and economic losses due to the prevalence of chemical-resistant weed biotypes (e.g., glyphosate resistance). There is a need in the agricultural community for additional tools to manage resistant weeds. Herbicide resistance has become a significant financial, production and pest management issue for many cotton and soybean growers, and agriculture as an industry.

Historically, most dicamba applications occurred in late winter or early spring for pre-plant or fallow removal of broadleaf vegetation prior to planting crops. Prior to the registration of OTT dicamba on soybeans and cotton, about 35 million acres of agricultural land were treated annually with 6 million pounds of dicamba (5-yr average; MRD 2012-2016). Field corn and winter and spring wheat were the agricultural use sites with the largest number of acres treated with dicamba with an average of 19.8 million total acres treated [TAT] per year (MRD, 2012-2016). Other use sites with substantial use from 2012-2016 include cotton, fallow land, pasture land, sorghum, and soybeans (pre-plant only).

The agency finds that the registration of OTT dicamba will provide growers of dicamba-tolerant soybean and cotton with an additional active ingredient to manage difficult to control broadleaf weeds during the crop growing season. In cases where there are herbicide-resistant weeds, the agency finds there are few herbicides available for users.

OTT dicamba product labels list preemergence and postemergence control of weeds such as Palmer amaranth. Palmer amaranth was selected as a case study because it has several characteristics that have led to Palmer amaranth being one of the most difficult weeds to control in the United States (Van Wychen, 2016a) and is a primary target weed by dicamba (MRD, 2012-2016). The agency recognizes that preemergence (residual soil activity) and postemergence (foliar activity) herbicides are an important component of a season-long weed management program. Preemergence herbicides (to the weed) prevent the emergence of Palmer amaranth, and if there are no emerged Palmer amaranth plants, there is no need for postemergence (to the weed) applications. However, there are circumstances where postemergence herbicides are important. For example, postemergence herbicides (to the crop and weed) may be needed if preemergence herbicides are not effective (e.g., insufficient moisture to activate, too much rainfall which moves

[6] These numbers represent data for 2016. These gross value of production values were first reported in EPA's 2016 assessment for dicamba, *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean*, and remain the most recent data currently available as of October 2018.

herbicide away from weed seeds, and resistant biotypes) or if there are Palmer amaranth plants that escaped earlier control measures and need to be controlled.

OTT uses of dicamba expand growers' options for broadleaf weed control in cotton and soybeans, including glyphosate-resistant weeds, but are not the only available tool. Pesticide usage data indicate 9 postemergence herbicides (to the crop and weed, including directed sprays or applications with hooded sprayers) were used in 2012-2016 in cotton and 14 herbicides in soybean targeting all broadleaf weeds. Of these postemergence herbicides, 4 and 13 active ingredients were applied over-the-top without injuring the cotton and soybean, respectively. Based on pesticide usage data from 2012 to 2016, glufosinate was an herbicide that was commonly applied, but there were other options (acifluorfen, cloransulam-methyl, imazamox, and fluthiacet-methyl) recommended in at least one of the extension weed control guides reviewed for control of Palmer amaranth (U of Ark, 2018, Steckel, 2018; Sprague, 2017). For both soybean and cotton, there is one other herbicide, 2,4-D, that provides similar control as dicamba when using a 2,4-D-resistant variety. Of the 13 OTT soybean herbicides, 3 are not recommended by extension publications; one was recommended as a tank mix partner only (U of Ark, 2018, Steckel, 2018; Sprague, 2017; Flessner et al., 2016; Jhala, 2014), effectively leaving 9 OTT herbicides for soybean weed control. Over-the-top alternatives are further reduced if a grower has herbicide-resistant biotypes such as Palmer amaranth.

Resistance Management

The agency recognizes the use of dicamba, when used as part of a season-long weed management program that includes preemergence (residual) and postemergence (foliar) herbicides, provides a long-term benefit as a tool to delay resistance of other herbicides. Fifty years of dicamba use, in rotation with other herbicides, has resulted in only two confirmed resistant weed species in the United States, kochia and prickly lettuce (Heap, 2018). However, with the development of dicamba-tolerant crops, the widespread use and multiple in-season applications will increase selection pressure on weeds to evolve resistance to dicamba.

However, dicamba used on dicamba-tolerant crops is not a stand-alone herbicide program even though the label states it has preemergence (soil residual) and postemergence (foliar) activity; other herbicides, especially preemergence herbicides, should be used as registrants and university researchers recommend (University of Arkansas, 2018; Steckel, 2018; Flessner et al., 2016; Sprague, 2017; Jhala, 2014, Mississippi State University, 2017; Marshall, 2017; McGinty, 2016; EPA Reg. Nos. 524-617 [Xtendimax]; 524-617 [Engenia]; and 352-913 [Fexapan]).

Because of the complexities involved with controlling multiple weeds (Xtendimax has over 250 weeds labeled for control), the agency considered one of the more difficult-to-control weeds in cotton and soybean, Palmer amaranth (Van Wychen, 2016a and 2016b). Palmer amaranth is native to the U.S. and occurs in 28 states (Hensleigh and Pokorny, 2017), and there are over 50 Palmer amaranth biotypes with resistance to at least one herbicide within 6 MOA groups in the U.S. (Heap, 2018). Additionally, more than 15 of the biotypes exhibit multiple herbicide resistance with up to three different herbicides within three different MOA (Heap, 2018). The agency assumes that Palmer amaranth serves as surrogate for other difficult to control broadleaf weeds.

For this benefits analysis, the baseline is the pre-2016 status of dicamba (i.e., when OTT uses were not registered for dicamba-tolerant soybean and dicamba-tolerant cotton). When comparing the baseline against an amended registration in which OTT uses are available for dicamba-tolerant cotton and soybean, the agency finds the following overall benefits for OTT dicamba:

- It provides growers with an additional postemergence active ingredient to manage difficult to control broadleaf weeds during the crop growing season, particularly for those situations where herbicide-resistant biotypes, such as Palmer amaranth, may occur (and few alternatives are available).
- It provides a long-term benefit as a tool to delay resistance of other herbicides when used as part of a season-long weed management program that includes preemergence (residual) and postemergence (foliar) herbicides (along with rotations between different MOA).

Additionally, as in the case of other genetically modified herbicide resistant varieties (i.e., glyphosate, glufosinate, and 2,4-D), the use of the OTT herbicide partner may reduce the management complexity associated with pre-selecting an effective postemergence herbicide with little to no risk of damage to the treated crop.

B. Impacts Assessment

Impacts to non-dicamba tolerant soybean growers. Monsanto (now Bayer) predicted that 40 million acres of dicamba-tolerant soybeans would be planted in 2018 (Monsanto, 2018b). USDA (2018c) reported that 89.6 million acres of soybeans were expected to be planted in 2018. This implies that 49.6 million acres (55 percent) of the 2018 U.S. soybean crop is non-dicamba-tolerant and may potentially be damaged by very low levels of off-target dicamba. Exposure can result in damage levels that range from superficial visual symptomology to possible yield loss to plant death.

Impacts to growers of other dicamba sensitive crops. Many other plants are sensitive to low levels of dicamba and are listed on the dicamba labels. The OTT dicamba labels mention several hundred susceptible (e.g., sensitive) crops /crop groups, such as non-dicamba-tolerant soybeans and cotton, all fruiting vegetables, all fruit trees, all cucurbits, grapes, beans, flowers and ornamentals, peas, potatoes, sunflower, tobacco and other broadleaf plants. Labels also list about 250 weeds – annual and perennial broadleaf plants and trees – that are controlled, some of which are desirable in non-crop settings.

Impacts to the landscape. In 2017 and 2018, state agencies received reports from growers about incidents alleging damage to trees and other non-crop plants (Bradley, 2017c, 2018; AAPCO 2018a). Potential impacts could result in damage to shelterbelts and windbreaks, as well as desirable plants in public parks and spaces.

VII. Registration Decision

In accordance with FIFRA section 3(c)(7)(B), the EPA conditionally amends a registration to add an additional use when it finds that it has satisfactory data pertaining to the proposed new use and the amendment will not significantly increase the risk of unreasonable adverse effects on man or the environment, taking into account the economic, social, and environmental costs and

benefits of the use of the pesticide. Under FIFRA, the EPA is charged with balancing the uncertainties and risks posed by a pesticide against the benefits associated with the use of the pesticide. The EPA must determine if the benefits, in light of its use, outweigh the risks in order for the Agency to register a pesticide.

While OTT use of dicamba on dicamba-resistant cotton and soybeans is currently a registered use, that use will expire before the end of 2018 unless these amendment requests are granted. Therefore, EPA believes it appropriate to consider the extension of these uses as a "new use" under section 3(c)(7)(B), and is taking this action under that section. But the risk-benefit related rationale for this decision would apply equally to an action under sections 3(c)(5) or 3(c)(7)(A). Based on all the information before it at this time, EPA has determined that extending the OTT use of dicamba for two years on dicamba-tolerant cotton and dicamba-tolerant soybeans in the manner authorized under this decision will not cause unreasonable adverse effects on the environment. The amendment would therefore meet the risk-benefit standard of section 3(c)(5). The risk-benefit standard for a conditional registration under 3(c)(7)(A) is that the registration not "significantly increase the risk of unreasonable adverse effects on the environment." EPA has always considered the standard under 3(c)(7)(A) and 3(c)(7)(B) to be less onerous than the risk-benefit standard in 3(c)(5); if the agency has determined that a pesticide does not cause unreasonable adverse effects on the environment, that pesticide cannot ***significantly increase*** the risks of unreasonable adverse effects on the environment.

In the case for the post-emergent uses of dicamba on dicamba-tolerant soybeans and dicamba-tolerant cotton, the EPA determined that its decision to extend the registration these uses meets the requirements of FIFRA. The database submitted to support the assessment of human health risk is sufficient for a full risk evaluation and is considered complete and adequate to evaluate risks to infants and children. The Agency has not identified any risks of concern in regard to human health, including all population subgroups, or for occupational handlers.

In 2016, EPA completed screening-level ecological risk assessments for the use of dicamba on dicamba-tolerant cotton and dicamba-tolerant soybeans. In summary, the screening-level risk assessments concluded that potential direct risk concerns could not be excluded for specific exposures to mammals, birds and terrestrial plants. In the screening-level risk assessments, EPA concluded that mitigation measures, including the use of mitigation to limit runoff exposure, limiting nozzles to those that restrict droplet spectra to extra-coarse and ultra-coarse, restricting applications under certain wind conditions, and the use of a 110-foot buffer in the direction of wind to account for spray drift and potential volatilization, would limit any exposures beyond the treated field to levels below thresholds that would trigger any risk concerns for any taxa. In a new Endangered Species Assessment, EPA has considered recent and relevant information and has concluded that the OTT use on dicamba-tolerant soybeans and dicamba-tolerant cotton is supported by a No Effects determination.

Over the period in which the OTT uses of dicamba have been available, a significant number of reports of alleged off-site movement have been received from state agencies and agricultural researchers. The number of separate incident complaints appears to have been greatest in 2017. During 2018, and in accordance with the agency's requirements, applicators received specialized training in the safe use of the OTT label. Growers also received a revised label in 2018, which considered and helped minimize the potential causes of off-site movement. The overall volume

of filed incident complaints for 2018 dropped even as more growers adopted this technology in 2018. In this new decision, EPA is further strengthening the OTT label. Notably, there are new restrictions on the seasonal amount of treatments that can be made. Moreover, within a given day, the permitted time window for using an OTT application has been narrowed. Overall, these changes will add greater clarity and structure for this use pattern and continue to further minimize potential off-site movement.

On the benefits side of the analysis, use of dicamba on dicamba-tolerant soybeans and dicamba-tolerant cotton is an important part of a resistance management strategy for these crops. Soybeans and cotton are extremely important agricultural commodities in the United States and the world. According to the USDA's National Agricultural Statistics Service, soybeans are grown on approximately 89.6 million acres and cotton is grown on approximately 13.5 million acres. USDA's Economic Research Service describes soybeans as the world's largest source of animal protein feed and the second largest source of vegetable oil, and describes cotton as one of the most important textile fibers in the world, accounting for around 25 percent of total world fiber use. The United States is the world's leading soybean producer and second leading exporter, and comprises about 90% of the United States' oilseed production. The United States is the world's third-largest cotton producer and the leading cotton exporter, accounting for one-third of global trade in raw cotton. The U.S. cotton industry accounts for more than $21 billion in products and services annually, generating more than 125,000 jobs in the industry sectors from farm to textile mill. Weed control experts warn that the problem of glyphosate resistance is increasing, and that significant economic consequences will continue to increase without effective alternatives for weed control. In addition, the use of dicamba, when used as part of a season-long weed management program that includes preemergence (residual) and postemergence (foliar) herbicides, provides a long-term benefit as a tool to delay resistance of other herbicides as well.

Use of dicamba on dicamba-tolerant soybeans and dicamba-tolerant cotton is beneficial as it provides an effective tool to treat especially noxious weeds, such as marestail, giant ragweed, common waterhemp, and Palmer amaranth, including glyphosate-resistant biotypes that threaten soybean and cotton production today. By adding an effective tool to combat glyphosate-resistant and other weeds, dicamba can help reduce this difficult weed pressure and aid significantly in production, reducing economic losses to dicamba-tolerant soybean and dicamba-tolerant cotton growers. In addition, effective treatment of glyphosate-resistant weeds can help control the spread of resistance. EPA finds these benefits significant and important for mitigating production and economic losses for these growers.

After weighing the risks of concern against the benefits of these uses, the EPA finds that when the requested mitigation measures for these uses are applied, the benefits of the use of the pesticide outweigh the risks. Therefore, renewing these registrations will not significantly increase unreasonable adverse effects on human health or the environment. The EPA believes that the overall considerations for benefits for weed management in these important crops support a FIFRA Section 3(c)(7)(B) registration finding for amending the registrations containing these uses.

Therefore, EPA will be extending the registrations for OTT applications of dicamba on dicamba-tolerant cotton and soybeans (EPA Registration Numbers 352-913, 524-617, and 7969-345), with

an automatic expiration date of December 20, 2020. As part of this registration extension, EPA is requiring additional label restrictions as described in Section VII C: Required Label Changes. Because the label changes will further restrict the use of OTT dicamba applications, EPA expects that this registration action will not significantly increase the risk of unreasonable adverse effects to either human health or the environment.

A. Confirmatory Data

There is uncertainty associated with the existing database for the OTT uses and how they relate to reported incidents in terms of species effects, field conditions, and primary and secondary off-site movement. Non-guideline field studies examining primary and secondary drift off-target reporting direct measurements of height and yield from transects in all four cardinal directions and effects of dicamba-containing agricultural irrigation water on non-target plants are required to address this uncertainty. These studies would better represent expanded geographic areas where high numbers of complaints have been logged and ranges of environmental conditions (e.g., temperature and humidity).

There is an uncertainty in the current analysis as to how well the soybean-based field studies adequately represent reasonable responses of non-target plants to dicamba exposure. Dicamba incidents reported to the agency have indicated alleged plant damage to a broad diversity of plants in ornamental, agricultural and natural landscape settings, and include species of trees, shrubs and perennials. These types of plant growth and life histories are not represented by the data submitted as part of the registrant data for the various dicamba products. Non-guideline ecological effects data on non-target plants (present off the field), including sensitive non-soybean species, are required to address this uncertainty.

Uncertainties exist in the nature of the effect of pH on tank mixtures and the role of pH of the applied tank mix solution to resulting volatility and offsite damage. An analysis of all approved tank mix partners and how they impact the pH of the product would allow EPA to evaluate if this is occurring. Testing including a series of waters designed to mimic the variety of water pH throughout the country, particularly in areas with the largest number of incidents, are necessary in addressing this uncertainty. Therefore, non-guideline studies examining the effect of lower pH on secondary movement both in terms of the spray tank mixture are required to address this uncertainty.

B. Required Label Changes

The Agency and the registrants have agreed to certain mitigation language to be included on all product labels for dicamba OTT uses on cotton and soybean. This includes both enforceable as well as advisory statements. This new label language supersedes any existing language already on product labels covering the same topics. Any product being used during the 2019 and 2020 growing seasons must contain a label that includes the new mitigation language that is being required in association with the approval of this action. Registrants must ensure that any preexisting language left on labels does not contradict or modify the new mitigation required by this Registration Decision. The specific labeling requirements for dicamba labels are outlined later in this section.

The additional new labeling requirements for dicamba OTT uses includes the following: a limitation on the maximum number of OTT applications of dicamba (two) permitted per field per

year for both cotton and soybeans; a prohibition on OTT spraying of dicamba 60 days or later after planting cotton and 45 days or later after planting soybeans; a time of day restriction limiting OTT dicamba applications to between one hour after sunrise and two hours before sunset; a provision that applications may be made only by certified applicators; equipment clean-out requirements; and an omnidirectional application buffer to protect endangered species from off-target movement of dicamba. These label changes are anticipated to result in a minimal reduction of the flexibility of growers to use dicamba as a tool for resistance management. The required labeling changes are expected to further minimize the potential for off-site movement. However, EPA recognizes the possibility that there may be additional factors which make it difficult to eliminate all off-target movement of dicamba.

Certified Applicator Provision:
The new label includes a provision that OTT applications of dicamba to cotton and soybeans may be made only by certified applicators. All dicamba OTT applications are already restricted use, but current labels allow for applications to be made either by a certified applicator themselves or "persons under their direct supervision." This decision removes the allowance for persons under the direct supervision of a certified applicator to make dicamba OTT applications. Because the agency believes that the complexity of the chemistry warrants ensuring that only the most highly trained individuals apply it, individuals who are not themselves a certified applicator may **not** make an OTT application of dicamba, even under the direct supervision of a certified applicator. Given the extensive reports of alleged damage from the off-target movement of dicamba due to failure to follow the label or use the approved OTT dicamba formulation, the Agency has decided that if dicamba OTT applications are to be preserved as a tool for growers, only those individuals with the highest level of pesticide application training may make such applications[7]. Restricting dicamba OTT applications to only certified applicators will increase compliance with label requirements and, in turn, further minimize the potential for off-target movement.

Limit on Number of OTT Applications:
Limiting the maximum number of applications permitted of a pesticide will help reduce the number of opportunities for off-target movement from a field to occur. This change does not impact the previously registered preplant uses. In addition, in the case of soybeans, limiting applicators to two OTT dicamba applications represents no change from currently allowed practices. In the case of cotton, however, a maximum of two OTT dicamba applications reduces by 50% the previously allowed maximum of four applications. Because the maximum in-crop, single application amount of dicamba that can be applied OTT to cotton will remain 0.5 lb. a.e. dicamba per acre, the new limit of two OTT dicamba applications for cotton represents a reduction of the maximum allowed total of all post-emergent in-crop applications from 2.0 to 1.0 lb. a.e. dicamba per acre. EPA does not have information on the number of cotton growers that have been making more than two OTT dicamba applications per season. However, with less dicamba allowed to be applied OTT in cotton fields, off-target movement of dicamba from cotton field should be further minimized.

[7] The Indiana State Chemist reported that 94 percent of the 2018 cases of alleged dicamba damage to non-target areas in Indiana involved OTT applications with documented examples of label violations.

Days after Planting Spray Prohibition:
Dicamba OTT applications to large weeds provide incomplete control and speed the development of dicamba-resistant weeds by creating an in-field seedbank born from weeds that have bounced back from a dicamba application. Repeated sub-lethal doses to herbicides are known to promote the development of resistance. For this reason, EPA recommends that dicamba OTT uses be used for early season applications rather than late season rescue treatments. Alternative herbicide tools other than dicamba are available to assist with late season weed control. This decision document adds a prohibition on OTT spraying of dicamba 60 days or later after planting cotton and 45 days or later after planting soybeans. Because the majority of dicamba OTT spraying already occurs within these timeframes, the additional burden on growers is expected to be minimal. For those applications that would have occurred outside these timeframes, when plant coverage is significant and the ability of dicamba to reach the soil is reduced, EPA expects to further minimize the potential for off-site movement.

Sunrise/Sunset Timing Restriction:
A revised time-of-day restriction now requires applicators to limit OTT applications of dicamba to at least one hour after sunrise and two hours before sunset. This revision is intended to reduce the possibility of applications being made at times of day when temperature inversions often occur. Inversions can contribute to off-target damage from pesticides by suspending pesticide particles in the air and enabling them to migrate long distances before returning to the ground. All labels with OTT dicamba uses already include advisory language on avoiding inversions and language prohibiting applications between sunset and sunrise. The revised restriction reduces the daily allowed application window by three hours, and is expected to lower the potential for off-target movement of dicamba from physical spray drift but not from volatility. This is because physical spray drift occurs during or shortly after an application is made, while volatility is a secondary transport mechanism that can occur, in the case of dicamba, for days after an application. The new timing restriction will mitigate the scenario of any immediately volatilized dicamba particles entering an inversion during an application but will not lower the possibility of volatilized dicamba particles entering any future inversions occurring over a field after an OTT dicamba application concludes.

Equipment Clean-out Requirements:
Poor hygiene practices for maintaining pesticide application equipment used to spray dicamba has the potential to result in cross-contamination. Because even trace amounts of dicamba can cause crop injury, residues that are accidentally left in application equipment can carry over to subsequent applications to non-dicamba tolerant crops. Equipment clean-out instructions are already on dicamba OTT labels. By adding new advisory language on the subject of application equipment hygiene, however, the Agency intends to raise awareness of this issue among applicators by reiterating the risks of even trace amounts left in the equipment and by offering additional techniques to ensure all parts of application equipment are cleaned, thereby reducing the potential for any dicamba incidents caused by improper cleaning of application equipment.

Endangered Species Buffer:
As mentioned, the list of new label statements in this dicamba decision includes an Endangered Species Protection Requirement of an omnidirectional infield buffer of 110 feet downwind and 57 feet in the other directions. The previously approved label contains a 110-foot downwind buffer for 0.5 pound active ingredient per acre (220 feet for 1 pound active ingredient per acre

rate) that will remain on the new label. The addition of a 57 foot buffer in the three other directions creates an omni-directional buffer. The purpose of the additional buffer requirements is to protect endangered species that may be near an application site, and, therefore, susceptible to off-site movement of dicamba. To determine if a particular area is subject to the 57-foot omnidirectional buffer restriction, applicators must check Bulletins Live! Two (BLT) prior to making an application. Instructions on how to access Bulletins Live! Two will be included on the label.

Advisory Language/Best Management Practices:
In addition to enforceable label language, additional guidance in the form of advisory label language on factors that can influence the potential for off-target movement of dicamba is expected to be beneficial to applicators. Therefore, EPA is requiring new advisory statements as well. The categories of advisory language required for dicamba uses on dicamba-tolerant cotton and soybean include pH, applicator training, and the identification of sensitive areas. A pH statement is being required because dicamba is more prone to volatilization in acidic environments. Factors such as the pH of the soil where dicamba is being applied, the pH water used as a tank mix, as well as the pH of other herbicides or additives used with OTT applications of dicamba can increase the likelihood that dicamba will volatilize and possibly cause off-target damage. The additional label revision is intended to clarify existing dicamba training requirements. Well-trained applicators are less likely to make application errors. By strengthening training requirements for dicamba, the Agency hopes to minimize human error as a cause of potential dicamba off-target movement. Finally, advisory language on the subject of identifying sensitive areas will assist applicators in complying with sensitive area-based buffer restrictions.

Labeling Requirements for All Dicamba Products Registered for Uses on Dicamba-Tolerant Cotton and Dicamba-Tolerant Soybeans

<u>New Labeling Requirements for Dicamba OTT Uses:</u>

(1) A maximum number of t**wo** over-the-top applications of dicamba is permitted per field per year.
(2) In cotton: reduce the maximum allowed total amount of dicamba for all post-emergent in-crop applications from 2.0 to 1.0 lb. a.e. dicamba per acre.
(3) In cotton: OTT applications of dicamba may not be applied 60 days or later after planting.
(4) In soybeans: OTT applications of dicamba may not be applied 45 days or later after planting.
(5) Applications are limited to at least one hour after sunrise and two hours before sunset.
(6) Applications may be made only by certified applicators.
(7) Additional equipment clean-out instructions.
(8) Add an omnidirectional buffer of 57 feet in addition to the downwind buffer in counties where endangered species are present.
(9) Additional advisory to stress the importance of pH in product volatility.
(10) Additional clarifications on training requirements.
(11) General label edits for clarity.

C. Terms and Conditions of Registration

As part of its decision to extend registrations for OTT uses of dicamba on dicamba-tolerant cotton and soybeans, the Agency will require that registrants meet certain terms as a condition of the registration. These terms will include collecting various data (monitoring, conducting new scientific studies, *etc.*).

EPA has evaluated currently available data from the 2017 and 2018 growing seasons regarding the use of OTT dicamba registrations, but needs to gather additional information as the basis for making an informed regulatory decision regarding any future use of dicamba for the OTT uses on cotton and soybean beyond the 2019 growing season. In addition to new data regarding the environmental fate and effects of dicamba, the Agency is also specifying various monitoring requirements that will aid EPA in assessing both the market for dicamba products registered for OTT uses and the impacts of the new mitigation measures included in this decision. The Agency's new data and monitoring requirements for dicamba are listed below:

Confirmatory Data:

1. Field studies examining off-site movement of dicamba.
2. Studies to investigate temperature effects on volatility of dicamba.
3. Ecological effects data on non-target plants, related to survival, growth and reproduction for select sensitive tree/shrub/woody perennial species.
4. Studies examining the effect of lower pH on secondary movement both in terms of the spray tank mixture.

Monitoring Needs for the 2019 and 2020 Growing Seasons:

1. Enhanced incident reporting that aggregates reports of potential damage to non-target vegetation.
2. Information concerning dicamba-resistant weeds and cases of weed control failure.
3. Information by state and acres regarding the sales of dicamba tolerant cotton and soybean seed.
4. Information by state and acres regarding sales of product used for OTT dicamba applications.

As noted in Section VII of this decision, extending the registration of dicamba OTT uses for until December 20, 2020 will enable EPA to provide cotton and soybean growers with continued access for at least a limited time for a tool that is important to control glyphosate resistant weeds, while simultaneously collecting additional data on the impacts of this tool and positioning the Agency to be responsive to any new findings. Studying the impact of off-target movement from dicamba OTT applications on high-value specialty crops, as well as privately-owned gardens, landscaping, and orchards is of particular interest to the Agency, because unlike cotton and soybean growers, managers of those types of vegetation do not have the option to purchase protective dicamba-tolerant seed. Finally, by August 2019, USDA information regarding soybean yields from 2018 should also be available, though yield loss due to a particular application's off-target movement will be difficult to determine.

D. Registration Expiration

Although EPA has determined that the benefits of the continued use outweigh the potential risks, the Agency is requiring expiration dates on EPA Registration Numbers 352-913, 524-617, and 7969-345 that will ensure that the EPA retains the ability to easily modify the registration or allow the registration to terminate if necessary.

Specifically, this registration automatically expires on December 20, 2020, unless the EPA takes further action to amend the registration. It is noted that the original registration also involved a term of registration that acknowledged an expiration of the registration after a five-year period if weed resistance to dicamba developed at a level that the Agency considered unacceptable. Therefore, if this automatic expiration date is amended (in whatever way the EPA determines is appropriate at the time), it shall not be amended to a date later than November 9, 2021, by which date this registration will automatically expire unless the EPA determines before that date that herbicide resistance to dicamba is not occurring at unacceptable frequencies or levels, and also that off-site incidents are not occurring at unacceptable frequencies or levels.

E. Geographic Limitation of the Registration

The list of states in which dicamba may be used as an OTT application on dicamba-resistant cotton and soybean remains unchanged since the Agency's original registration of this use. Products registered for use as an OTT application of dicamba on dicamba-tolerant cotton and/or soybeans may only to be sold and used in Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and Wisconsin.

MASTER LABEL FOR EPA REG. NO. 524-617

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators

This labeling expires on 12/20/2020. Do not use or distribute this product after 12/20/2020.

ACCEPTED
11/01/2018
Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 524-617

Primary Brand Name:

M1768 Herbicide

Alternate Brand Name:

XtendiMax® With VaporGrip® Technology

DICAMBA	GROUP	4	HERBICIDE

ACTIVE INGREDIENT:

Diglycolamine salt of dicamba (3,6-dichloro-*o*-anisic acid)*	42.8%
OTHER INGREDIENTS:	57.2%
TOTAL:	100.0%

* contains 29.0%, 3,6-dichloro-*o*-anisic acid (2.9 pounds acid equivalent per U.S. gallon or 350 grams per liter).

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators

XtendiMax® With VaporGrip® Technology

Complete Directions for Use

This labeling expires on 12/20/2020. Do not use or distribute this product after 12/20/2020.

EPA Reg. Number: 524-617

For weed control in asparagus, conservation reserve programs, corn, cotton, fallow croplands, general farmstead (noncropland), sorghum, grass grown for seed, hay, proso millet, pasture, rangeland, small grains, sod farms and farmstead turf, soybean, sugarcane, cotton with XtendFlex Technology, Roundup Ready 2 Xtend Soybean, and XtendFlex Soybean.

DICAMBA	GROUP	4	HERBICIDE

This label supersedes any previously issued labeling for this product, including previously issued supplemental labeling.

XtendiMax® With VaporGrip® Technology is approved by U.S. EPA for all uses specified on this label in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Check the registration status of each product in each state before using.

READ THE ENTIRE LABEL FOR **XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY**
BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS LABEL

READ AND FOLLOW ALL APPLICABLE DIRECTIONS, RESTRICTIONS, AND PRECAUTIONS ON THE CONTAINER LABEL AND BOOKLET AND WWW.XTENDIMAXAPPLICATIONREQUIREMENTS.COM.

Read the ”LIMIT OF WARRANTY AND LIABILITY” statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

Net contents:

EPA Establishment No.:

CONTENTS

1.0 INGREDIENTS

ACTIVE INGREDIENT:

Diglycolamine salt of dicamba (3,6-dichloro-*o*-anisic acid)*	42.8%
OTHER INGREDIENTS:	57.2%
TOTAL:	100.0%

* contains 29.0%, 3,6-dichloro-*o*-anisic acid (2.9 pounds acid equivalent per U.S. gallon or 350 grams per liter).

DICAMBA	GROUP	4	HERBICIDE

2.0 IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE, 1-800-332-3111.
2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, (314)-694-4000.

IN CASE OF SPILL:

Steps to be taken in case material is released or spilled:

Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.

3.0 PRECAUTIONARY STATEMENTS

3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow.

	• Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
• Have the product container or label with you when calling a poison control center or doctor, or going for treatment. • You can call **(314) 694-4000**, collect day or night, for emergency medical treatment information. • This product is identified as **XtendiMax® With VaporGrip® Technology, EPA Registration No. 524-617.**	

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

See "Engineering Controls Statement" for additional requirements.
Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENT

When handlers use closed systems, or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "all mixers, loaders, applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

3.2 Environmental Hazards

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Ground and Surface Water Protection

Point source contamination - To prevent point source contamination, do not mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. Do not apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment wash waters, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent: a) back siphoning into wells, b) spills or c) improper disposal of excess pesticide, spray mixtures or rinsates. Check valves or anti-siphoning devices must be used on all mixing equipment.

Movement by surface runoff or through soil - Do not apply under conditions which favor runoff. Do not apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for ground water contamination. Ground water contamination may occur in areas where soils are permeable or coarse and ground water is near the surface. Do not apply to soils classified as sand with less than 3% organic matter and where ground water depth is shallow. To minimize the possibility of ground water contamination, carefully follow application rate recommendations as affected by soil type in the Crop Specific Information section of this label.

Movement by water erosion of treated soil - Do not apply or incorporate this product through any type of irrigation equipment nor by flood or furrow irrigation. Ensure treated areas have received at least one-half inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

Endangered Species Concerns
Use of this product in a manner inconsistent with its labeling may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult https://www.epa.gov/endangered-species or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product.

It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species.

3.3 Physical or Chemical Hazards

Do not store or heat near oxidizing agents, hazardous chemical reaction may occur.

4.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label. This labeling must be in the user's possession during application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

This is a restricted use pesticide.

4.1 Training

Prior to applying this product in the 2019 growing season and each growing season thereafter, all applicator(s) applying this product must complete dicamba or auxin-specific training. If training is available and required by the state where the applicator intends to apply this product, the applicator must complete that training. If the state where the application is intended does not require auxin or dicamba-specific training, then the applicator must complete dicamba or auxin-specific training provided by one of the following sources: a) a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops, or b) a state or state-authorized provider.

4.2 Record Keeping

Record keeping is required for applications of this product. **The certified applicator must keep the following records for a period of two years**; records must be generated as soon as practical but no later than 72 hours after application and a record must be kept for each application of Xtendimax with VaporGrip Technology. Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. An example form summarizing record keeping requirements can be found on www.xtendimaxapplicationrequirements.com.

1. All Items required by 7 CFR Part 110 (RECORDKEEPING ON RESTRICTED USE PESTICIDES BY CERTIFIED APPLICATORS) including:
    a. The brand or product name
    b. The EPA registration number
    c. The total amount applied
    d. The month, day, and year of application
    e. The location of the application
    f. The crop, commodity, stored product, or site of application
    g. The size of treated area
    h. The name of the certified applicator
    i. The certification number of the certified applicator
2. Training: Date and provider of required training completed and proof of completion.
3. Receipts of Purchase: Receipts or copies for the purchase of this product.
4. Product Label: A copy of this product label, and any state special local needs label that supplements this label.
5. Crop Planting Date: Record of the date at which the crop was planted.
6. Buffer Requirement: Record of the buffer distance calculation and any areas included within the buffer distance calculations as allowed in Section 9.1.4.a.
7. Sensitive Crops Awareness: Record that a sensitive crop registry was consulted and survey adjacent fields documenting the crops/areas surrounding the field prior to application. At a minimum, records must include the name of the sensitive crop registry and the date it was consulted and documentation of adjacent crops/areas and the date the survey was conducted (read Section 9.1.4.b for additional information).
8. Start and Finish Times of Each Application: Record of the time at which the application started and the time when the application finished.
9. Application Timing: Record of the type of application (for example: pre-emergence, post-emergence) and number of days after planting if post-emergence.
10. Air Temperature: Record of the air temperature in degrees Fahrenheit at the start and completion of each application.

11. Wind Speed and Direction: Record of the wind speed and direction (the direction from which the wind is blowing) at boom height at the start and completion of each application of this product (Read Section 9.1.1 for information on wind speed).
12. Nozzle and Pressure: Record of the spray nozzle manufacturer/brand, type, orifice size, and operating pressure used during each application of this product (Read Section 9.1.1 for information on nozzles and pressures.)
13. Tank Mix Products: Record of the brand names and EPA registration numbers (if available) for all products (pesticides, adjuvants, and other products) that were tank mixed with this product for each application (Read Section 8.0 for more information on tank mixing.)
14. Spray System Cleanout: Record of compliance with the section of this label titled Section 9.5: Proper Spray System Equipment Cleanout. At a minimum, records must include the confirmation that the spray system was clean before using this product and that the post-application cleanout was completed in accordance with Section 9.5.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Waterproof gloves
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow people (or pets) to enter the treated area until sprays have dried. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Do not enter or allow other people or pets to enter until sprays have dried.

5.0 STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage and disposal. Open dumping is prohibited. This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described above

5.1 Pesticide Storage

Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.
Store in original container in a well-ventilated and away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Avoid cross-contamination with other pesticides. Keep container closed to prevent spills and contamination.

5.2 Pesticide Disposal

To avoid wastes, use all material in this container, including rinsate, by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide

disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable federal, state and local regulations and procedures.
[*Alternate PESTICIDE DISPOSAL statement for transport vehicles only:* To avoid wastes, empty as much product from this transport vehicle as possible for repackaging or use in accordance with label directions. If wastes cannot be avoided, offer remaining product or rinsate to a waste disposal facility or pesticide disposal program. All disposal must be in accordance with applicable federal, state and local regulations and procedures.]

5.3 Container Handling and Disposal

[*Optional label statement if applicable*: See container label for container handling and disposal instructions and refilling limitations.]

[*CONTAINER HANDLING AND DISPOSAL STATEMENTS AND REFILLING LIMITATIONS FOR CONTAINER LABELS*]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID CONTAINERS OF LESS THAN 1-GALLON CAPACITY*]

Nonrefillable container. Do not reuse or refill this container.

[*Alternate container statement:* Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387). If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 2.5-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 1-GALLON BUT EQUAL TO OR LESS THAN 5-GALLON CAPACITY*]

Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.

[*Alternate container statement:* Nonrefillable container. Do not reuse or refill this container.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Optional container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 30-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 5-GALLON CAPACITY*]

Nonrefillable container. Do not reuse or refill this container.

[*Alternate container statement:* Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Alternate container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available,

dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer the container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*Optional container label statement:* Return Properly Rinsed Container to Monsanto for Recycling Contact: 1-800-ROUNDUP (1-800-768-6387)]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR ALL REFILLABLE CONTAINERS, EXCEPT TRANSPORT VEHICLES*]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning this container before refilling is the responsibility of the refiller. Cleaning this container before final disposal is the responsibility of the person disposing of the container.

To clean this container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer this container for recycling, if available.

[*Optional container disposal statement:* To obtain information about recycling refillable containers, contact Monsanto Company at 1-800-ROUNDUP (1-800-768-6387)]

[*Optional container label statement:* Return Properly Rinsed Container to Monsanto for Recycling, Call 1-800-ROUNDUP (1-800-768-6387)]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT FOR ALL TRANSPORT VEHICLES AS DEFINED IN 40 CFR 156.3]*

THIS LABEL FOR USE WITH TRANSPORT VEHICLES ONLY

Emptied container retains vapor and product residue. Observe all precautions stated on this label until the container is cleaned, reconditioned or destroyed. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, and worn-out threads and closures. Clean thoroughly before reuse for transportation of a material of different composition or before retiring this transport vehicle from service.

[Alternative label statement: NET CONTENTS: See Bill of Lading]

[Alternative label statement: LOT: See Bill of Lading]

[Alternative label statement: For Net Contents and Lot Number, see Bill of Lading]

6.0 PRODUCT INFORMATION

XtendiMax® With VaporGrip® Technology is approved by U.S. EPA for all uses specified on this label in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Additional state restrictions and requirements may apply. The applicator must comply with any additional state requirements and restrictions.

This product is a water-soluble formulation intended for control and suppression of many annual, biennials, and perennial broadleaf weeds, as well as woody brush and vines listed in the WEEDS CONTROLLED section of this label. This product may be used for control of these weeds in asparagus, corn, cotton, conservation reserve programs, fallow cropland, grass grown for seed, hay, proso millet, pasture, rangeland, general farmstead (noncropland), small grains, sod farms and farmstead turf, sorghum, soybean, sugarcane, Cotton with XtendFlex Technology, Roundup Ready 2 Xtend Soybean, and XtendFlex Soybean.

XtendiMax® With VaporGrip® Technology is a contact, systemic herbicide, which can have moderate residual control on small seeded broadleaf weeds, including waterhemp, lambsquarters and Palmer pigweed, depending on rainfall and soil type.

XtendiMax® With VaporGrip® Technology is readily absorbed by plants through shoot and root uptake, translocates throughout the plant's system, and accumulates in areas of active growth. XtendiMax® With VaporGrip® Technology interferes with the plant's growth hormones (auxins) resulting in death of many broadleaf weeds.

Failure to properly clean the entire spray system can result in inadvertent contamination of the spray system. You must ensure that the spray system used to apply this product is clean before using this product.

Rainfast period: Rainfall or irrigation occurring within 4 hours after postemergence applications may reduce the effectiveness of this product.

Refer to the CROP-SPECIFIC INFORMATION and CROPS WITH XTEND TECHNOLOGY sections for application timing and other crop-specific details.

6.1 Restrictions

The applicator must read the entire label, including product labeling and follow all restrictions for XtendiMax® With VaporGrip® Technology**.** Restrictions included, but are not limited to:

- DO NOT APPLY THIS PRODUCT AERIALLY.
- DO NOT TANK MIX WITH PRODUCTS CONTAINING AMMONIUM SALTS SUCH AS AMMONIUM SULFATE (AMS) AND UREA AMMONIUM NITRATE. Small quantities of AMS can greatly increase the volatility potential of dicamba. Read the TANK MIXING INSTRUCTIONS of this label (Section 8.0) for instructions regarding other tank mix products.
- DO NOT APPLY TO CROPS UNDER STRESS DUE TO LACK OF MOISTURE, HAIL DAMAGE, FLOODING, HERBICIDE INJURY, MECHANICAL INJURY, INSECTS, OR WIDELY FLUCTUATING TEMPERATURES AS INJURY MAY RESULT.
- DO NOT APPLY THROUGH ANY TYPE OF IRRIGATION EQUIPMENT. DO NOT TREAT IRRIGATION DITCHES OR WATER USED FOR CROP IRRIGATION OR DOMESTIC PURPOSES.

- DO NOT MAKE APPLICATION OF THIS PRODUCT IF RAIN THAT MAY EXCEED SOIL FIELD CAPACITY AND RESULT IN SOIL RUNOFF IS EXPECTED IN THE NEXT 24 HOURS

Review the entire label including, specific crop use direction sections for additional restrictions.

7.0 WEED RESISTANCE MANAGEMENT

DICAMBA	GROUP	4	HERBICIDE

Dicamba mimics auxin (a plant hormone) resulting in a hormone imbalance in sensitive plants that interferes with normal cell division, cell enlargement, and protein synthesis. Dicamba active ingredient is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population can contain plants naturally resistant to Group 4 herbicides. Weed species resistant to Group 4 herbicides can be effectively managed utilizing another herbicide from a different Group, or by using other cultural or mechanical practices.

7.1 Weed Management Practices

Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than the labeled rate of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful implementation of a weed resistance management program.

To aid in the prevention of developing weeds resistant to this product:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are relatively small (less than 4 inches).
- Apply full rates of XtendiMax® With VaporGrip® Technology for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Avoid tank mixtures with other herbicides that reduce the efficacy of this product (through antagonism), or with ones that encourage application rates of this product below those specified on this label.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer or representative or call 1-844-RRXTEND (1-844-779-8363).
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production. EPA defines suspected herbicide resistance as the situation where the following three indicators occur at a site or location:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Avoid making more than two applications of dicamba and any other Group 4 herbicides within a single growing season unless mixed with an herbicide with a different mechanism of action with an overlapping spectrum for the difficult to control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

7.2 Management of Dicamba-Resistant Biotypes

Appropriate testing is critical in order to determine if a weed is resistant to dicamba. Contact your Monsanto representative to determine if resistance in any particular weed biotype has been confirmed in your area, or visit on the Internet www.weedresistancemanagement.com or www.weedscience.org.

Monsanto Company is not responsible for any losses that result from the failure of this product to control dicamba-resistant weed biotypes.

The following good agronomic practices can reduce the spread of confirmed dicamba-resistant biotypes:

- If a naturally occurring resistant biotype is present in your field, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control (read Section 8.0 for more information on tank mixing).
- Cultural and mechanical control practices (e.g., crop rotation or tillage) can also be used as appropriate.
- Scout treated fields after herbicide application and control weed escapes, including resistant biotypes, before they set seed.
- Thoroughly clean equipment, as practical, for all weed seeds before leaving fields known to contain resistant biotypes.

8.0 TANK MIXING INSTRUCTIONS

Auxin herbicides such as dicamba have the potential to volatilize in lower pH spray mixtures. Knowing the pH of your spray mixture and making the appropriate adjustments to avoid a low pH spray mixture (e.g., pH less than 5) can reduce the potential for volatilization to occur. Talk to your local agricultural consultant, extension agent, or Bayer representative for recommendations to prevent low pH spray mixtures.

XtendiMax® With VaporGrip® Technology may only be tank-mixed with products that have been tested and found not to adversely affect the offsite movement potential of XtendiMax® With VaporGrip® Technology. The applicator must check the website found at www.xtendimaxapplicationrequirements.com no more than 7 days before applying XtendiMax® With VaporGrip® Technology.

DO NOT tank mix any product with XtendiMax® With VaporGrip® Technology unless:

1. The intended tank-mix product is identified on the list of tested products found at www.xtendimaxapplicationrequirments.com;
2. The intended products are not prohibited on either this label or the label of the tank mix product; and
3. All requirements and restrictions on www.xtendimaxapplicationrequirments.com are followed.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY. See the section titled “LIMIT OF WARRANTY AND LIABILITY” herein for more information.

8.1 Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

- For 15 gallons per acre spray volume, use 2.5 cups (591.5 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
- Add components in the sequence indicated in the Mixing Order section below using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.
- Cap the jar and invert 10 cycles between component additions.
- When the components have all been added to the jar, let the solution stand for 15 minutes.
- Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, then do not mix the ingredients in the same tank.

8.2 Mixing Order

Only use approved tank mix products as directed on www.xtendimaxapplicationrequirements.com. Always read and follow label directions for all products in the tank mixture. It is the pesticide user’s responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. See section 8.0 for additional restrictions on tank mixing.

1. Ensure application and mixing equipment are clean and in proper working order
2. Water - Begin by agitating a thoroughly **clean sprayer** tank three-quarters full of clean water.
3. Agitation - Maintain constant agitation throughout mixing and application.

4. Drift Reducing Adjuvants (DRA)-(when applicable)
5. Inductor - If an inductor is used, rinse it thoroughly after each component has been added.
6. Products in PVA bags - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
7. Water-dispersible products (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
8. Water-soluble products (such as XtendiMax® With VaporGrip® Technology)
9. Emulsifiable concentrates (such as oil concentrate when applicable)
10. Water-soluble additives (when applicable)
11. Add remaining quantity of water.

Maintain constant agitation during application

8.3 Adjuvants, Drift Reducing Adjuvants, Surfactants, and Other Tank Mixed Products

See Section 8.0 TANK MIXING INSTRUCTIONS for tank mixing instructions for adjuvants, drift reducing adjuvants, surfactants, and other tank mixed products.

9.0 APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT**.**

XtendiMax® With VaporGrip® Technology can be applied to actively growing weeds as broadcast, band, or spot spray applications using water as a carrier. For best results, treat weeds early when they are relatively small (less than 4 inches). Timely application to small weeds early in the season will improve control and reduce weed competition. Refer to Table 1 for XtendiMax® With VaporGrip® Technology application rates for control or suppression by weed type and growth stage. For crop-specific application timing and other details, refer to the CROP-SPECIFIC INFORMATION section of this label.

APPLY THIS PRODUCT USING PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING THE REQUIRED VOLUMES.

Using a hooded sprayer or other drift reduction technology in combination with approved nozzles may further reduce drift potential.

Cultivation: Do not cultivate within 7 days after applying this product.

Table 1. XtendiMax® With VaporGrip® Technology Application Rates for Control or Suppression by Weed Type and Growth Stage
Use rate limitations are given in sections 10 (RESTRICTIONS), 11 (CROP-SPECIFIC INFORMATION), and 12 (CROPS WITH XTEND TECHNOLOGY)

Weed Type and Stage	Rate Per Acre	Weed Type and Stage	Rate Per Acre
Annual[1]		**Perennial**	
Small, actively growing	11 – 22 fluid ounces	Top growth suppression	11 – 22 fluid ounces
		Top growth control and root suppression	22 – 44 fluid ounces
Established weed growth	22 – 33 fluid ounces	Noted perennials (footnote 1 in Section 13.0).	44 fluid ounces
		Other perennials (without footnote 1 in Section	44 fluid ounces

		13.0)[3]	
Biennial Rosette diameter 1 – 3 inches Rosette diameter 3 inches or more Bolting	 11 – 22 fluid ounces 22 – 44 fluid ounces 44 fluid ounces	**Woody Brush & Vines** Top growth suppression Top growth control[2,3] Stems and stem suppression[3]	 22 – 44 fluid ounces 44 fluid ounces 44 fluid ounces
[1] Rates below 11 fluid ounces per acre may provide control or suppression but should typically be applied with other herbicides that are effective on the same species and biotype. [2] Woody Species listed in section 13.0 may require tank mixes for adequate top growth control. [3] DO NOT broadcast apply more than 44 ounces per acre for a single application and DO NOT exceed broadcast applications of more than 88 ounces per acre within the growing season when a sequential application is needed for control. Use the higher rate when treating dense vegetation or perennial weeds with established root growth. Perennials and Woody Species are defined as those listed in Section 13.0.			

9.1 Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result.

The most effective way to reduce drift potential is to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the **"Temperature and Humidity"** and "**Temperature Inversions"** sections of this label).

9.1.1 Sprayer Setup

The following sprayer setup requirements for drift management must be followed:

- **Nozzle type.** The applicator must use an approved nozzle within a specified pressure range as found at www.xtendimaxapplicationrequirements.com when applying XtendiMax® With VaporGrip® Technology. Do not use any other nozzle and pressure combination not specifically listed on this website.

- **Spray Volume.** The applicator must apply this product in a **minimum of 15 gallons of spray solution per acre**. See Section 8.0 for information on approved tank mix products.

- **Equipment Ground Speed.** Do not exceed a **ground speed of 15 miles per hour**. Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but slower speeds generally result in better spray coverage and deposition on the target area. Provided the applicator can maintain the required nozzle pressure, it is recommended that tractor speed is reduced to 5 miles per hour at field edges.

- **Spray boom Height.** Do not exceed a **boom height of 24 inches** above target pest or crop canopy. Excessive boom height will increase the drift potential.

- **Wind Speed.** Do not apply when wind speeds are **less than 3 MPH or greater than 10 MPH**. Only apply when wind speed at boom height is between 3 and 10 mph.

9.1.2 Temperature and Humidity

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation (for example: increase orifice size and/or increase spray volume as directed on www.xtendimaxapplicationrequirements.com). Larger droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

9.1.3 Temperature Inversions

Do not apply this product during a temperature inversion as the off-target movement potential is high.
In general, temperature inversions are more likely during nighttime hours. Applications of this product may ONLY occur one hour after sunrise though two hours before sunset.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions.
- Temperature inversions can be characterized by increasing temperatures with altitude and can be common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. Temperature inversions can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will typically dissipate with increased winds (above 3 miles per hour) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

9.1.4 Buffer Requirements and Protection of Sensitive Crops

Do not apply under circumstances where drift may occur to food, forage, or other plantings that might be damaged or the crops rendered unfit for sale, use, or consumption.

9.1.4.a. Buffer Requirement

The applicator **must always maintain** a 110 foot downwind buffer (when applying up to 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying greater than 22 up to 44 fluid ounces of this product per acre) between the last treated row and the nearest downwind field edge (in the direction the wind is blowing).

If you have questions regarding Buffer Requirement contact Bayer at 1-844-RRXTEND prior to application.

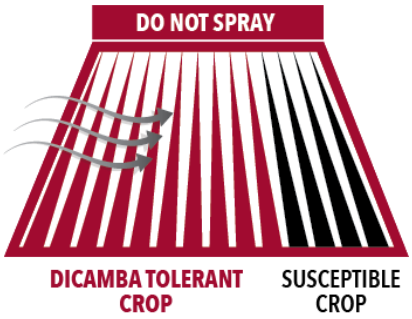
The following areas may be included in the buffer distance calculation when directly adjacent to the treated field edges:

- Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field such as rights of way.
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
- Agricultural fields that have been prepared for planting
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

9.1.4.b. **Sensitive Crops**

DO NOT APPLY this product when the wind is blowing toward adjacent non-dicamba tolerant sensitive crops; this includes **NON-DICAMBA TOLERANT SOYBEAN AND COTTON.**

It is important for the applicator to be aware that wind direction may vary during the application. If wind direction shifts such that the wind is blowing toward adjacent non-dicamba tolerant sensitive crops, the applicator must cease the application.



Before making an application, consult a sensitive crop registry (such as FieldWatch); and survey adjacent fields and confirm the crops/areas surrounding the field prior to application. At a minimum, records must include the name of the sensitive crop registry and the date it was consulted and documentation of adjacent crops/areas and the date the survey was conducted.

Sensitive crops include, but are not limited to non-dicamba tolerant soybeans and cotton, tomatoes and other fruiting vegetables (EPA crop group 8), fruit trees, cucurbits (EPA crop group 9), grapes, beans, flowers, ornamentals, peas, potatoes, sunflower, tobacco, other broadleaf plants, and including plants in a greenhouse. Severe injury or destruction could occur if any contact between this product and these plants occurs.

If you have questions regarding sensitive crop registries contact Bayer at 1-844-RRXTEND prior to application.

9.1.5 Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local pesticide drift regulations.

9.2 Ground Application (Banding)

When applying XtendiMax® With VaporGrip® Technology by banding, determine the amount of herbicide and water volume needed using the following formula:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

9.3 Ground Application (Broadcast)

Water Volume: Use a **minimum of 15 gallons** of spray solution per broadcast acre for optimal performance. Use 20 gallons per acre when treating dense or tall vegetation.

Application Equipment: Select nozzles (refer to section 9.1.1 Nozzle type of this product label) designed to produce minimal amounts of fine spray particles. Spray with nozzles as close to the weeds as practical for good weed coverage.

Using a hooded sprayer or other drift reduction technology in combination with approved nozzles may further reduce drift potential.

9.4 Ground Application (Wipers)

XtendiMax® With VaporGrip® Technology may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush and vines. Use a solution containing 1 part XtendiMax® With VaporGrip® Technology to 1 part water. Do not apply greater than 1 lb dicamba acid equivalent (1 quart of this product) per acre per application. Do not contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and non-cropland areas described in this label except for non-dicamba-tolerant cotton, sorghum, and non-dicamba-tolerant soybean.

9.5 Proper Spray System Equipment Cleanout

You must ensure that the spray system used to apply this product is clean before using this product.

Failure to properly clean the entire spray system can result in inadvertent contamination of the spray system. Small quantities of dicamba may cause injury to non-dicamba tolerant soybeans and other sensitive crops (see Section 9.1.4 of this label for more information).

Inadvertent contamination can also occur in equipment used for bulk product handling and mixing prior to use in the spray system. Care should be taken to reduce contamination not only in the spray system but in any equipment used to transfer or deliver product. For example, bulk handling and mixing equipment containing this product should be segregated when possible to reduce potential for cross-contamination. Consider using block and check valves to avoid backflow during transfer. Piping should be reviewed to ensure there not potential for product build-up. Dedicated nurse trucks and tender equipment should be used when possible.

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water. If equipped, open boom ends and flush.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
8. Drain pump, filter and lines.
9. Rinse the complete spraying system with clean water.
10. Clean and wash off the outside of the entire sprayer and boom.
11. All rinse water must be disposed of in compliance with local, state, and federal guidelines.

10.0 ADDITIONAL RESTRICTIONS

Maximum Application Rates: The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredients dicamba, whether applied separately or as a tank mixture, on a basis of total pounds of dicamba (acid equivalents) per acre. If more than one dicamba-containing product is applied to the same site within the same year, you must ensure that the total use of dicamba (pounds acid equivalents) does not exceed 2 pounds/A per year from all applications. See the INGREDIENTS section of this label for necessary product information.

Maximum seasonal use rate: Refer to Table 2. Crop-Specific Restrictions for crop-specific maximum seasonal use rates. Do not exceed 88 fluid ounces of XtendiMax® With VaporGrip® Technology (2 pounds acid equivalent) per acre, per year.

Preharvest Interval (PHI): Refer to the CROP-SPECIFIC INFORMATION section for preharvest intervals.

Restricted Entry Interval (REI): 24 hours

Crop Rotational Restrictions

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend® Soybeans, XtendFlex® Soybeans, or cotton seed with XtendFlex® Technology (including Bollgard® 3 XtendFlex® Cotton, Bollgard II® XtendFlex® Cotton, or XtendFlex® Cotton). For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions at application rates of 33 fluid ounces of this product per acre per season or less: Follow the planting restrictions in the directions for use for Preplant application in the Crop Specific Information section of this label. For corn, cotton (except cotton seed with XtendFlex® Technology), sorghum, and soybean (except Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean), follow the planting restrictions in the directions for use for preplant application in **Section 11. Crop-Specific Information** of this label. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions at application rates of more than 33 fluid ounces and up to 88 fluid ounces of this product per acre per season: Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except cotton seed with XtendFlex® Technology) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

Table 2. Crop-Specific Restrictions[1]

Crop	Maximum Rate Per Acre Per Application (fl oz)	Maximum Rate Per Acre Per Season (fl oz)	Livestock Grazing or Feeding
Asparagus	22	22	Yes
Barley; Fall Spring	11 11	16.5 15	Yes
Conservation Reserve Program (CRP)	44	88	Yes
Corn	22	33	Yes[2]
Cotton	11	11	Yes

Cotton with XtendFlex Technology	44	88	Yes
Fallow Ground	44	88	Yes
Grass grown for seed	44	88	Yes
Oats	5.5	5.5	Yes
Pastureland	44	44	Yes
Proso Millet	5.5	5.5	Yes
Small grains grown for grass, forage, fodder, hay and/or pasture	22	22	Yes
Sorghum	11	22	Yes
Soybean	44	44	Yes
Roundup Ready 2 Xtend Soybean and XtendFlex Soybean	44	88	Yes
Sugarcane	44	88	Yes
Triticale	5.5	5.5	Yes
Sod farms and farmstead turf	44	44	Yes
Wheat	11	22	Yes

[1]Refer to section **11. CROP-SPECIFIC INFORMATION** and section **12. CROPS WITH XTEND TECHNOLOGY** for more details.
[2]Once the crop reaches the ensilage (milk) stage or later in maturity

11.0 CROP-SPECIFIC INFORMATION

Read Sections: 8.0 for Tank Mixing Instructions and 9.1.4 for Buffer Requirements and Sensitive Crops for information on tank mixing, buffer requirements, and sensitive crops.

11.1 Asparagus

Apply XtendiMax® With VaporGrip® Technology to emerged and actively growing weeds in 40 - 60 gallons of diluted spray per treated acre immediately after cutting the field, but at least 24 hours before the next cutting. Multiple applications may be made per growing season.

If spray contacts emerged spears, crooking (twisting) of some spears may result. If such crooking occurs, discard affected spears.

Rates: Apply 11-22 fluid ounces of XtendiMax® With VaporGrip® Technology to control annual sowthistle, black mustard, Canada and Russian thistle, and redroot pigweed (carelessweed).

Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. Up to 2 applications may be made per growing season. Do not exceed a total of 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre, per crop year.

Do not harvest prior to 24 hours after treatment.

[Optional: Do not use in the Coachella Valley of California]

11.2 Between Crop Applications

Preplant Directions (Postharvest, Fallow, Crop Stubble, Set-Aside) for Broadleaf Weed Control:

XtendiMax® With VaporGrip® Technology can be applied either postharvest in the fall, spring, or summer during the fallow period or to crop stubble/set-aside acres. Apply XtendiMax® With VaporGrip® Technology as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost or in the fallow cropland or crop stubble the following spring or summer.

See the “Crop Rotational Restrictions” in Section 10 of this label for the recommended interval between application and planting to prevent crop injury.

Rates and Timings:

Apply 5.5 – 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre. Refer to Table 1 to determine use rates for specific targeted weed species. For best performance, apply XtendiMax® With VaporGrip® Technology when annual weeds are less than 4 inches tall, when biennial weeds are in the rosette stage and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. The most effective control of upright perennial broadleaf weeds such as Canada thistle and Jerusalem artichoke occurs if XtendiMax® With VaporGrip® Technology is applied when the majority of weeds have at least 4 – 6 inches of regrowth or for weeds such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts such as rhizomes or bulblets, after the effective period for XtendiMax® With VaporGrip® Technology. For seedling control, a follow-up program or other cultural practices could be instituted. For small grain in-crop uses of XtendiMax® With VaporGrip® Technology, refer to the small grain section for details.

11.3 Conservation Reserve Program (CRP)

XtendiMax® With VaporGrip® Technology is recommended for use on both newly seeded and established grasses grown in Conservation Reserve or federal Set-Aside Programs. Treatments of XtendiMax® With VaporGrip® Technology will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Newly Seeded Areas

XtendiMax® With VaporGrip® Technology may be applied either preplant or postemergence to newly seeded grasses or small grains such as barley, oats, rye, sudanqrass, wheat, or other grain species grown as a cover crop. Postemergence applications may be made after seedling grasses exceed the 3-leaf stage. Rates of XtendiMax® With VaporGrip® Technology greater than 22 fluid ounces per treated acre may severely injure newly seeded grasses.

Preplant applications may injure new seedlings if the interval between application and grass planting is less than 45 days per 22 fluid ounces of XtendiMax® With VaporGrip® Technology applied per treated acre west of the Mississippi River or 20 days per 22 fluid ounces applied east of the Mississippi River.

Established Grass Stands

Established grass stands are perennial grasses planted one or more seasons prior to treatment. Certain species (bentgrass, carpetgrass, smooth brome, buffalograss, or St. Augustinegrass) may be injured when treated with more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre.

When applied at recommended rates, XtendiMax® With VaporGrip® Technology will control many annual and biennial weeds and provide control or suppression of many perennial weeds.

Rates and Timings

Apply 5.5 - 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre. Refer to **Table 1** for rates based on target weed species. Retreatments may be made as needed; however, do not exceed a total of 88 fluid ounces (4 pints) of XtendiMax® With VaporGrip® Technology per acre per year.

11.4 Corn (Field, Pop, Seed, And Silage)

Direct contact of XtendiMax® With VaporGrip® Technology with corn seed must be avoided. If corn seeds are less than 1.5 inches below the surface, delay application until corn has emerged.

Applications of XtendiMax® With VaporGrip® Technology to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. Cultivation should be delayed until after corn is growing normally to avoid breakage.

Corn may be harvested or grazed for feed once the crop has reached the ensilage (milk) stage or later in maturity.

Up to 2 applications of XtendiMax® With VaporGrip® Technology may be made during a growing season. Sequential applications must be separated by 2 weeks or more.

Do not apply XtendiMax® With VaporGrip® Technology to seed corn or popcorn without first verifying with your local seed corn company (supplier) the selectivity of XtendiMax® With VaporGrip® Technology on your inbred line or variety of popcorn. This precaution will help avoid potential injury of sensitive varieties.

Avoid using crop oil concentrates after crop emergence as crop injury may result. Use crop oil concentrates only in dry conditions when corn is less than 5 inches tall when applying XtendiMax® With VaporGrip® Technology.

Use of sprayable fluid fertilizer as the carrier is not recommended for applications of XtendiMax® With VaporGrip® Technology made after corn emergence.

XtendiMax® With VaporGrip® Technology is not registered for use on sweet corn.

Preplant and Preemergence Application in No-Tillage Corn:

Rates: Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 11 fluid ounces per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

Timing: XtendiMax® With VaporGrip® Technology can be applied to emerging weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g., alfalfa or clover), apply XtendiMax® With VaporGrip® Technology after 4 – 6 inches of regrowth has occurred

Preemergence Application in Conventional or Reduced Tillage Corn:

Rates: Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre on medium- or fine-textured soils containing 2.5% organic matter or more. Do not apply to coarse textured soils (sand, loamy sand, or sandy loam) of any soil with less than 2.5% organic matter until after corn emergence (See Early Postemergence uses below).

Timing: XtendiMax® With VaporGrip® Technology may be applied after planting and prior to corn emergence. Pre-emergence application of XtendiMax® With VaporGrip® Technology does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g., drags, harrows) which concentrates treated soil over seed furrow as seed damage could result.

Preemergence control of cocklebur, jimsonweed, and velvetleaf may be reduced if conditions such as low temperature or lack of soil moisture cause delayed or deep germination of weeds.

Early Postemergence Application in All Tillage Systems:

Rates: Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre. Reduce the rate to 11 fluid ounces per treated acre if corn is growing on coarse textured soils (sand, loamy sand, and sandy loam).

Timing: Apply between corn emergence and the 5-leaf stage or 8 inches tall, whichever occurs first. Refer to Late Postemergence Applications if the sixth true leaf is emerging from whorl or corn is greater than 8 inches tall.

Late Postemergence Application:

Rate: Apply 11 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre.

Timing: Apply XtendiMax® With VaporGrip® Technology from 8 - 36 inch tall corn or 15 days before tassel emergence, whichever comes first. For best performance, apply when weeds are less than 3 inches tall.

Apply directed spray when corn leaves prevent proper spray.

11.5 Cotton

For directions for use with crops with Xtend Technology see the “CROPS WITH XTEND TECHNOLOGY” section of this label.

Preplant Application:

Apply up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to control emerged broadleaf weeds prior to planting cotton in conventional or conservation tillage systems.

For best performance, apply XtendiMax® With VaporGrip® Technology when weeds are in the 2 - 4 leaf stage and rosettes are less than 2 inches across.

Following application of XtendiMax® With VaporGrip® Technology and a minimum accumulation of 1 inch of rainfall or overhead irrigation, allow a minimum of 21 days between treatment and planting per application of 11 fluid ounces per acre or less. This plant back interval must be observed prior to planting cotton.

Do not apply preplant to cotton west of the Rockies.

Do not make XtendiMax® With VaporGrip® Technology preplant applications to cotton in geographic areas with average annual rainfall less than 25 inches.

If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds acid equivalent per acre.

11.6 Grass Grown For Seed

Apply 11 - 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre on seedling grass after the crop reaches the 3 -5 leaf stage. Apply up to 44 fluid ounces of XtendiMax® With VaporGrip® Technology on well-established perennial grass. For best performance, apply XtendiMax® With VaporGrip® Technology when weeds are in the 2 - 4 leaf stage and rosettes are less than 2 inches across. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.

To suppress annual grasses such as brome (downy and ripgut), rattail fescue, and windgrass, apply up to 44 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre in the fall or late summer after harvest and burning of established grass seed crops. Applications should be made immediately following the first irrigation when the soil is moist and before weeds have more than 2 leaves.

Do not apply XtendiMax® With VaporGrip® Technology after the grass seed crop begins to joint.

Refer to the Pasture, Hay, Rangeland, and General Farmstead section for grazing and feeding restrictions.

11.7 Proso Millet

For use only within Colorado, Nebraska, North Dakota, South Dakota, [Optional: **and Wyoming].**

XtendiMax® With VaporGrip® Technology combined with an appropriate tank-mix partner will provide control or suppression of the annual broadleaf weeds listed in **Section 13.**

11.8 Pasture, Hay, Rangeland, And General Farmstead (Noncropland)

XtendiMax® With VaporGrip® Technology is recommended for use on pasture, hay, rangeland, and general farmstead (non-cropland) (including fencerows and non-irrigation ditch banks) for control or suppression of broadleaf weed and brush species listed in Section 12.

XtendiMax® With VaporGrip® Technology may also be applied to non-cropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides and highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

XtendiMax® With VaporGrip® Technology uses described in this section also pertain to grasses and small grains (forage sorghum, rye, sudangrass, or wheat) grown for grass, forage, fodder, hay and/or pasture use only. Grasses and small grains not grown for grass, forage, fodder, hay and/or pasture must comply with crop-specific uses in this label. Some perennial weeds may be controlled with lower rates of XtendiMax® With VaporGrip® Technology (refer to **Table 1**).

Rates and Timings

Refer to **Table 1** for rate selection based on targeted weed or brush species.

Rates above 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre are for spot treatments only. Spot treatment is defined as no more than a total of 1000 square feet of treated area per acre. Do not broadcast apply more than 44 fluid ounces per acre.

Retreatments may be made as needed; however, do not exceed a total of 44 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre during a growing season.

Grass grown for hay requires a minimum of 7-days between treatment and harvest.

Crop-Specific Restrictions

Do not apply more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to small grains grown for pasture.

Newly seeded areas may be severely injured if more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology is applied per acre.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, carpetgrass, buffalograss, and St. Augustin grass may be injured if more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology is applied per acre. Usually colonial bent grasses are more tolerant than creeping types. Velvet grasses are most easily injured. Treatments will kill or injure alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Table 3 lists the timing restrictions for grazing or harvesting hay from treated fields. There are no grazing restrictions for animals other than lactating dairy animals.

Table 3. Timing Restrictions for Lactating Dairy Animals Following Treatment

XtendiMax® With VaporGrip® Technology Rate per Treated Acre (fluid ounces)	**Days Before Grazing (days)**	**Days Before Hay Harvest (days)**
Up to 22	7	37
Up to 44	21	51

- **Spot Treatments:** XtendiMax® With VaporGrip® Technology may be applied to individual clumps or small areas of undesirable vegetation using handgun or similar types of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

Cut Surface Treatments:

XtendiMax® With VaporGrip® Technology may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees.

Rate: Mix 1 part XtendiMax® With VaporGrip® Technology with 1 - 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.

- **For Frill or Girdle Treatments**: Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint the cut surface with the solution.
- **For Stump Treatments:** Spray or paint freshly cut surface with the water mix. The area adjacent to the bark should be thoroughly wet.

Applications For Control of Dormant Multiflora Rose:

XtendiMax® With VaporGrip® Technology can be applied when plants are dormant as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-water emulsion solution.

- **Spot treatments:** Spot treatment applications of XtendiMax® With VaporGrip® Technology should be applied directly to the soil as close as possible to the root crown but within 6 - 8 inches of the crown. On sloping terrain, apply XtendiMax® With VaporGrip® Technology to the uphill side of the crown. Do not apply when snow or water prevents applying XtendiMax® With VaporGrip® Technology directly to the soil. The use rate of XtendiMax® With VaporGrip® Technology depends on the canopy diameter of the multiflora rose.

  Examples: Use 0.34, 1.38, or 3.23 fluid ounces of XtendiMax® With VaporGrip® Technology respectively, for 5, 10, or 15 feet canopy diameters.

- **Lo-Oil basal bark treatments:** For Lo-Oil basal bark treatments, apply XtendiMax® With VaporGrip® Technology to the basal stem region from the ground line to a height of 12 - 18 inches. Spray until runoff, with special emphasis on covering the root crown. For best results, apply XtendiMax® With VaporGrip® Technology when plants are dormant. Do not apply after bud break or when plants are showing signs of active growth. Do not apply when snow or water prevents applying XtendiMax® With VaporGrip® Technology to the ground line.

  To prepare approximately 2 gallons of a Lo-Oil spray solution:

  1) Combine 1.5 gallons of water, 1 ounce of emulsifier, 22 fluid ounces of XtendiMax® With VaporGrip® Technology, and 2.5 pints of No. 2 diesel fuel.
  2) Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

  Do not exceed 8 gallons of spray solution mix applied per acre, per year.

11.9 SMALL GRAINS

11.9.1 Small Grains Not Underseeded To Legumes (fall- and spring-seeded barley, oat, triticale and wheat)

Refer to the specific crop sections below for use rates. When treating difficult to control weeds such as kochia, wild buckwheat, cow cockle, prostrate knotweed, Russian thistle, and prickly lettuce or when dense vegetative growth occurs, use the 4.12 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology per acre.

Timings: Apply XtendiMax® With VaporGrip® Technology before, during, or after planting small grains. See specific small grain crop uses below for maximum crop stage. For best performance, apply XtendiMax® With VaporGrip® Technology when weeds are in the 2 - 3 leaf stage and rosettes are less than 2 inches across. Applying XtendiMax® With VaporGrip® Technology to small grains during periods of rapid growth may result in crop leaning. This condition is temporary and will not reduce crop yields.

Restrictions for small grain areas that are grazed or cut for hay are indicated in **Table 3** in Pasture, Hay, Rangeland, and General Farmstead section of this label.

11.9.2 Small Grains: Barley (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology to fall-seeded barley prior to the jointing stage. Apply 2.75 – 4.12 fluid ounces of XtendiMax® With VaporGrip® Technology before spring-seeded barley exceeds the 4-leaf stage.

Note: For spring barley varieties that are seeded during the winter months or later, follow the rates and timings given for spring-seeded barley.

Preharvest applications:

XtendiMax® With VaporGrip® Technology can be used to control weeds that may interfere with harvest of fall and spring-seeded barley. Apply 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre as a broadcast or spot treatment to annual broadleaf weeds when barley is in the hard dough stage and the green color is gone from the nodes (joints) of the stern. Best results will be obtained if application can be made when weeds are actively growing, but before weeds canopy.

Allow a minimum of 7 days between treatment and harvest. Do not use preharvest-treated barley for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

[Optional: Do not make preharvest applications in California.]

11.9.3 Small Grains: Oats (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to fall-seeded oat prior to the jointing stage. Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology before spring-seeded oat exceed the 5-leaf stage.

Do not tank mix XtendiMax® With VaporGrip® Technology with 2,4-D in oat.

Allow a minimum of 7 days between treatment and harvest.

11.9.4 Small Grains: Triticale (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology to triticale.

Early season applications to fall-seeded triticale must be made prior to the jointing stage.

Early season applications to spring-seeded triticale must be made before triticale reaches the 6-leaf stage.

11.9.5 Small Grains: Wheat (fall- and spring-seeded)

Early Season Applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology to wheat unless using one of the fall-seeded wheat specific programs below.

Early season applications to fall-seeded wheat must be made prior to the jointing stage.

Early season applications to spring-seeded wheat must be made before wheat exceeds the 6-leaf stage.

Early developing wheat varieties such as TAM 107, Madison, or Wakefield must receive application between early tillering and the jointing stage. Care should be taken in staging these varieties to be certain that the application occurs prior to the jointing stage.

Specific use programs for fall-seeded wheat only:

[Optional: XtendiMax® With VaporGrip® Technology may be used at 8.25 fluid ounces on fall-seeded wheat in Western Oregon as a spring application only.] In Colorado, Kansas, New Mexico, Oklahoma, and Texas, up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology may be applied on fall-seeded wheat after it exceeds the 3-leaf stage for suppression of perennial weeds, such as field bindweed. Applications may be made in the fall following a frost but before a killing freeze.

Preharvest applications:

XtendiMax® With VaporGrip® Technology can be used to control weeds that may interfere with harvest of wheat. Apply 11 fluid ounces XtendiMax® With VaporGrip® Technology per acre as a broadcast or spot treatment to annual broadleaf weeds when wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing but before weeds canopy.

Allow a minimum of 7 days between treatment and harvest. Do not use preharvest-treated wheat for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

[Optional: Do not make preharvest applications in California.]

11.10 Sorghum

XtendiMax® With VaporGrip® Technology may be applied preplant, postemergence, or preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds, as well as control their seedlings.

Do not graze or feed treated sorghum forage or silage prior to mature grain stage. If sorghum is grown for pasture or hay, refer to Pasture, Hay, Rangeland, and General Farmstead section of this label for specific grazing and feeding restrictions.

Do not apply XtendiMax® With VaporGrip® Technology to sorghum grown for seed production.

Preplant Application:

Up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology may be applied per acre if applied at least 15 days before sorghum planting.

Postemergence Application:

Up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15 inches tall. For best performance, apply XtendiMax® With VaporGrip® Technology when the sorghum crop is in the 3 - 5 leaf stage and weeds are small (less than 3 inches tall). Use drop pipes (drop nozzles) if sorghum is taller than 8 inches. Keep the spray off the sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage. Applying XtendiMax® With VaporGrip® Technology to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 - 14 days. Delay harvest until 30 days after a preharvest treatment.

Preharvest uses in Texas and Oklahoma only: Up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre may be applied for weed suppression any time after the sorghum has reached the soft dough stage. An agriculturally approved surfactant may be used to improve performance (read Section 8.0 for tank mixing instructions). Delay harvest until 30 days after a preharvest treatment.

Split Application:

XtendiMax® With VaporGrip® Technology may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. Do not exceed 11 fluid ounces per acre, per application or a total of 22 ounces per acre, per season.

11.11 Soybean

For directions for use with crops with Xtend Technology see the "CROPS WITH XTEND TECHNOLOGY" section of this label.

Preplant Applications:

Apply 5.5 -22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to control emerged broadleaf weeds prior to planting soybeans. Do not exceed 22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre in a spring application prior to planting soybeans.

Following application of XtendiMax® With VaporGrip® Technology and a minimum accumulation of 1 inch rainfall or overhead irrigation, allow a minimum of 14 days between treatment and planting for applications of 11 fluid ounces per acre or less, and allow a minimum of 28 days between treatment and planting for applications of 22 fluid ounces per acre. These plant back intervals must be observed prior to planting soybeans or crop injury may occur.

Do not make XtendiMax® With VaporGrip® Technology preplant applications to soybeans in geographic areas with average annual rainfall less than 25 inches.

Preharvest Applications:

XtendiMax® With VaporGrip® Technology can be used to control many annual and perennial broadleaf weeds and control or suppress many biennial and perennial broadleaf weeds in soybean prior to harvest (refer to **Section 10**). Apply 11 - 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre as a broadcast or spot treatment to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Do not harvest soybeans until 7 days after application.

Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulblets, after the effective period for XtendiMax® With VaporGrip® Technology. For seedling control, a follow-up program or other cultural practice could be instituted.

Do not use preharvest-treated soybean for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

Do not feed soybean fodder or hay following a preharvest application of XtendiMax® With VaporGrip® Technology.

[Optional: Do not make preharvest applications in California.]

11.12 Sugarcane

Apply XtendiMax® With VaporGrip® Technology for control of annual, biennial, or perennial broadleaf weeds listed in Section 11. Apply 11 - 33 fluid ounces of XtendiMax® With VaporGrip® Technology per acre for control of annual weeds, 22 - 44 fluid ounces for control of biennial weeds, and 44 fluid ounces for control or suppression of perennial weeds.

Use the higher level of listed rate ranges when treating dense vegetative growth.

A single retreatment may be made as needed, however, do not exceed a total of 88 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre during a growing season.

Timing: XtendiMax® With VaporGrip® Technology may be applied to sugarcane any time after weeds have emerged, but before the close-in stage of sugarcane. Applications of 44 fluid ounces of XtendiMax®

With VaporGrip® Technology per acre made over the top of actively growing sugarcane may result in crop injury.

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

Allow a minimum of 87 days between treatment and harvest.

11.13 Farmstead Turf (noncropland) and Sod Farms

Do not use on residential sites.

For use in general farmstead (noncropland) and sod farms, apply 4.12 – 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to control or suppress growth of many annual, biennial, and some perennial broadleaf weeds commonly found in turf. XtendiMax® With VaporGrip® Technology will also suppress many other listed perennial broadleaf weeds and woody brush and vine species. Refer to Table 1 for rate recommendations based on targeted weed or brush species and growth stage.

Repeat treatments may be made as needed; however, do not exceed 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre, per growing season.

Apply 30 - 200 gallons of diluted spray per treated acre (3 - 17 quarts of water per 1,000 square feet), depending on density or height of weeds treated and on the type of equipment used.

To avoid injury to newly seeded grasses, delay application of XtendiMax® With VaporGrip® Technology until after the second mowing. Furthermore, applying more than 16 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre may cause noticeable stunting or discoloration of sensitive grass species such as bentgrass, carpetgrass, buffalograss, and St. Augustinegrass.

In areas where roots of sensitive plants extend, do not apply more than 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre on coarse-textured (sandy-type) soils, or in excess of 8 fluid ounces per treated acre on fine-textured soils. Do not make repeat applications in these areas for 30 days and until previous applications of XtendiMax® With VaporGrip® Technology have been activated in the soil by rain or irrigation.

12.0 CROPS WITH XTEND® TECHNOLOGY

COTTON WITH XTENDFLEX® TECHNOLOGY (INCLUDING BOLLGARD II® XTENDFLEX® COTTON, BOLLGARD® 3 XTENDFLEX® COTTON, OR XTENDFLEX® COTTON), ROUNDUP READY 2 XTEND® SOYBEAN, AND XTENDFLEX® SOYBEAN CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO COTTON AND SOYBEAN THAT ARE NOT DICAMBA TOLERANT, INCLUDING COTTON AND SOYBEAN WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean can be obtained from your seed supplier or Monsanto representative. Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean must be purchased from an authorized licensed seed supplier.

Note: Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean and methods of controlling weeds and applying dicamba in a Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean crop are protected under U.S. patent law. No license to use Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean is granted or implied with the purchase of this herbicide product. Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean are owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean.

12.1 Cotton with XtendFlex® Technology

DO NOT combine these instructions with other instructions in the "COTTON" Section of **this** label for use over crops that do not contain the dicamba tolerance trait.

TYPES OF APPLICATIONS: Burndown/Early Preplant; Preplant; At-Planting; Preemergence; Postemergence (In-crop)

USE INSTRUCTIONS
Apply this product in a minimum of 15 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with cotton with XtendFlex® Technology.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early Preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all in-crop applications up to mid-bloom stage or no more than 60 days after planting, whichever occurs first	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Burndown/Early Preplant, Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting cotton with XtendFlex® Technology. Refer to the "WEEDS CONTROLLED" section of this label for XtendiMax® With VaporGrip® Technology for specific weeds controlled.

RESTRICTIONS:
- The maximum combined quantity of this product that may be applied for all burndown/early preplant, preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.

- The maximum application rate for a single, burndown/early preplant, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in cotton with XtendFlex® Technology. In-crop applications of this product can be made up to mid-bloom stage or no more than 60 days after planting, whichever occurs first.

The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. To the extent permitted by applicable law, Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. Sequential applications of this product may be necessary to control new flushes of weeds or on tough-to-control weeds. Allow at least 7 days between applications.

Postemergence applications of this product mixed with adjuvants may cause a leaf response to cotton with XtendFlex® Technology. The symptoms usually appear as necrotic spots on fully expanded leaves. EC-based products that are tank mixed with products containing dicamba may increase the severity of the leaf damage.

RESTRICTIONS:
- The combined total applied in-crop up to mid-bloom stage or no more than 60 days after planting, whichever occurs first, must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre and a maximum of two in-crop applications.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb a.e. dicamba).
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 44 fluid ounces (1.0 lb a.e. dicamba) per acre was made, then the combined total in-crop applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.

12.2 Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean

DO NOT combine these instructions with other instructions in the "SOYBEAN" Section of **this** label for use over crops that do not contain the dicamba tolerance trait.

TYPES OF APPLICATIONS: Burndown/Early Preplant; Preplant; At-Planting; Preemergence; Postemergence (In-crop); Lay-By

USE INSTRUCTIONS
Apply this product in a minimum of 15 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early Preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)

Total of all In-crop applications from emergence prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Burndown/Early Preplant, Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. Refer to the "WEEDS CONTROLLED" section of this label for specific weeds controlled.

RESTRICTIONS:
- The maximum combined quantity of this product that may be applied for all burndown/early preplant, preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.
- The maximum application rate for a single, burndown/early preplant, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. In-crop applications of this product can be made prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first.

The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. To the extent permitted by applicable law, Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height.

A second application of this product may be necessary to control new flushes of weeds and can be made prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first. Allow at least 7 days between applications. For best results, apply XtendiMax® With VaporGrip® Technology after some weed re-growth has occurred.

Application of this product postemergence and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS:
- The combined total application rate in-crop prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first, must not exceed 44 fluid ounces (1.0 lb. a.e. dicamba) per acre a maximum of two in-crop applications.
- Do not make in-crop applications of this product during and after beginning bloom (R1 stage soybeans) or more than 45 days after planting.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb. a.e. dicamba) per acre. The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb. a.e. dicamba) per acre.

13.0 WEEDS CONTROLLED

General Weed List, Including ALS-, Glyphosate, and Triazine-Resistant Biotypes

Annuals

- Alkanet
- Amaranth, Palmer, Powell, Spiny
- Aster, Slender
- Bedstraw, Catchweed
- Beggarweed, Florida
- Broomweed, Common
- Buckwheat, Tartary, Wild
- Buffalobur
- Burclover, California
- Burcucumber
- Buttercup, Corn, Creeping, Roughseed, Western Field
- Carpetweed
- Catchfly, Nightflowering
- Chamomile, Corn
- Chevil, Bur
- Chickweed, Common
- Clovers
- Cockle, Corn, Cow, White
- Cocklebur, Common
- Copperleaf, Hophornbeam
- Cornflower (Bachelor Button)
- Croton, Tropic, Woolly
- Daisy, English
- Dragonhead, American
- Eveningprimrose, Cutleaf
- Falseflax, Smallseed
- Fleabane, Annual
- Flixweed
- Fumitory
- Goosefoot, Nettleleaf
- Hempnettle
- Henbit
- Jacobs-Ladder
- Jimsonweed
- Knawel (German Moss)
- Knotweed, Prostrate
- Kochia
- Ladysthumb
- Lambsquarters Common
- Lettuce, Miners, Prickly
- Mallow, Common, Venice
- Marestail (Horseweed)
- Mayweed
- Morningglory, Ivyleaf, Tall
- Mustard, Black, Blue, Tansy, Treacle, Tumble, Wild, Yellowtops
- Nightshade, Black, Cutleaf
- Pennycress, Field (Fanweed, Frenchweed, Stinkweed)
- Pepperweed, Virginia (Peppergrass)
- Pigweed, Prostrate, Redroot (Carelessweed), Rough, Smooth, Tumble
- Pineappleweed
- Poorjoe
- Poppy, Red-horned
- Puncturevine
- Purslane, Common
- Pusley, Florida
- Radish, Wild
- Ragweed, Common, Giant (Buffaloweed), Lance-Leaf
- Rocket, London, Yellow
- Rubberweed, Bitter (Bitterweed)
- Salsify
- Senna, Coffee
- Sesbania, Hemp
- Shepherdpurse
- Sicklepod
- Sida, Prickly (Teaweed)
- Smartweed, Green, Pennsylvania
- Sneezeweed, Bitter
- Sowthistle, Annual, Spiny
- Spanish Needles
- Spikeweed, Common
- Spurge, Prostrate, Leafy
- Spurry, Corn
- Starbur, Bristly
- Starwort, Little
- Sumpweed, Rough
- Sunflower, Common (Wild), Volunteer
- Thistle, Russian
- Velvetleaf
- Waterhemp, Common, Tall
- Waterprimrose, Winged
- Wormwood

Biennials

- Burdock, Common
- Carrot, Wild (Queen Anne's Lace)
- Cockle, White
- Eveningprimrose, Common
- Geranium, Carolina
- Gromwell
- Knapweed, Diffuse, Spotted
- Mallow, Dwarf
- Plantain, Bracted
- Ragwort, Tansy
- Starthistle, Yellow
- Sweetclover
- Teasel
- Thistle, Bull, Milk, Musk, Plumeless

Perennials

- Alfalfa[1]
- Artichoke, Jerusalem
- Aster, Spiny, Whiteheath
- Bedstraw, Smooth
- Bindweed, Field, Hedge
- Blueweed, Texas
- Bursage, Woollyleaf[1] (Bur Ragweed, Povertyweed)
- Buttercup, Tall
- Campion, Bladder
- Chickweed, Field, Mouseear

Chicory[1]
Clover[1], Hop
Dandelion[1], Common
Dock[1] Broadleaf (Bitterdock), Curly
Dogbane, Hemp
Dogfennel[1] (Cypressweed)
Fern, Bracken
Garlic, Wild
Goldenrod, Canada, Missouri
Goldenweed, Common
Hawkweed
Henbane, Black[1]
Horsenettle, Carolina
Ironweed
Knapweed, Black, Diffuse, Russian[1], Spotted
Milkweed, Climbing, Common, Honeyvine, Western Whorled
Nettle, Stinging
Nightshade, Silverleaf (White Horsenettle)
Onion, Wild
Plaintain, Broadleaf, Buckhorn
Pokeweed
Ragweed, Western
Redvine
Sericia Lespedeza
Smartweed, Swamp
Snakeweed, Broom
Sorrel[1], Red (Sheep Sorrel)
Sowthistle[1], Perennial
Spurge, Leafy
Sundrops
Thistle, Canada, Scotch
Toadflex, Dalmatian
Tropical Soda Apple
Trumpetcreeper (Buckvine)
Vetch
Waterhemlock, Spotted
Waterprimrose, Creeping
Woodsorrel[1], Creeping, Yellow
Wormwood, Absinth, Louisiana
Yankeeweed
Yarrow, Common[1]

[1] Noted perennials may be controlled using lower rates of **XtendiMax® With VaporGrip® Technology** than those recommended for other listed perennial weeds.

Woody Species

Alder
Ash
Aspen
Basswood
Beech
Birch
Blackberry[2]
Blackgum[2]
Cedar[2]
Cherry
Chinquapin
Cottonwood
Creosotebush[2]
Cucumbertree
Dewberry[2]
Dogwood[2]
Elm
Grape
Hawthorn (Thornapple)[2]
Hemlock
Hickory
Honeylocust
Honeysuckle
Hornbeam
Huckleberry
Huisache
Ivy, Poison
Kudzu
Locust, Black
Maple
Mesquite
Oak
Oak, Poison
Olive, Russian
Persimmon, Eastern
Pine
Plum, Sand (Wild Plum)[2]
Poplar
Rabbitbrush
Redcedar, Eastern[2]
Rose[2], McCartney, Multiflora
Sagebrush, Fringed[2]
Sassafras
Serviceberry
Spicebush
Spruce
Sumac
Sweetgum[2]
Sycamore
Tarbush
Willow
Witchhazel
Yaupon[2]
Yucca[2]

[2]Growth suppression only

14.0 LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCTS THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN

CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on crops with Xtend® Technology, crop safety and weed control performance are not warranted by Monsanto when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

EPA Reg. No. 524-617

EPA Establishment No. [insert appropriate est. no.]

Lot number [insert appropriate lot number]

Net contents [insert net contents]

Packed for:
MONSANTO COMPANY
800 N. Lindbergh Blvd.
ST. LOUIS, MISSOURI, 63167 U.S.A.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

NOTICE OF PESTICIDE:
_X_ Registration
___ Reregistration
(under FIFRA, as amended)

EPA Reg. Number:	Date of Issuance:
524-617	11/1/18

Term of Issuance:
Conditional

Name of Pesticide Product:
M1768 Herbicide

Name and Address of Registrant (include ZIP Code):

Thomas Marvin
Bayer CropScience
1300 I St., NW
Washington, DC 20005

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(B). You must comply with the following terms and conditions:

General Terms

1. You must submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Michael L. Goodis, P.E.
Director, Registration Division (RD)
Office of Pesticide Programs (OPP)

Date: 11/1/18

EPA Form 8570-6

2. You are required to comply with the data requirements described in the DCIs identified below:

    a. Dicamba GDCI-029801-1721

    You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Chemical Review Manager in the Pesticide Reevaluation Division: http://iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1

3. This registration will automatically expire on December 20, 2020.

Labeling/Relabeling

The previously approved labeling contains an expiration date of November 9, 2018 and cannot be used beyond that date. New labeling is required on the product beyond this date. Beginning November 10, 2018, before using any product with expired labeling, users must first access a website maintained by Bayer CropScience to review directions for use and obtain a copy of the current final printed label, and must have that label in their possession at the time of use.

4. Final Printed Label. You must submit one copy of the final printed labeling that is consistent with the new accepted label to EPA before any existing product already in the channels of trade is relabeled with that label, or before you release any new product for shipment featuring that label. Any changes to the final printed labeling must be submitted to EPA before being used in future production.

5. Posting Updated Information for Users. From November 10, 2018 through December 20, 2020, you must maintain a website and publish the following material and statements in a clear and easily accessible manner:
    a. A copy of the most current final printed label submitted to EPA per paragraph 4;
    b. "Xtendimax with VaporGrip Technology is a Restricted Use Pesticide.";
    c. "The label affixed to the container in your possession may contain incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the labeling linked on this website featuring an expiration date of December 20, 2020 at the time of use.";
    d. "Users must comply in all respects with labeling featuring an expiration date of December 20, 2020, regardless of any contrary language on the label physically affixed to any individual container."; and
    e. "If you have any questions about the use of this product, please contact *1-844-RRXTEND*."

When relabeling or labeling as set forth below, either the sticker or the new label (approved on October 31, 2018) must be affixed to *each individual container* of Xtendimax with VaporGrip Technology (EPA Reg. No. 524-617) that is intended for end use, sale or distribution.

6. Relabeling Product Already in Trade. All product currently in the channels of trade, in retail inventories, in the distribution chain (packaged and released for shipment), and product that was manufactured before November 9, 2018 must be relabeled with a sticker on the container with an approved label (dated October 31, 2018) accompanying the container, or the approved label (per paragraph number 4 above) on the container. If stickering is used then a sufficient number of copies of the current labeling (approved October 31, 2018) listing an expiration date of December 20, 2020 will be placed in the carton to accompany the number of individual containers in the carton. Bayer CropScience agrees to the following:
    a. All relabeling will be conducted in an EPA-registered establishment, and production must be reported per FIFRA Section 7.
    b. The sticker will contain the following information:
        i. "Restricted Use Pesticide";
        ii. "The label affixed to this container contains incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the current labeling listing an expiration date of December 20, 2020 at the time of use."; and
        iii. "User must comply in all respects with new label(ing) listing an expiration date of December 20, 2020, regardless of any contrary language on existing label physically affixed to any individual container."
    c. Copies of the approved labels must be provided to distributors and must accompany each stickered container at all times.
    d. Communicate efficiently with Bayer CropScience's entire distribution chain. Specifically:
        i. By December 31, 2018, Bayer CropScience submits to EPA a list of known distributors and retailers that may have received product with previously-accepted labels. (Such list shall be treated by EPA as confidential business information).
        ii. By December 31, 2018, Bayer CropScience must inform all distributors and retailers on that list of the need, as it is represented in this letter, to relabel, of the legal liability that would result from their sale or distribution of product with previously-accepted labels after October 31, 2018, and that relabeling are production activities under FIFRA and no retailer or distributor may begin any production activities until their establishment is registered with EPA.
        iii. For those distributors and retailers that are able to relabel in an EPA-registered establishment, Bayer CropScience must instruct them how to affix the Sticker or the new printed label to each product container, and must supply the new approved labels (dated October 31, 2018) and stickers in order for them to do so.
        iv. For those distributors and retailers that are interested in registering an establishment for pesticide production, Bayer CropScience must refer them to procedures on how to register with EPA as a registered establishment and remind them of FIFRA's production reporting requirements.
        v. For those distributors and retailers who do not intend to relabel themselves, Bayer CropScience must inform them who to contact so that Bayer CropScience can immediately reclaim the inventory. If Bayer CropScience performs the relabeling, it must be done at an EPA-registered establishment, and all production must be reported per FIFRA section 7.

e. Bayer CropScience must provide EPA a copy of each communication required above within 30 days of each communication.

7. New Production. Bayer CropScience is responsible for ensuring all product produced, packaged, and released for shipment beginning November 10, 2018 and thereafter bears the new final printed labeling submitted to EPA per paragraph number 4 above. Bayer CropScience must ensure all production activities take place in an EPA-registered establishment and that all production is reported pursuant to FIFRA section 7.

You are advised that if you wish to add/retain a reference to the company's website on your label, then the website becomes "labeling" under FIFRA. If the website content is false or misleading, all products referencing the website would be misbranded and it would be unlawful to sell or distribute them under FIFRA section 12(a)(1)(E). In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Should the Agency find, or if it is brought to our attention, that a website contains false or misleading statements or claims substantially differing from the EPA-accepted registration, the matter will be referred to the EPA's Office of Enforcement and Compliance.

Tank Mixing and Spray Drift Requirements

8. You must maintain a website at http://Xtendimaxapplicationrequirements.com. That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Xtendimax with VaporGrip Technology. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Xtendimax with VaporGrip Technology. The website must state that any person seeking to have a product added to the list must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Xtendimax with VaporGrip Technology, to EPA. EPA will notify you when the Agency determines that a product has been certified to be appropriately added to the list, and you will add appropriately certified products to the list no more than 90 days after you receive such notice from EPA. Testing of Tank-Mix Products must be conducted in compliance with procedures as stated forth in Appendix A.
9. All test data relating to the impact of tank-mixing any product with Xtendimax with VaporGrip Technology on drift properties of Xtendimax with VaporGrip Technology generated by you or somebody working for you must be submitted to EPA, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Xtendimax with VaporGrip Technology, to the EPA's Office of Pesticide Programs.

10. The prohibition of using products in a tank-mix with Xtendimax with VaporGrip Technology unless the product used is contained on the list http://Xtendimaxapplicationrequirements.com, and the identification of the website address, shall be included in educational and information materials developed for Bayer CropSciences, including the materials identified in Appendix D, Section B(l).
11. You must maintain, update and follow an Herbicide Resistance Management Plan (HRM) as laid out in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

Enhanced Reporting

If Bayer CropScience acquires any of the information identified below, that information must be reported to EPA's Office of Pesticide Programs under section 6(a)(2), or under 40 CFR 159.195 unless you have previously submitted that information to EPA's Office of Pesticide Programs.

12. Information, other than personally identifiable information, received by telephone or in writing regarding potential damage to non-target vegetation from use of dicamba during the 2019 and 2020 growing seasons regardless of any determination that the incident resulted from misuse (intentional or accidental). Information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged damage resulted from a product being used according to label directions. Data should be organized by product and state and should include available information regarding acreage involved, plant species involved, severity of damage, and similar information received. This information must be submitted with cumulative totals and be submitted monthly, beginning March 1, 2019.
13. Information, other than personally identifiable information, received by telephone or in writing regarding reports of dicamba-resistant weeds, and cases of weed control failure and/or suspected resistance. All information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged resistance occurred after an application made according to label directions.
14. A summary of all studies being conducted or sponsored by Bayer CropScience, pertaining to off-target movement of the labelled use of Xtendimax with VaporGrip Technology (e.g., volatility, physical drift, runoff) must be provided to the EPA.
15. Any information or analysis finding that foods/commodities contain dicamba residues that are not covered by a tolerance or exceed established tolerance levels.

Given the high number of alleged dicamba-related adverse incidents reported to EPA in 2017 and 2018 by state lead agencies (SLAs) as well as registrants under FIFRA section 6(a)(2), it is an Agency priority to work with registrants to better understand potential risks and impacts from the use of dicamba on dicamba-tolerant soybean and dicamba-tolerant cotton. The following information, which shall be treated by EPA as confidential business information, is being required to be submitted to the Agency to assist the Agency in making future regulatory decisions regarding these uses.

16. Seed sales information for dicamba tolerant soybean seed and dicamba tolerant cotton seed. This information should include all sales of such seed for planting or planted in the 2017 though 2020 growing seasons and should be categorized by state.
17. Number and type of containers, including volume of material produced by registrant Xtendimax with VaporGrip Technology that were relabeled with the amended labeling approved by the Agency on October 31, 2018. This information should be categorized by the state to which registrant shipped such material.

Additional Data Requirements

The following additional confirmatory studies are required as a condition of this amended registration. Since these are non-guideline studies, prior to developing a protocol and initiating any study, Bayer CropScience must meet with EPA staff by November 12, 2018 to present and engage in a data quality objective discussion regarding environmental conditions, sampling, and species evaluated. Protocols must be submitted before December 31, 2018 for the Agency's consideration. This work to agree on final protocols will be undertaken on a schedule that recognizes the timing for conducting research during 2019. Field studies must be conducted during the 2019 growing season and final reports must be submitted to the Agency in connection with the January 15, 2020 required reporting submission outlined in Appendix D, Section D.

18. Field studies examining off-site movement of dicamba. Specifically, the study design needs to evaluate impacts on plant height and yield from primary and secondary drift off-target, with transects in all four cardinal directions. These studies should represent varied geographic areas and include locations where high numbers of complaints have been logged and ranges of environmental conditions (e.g., temperature and humidity). Additionally, a study needs to evaluate the effects of dicamba-containing agricultural irrigation water on non-target plants. Data evaluating the response of non-DT soybean or other non-target plants exposed to irrigation water contaminated with dicamba. A consistent protocol is required for all field locations.
19. Studies to investigate temperature effects on volatility of dicamba. The use of humidome studies would allow EPA to evaluate the effects of temperature in a controlled environment for a multitude of temperature, relative humidity, and tank mix pH conditions.
20. Ecological effects data on non-target plants, related to survival, growth and reproduction for select sensitive tree/shrub/woody perennial species. The study design could involve an extended period for consideration of such species.
21. Study which evaluates the effect of pH on secondary movement of dicamba. The analysis should examine variability introduced by tank mix partners and different water conditions on the pH of the mixed material. The study should reflect a variety of water pH throughout the country, particularly in areas with the largest technology adoption and incidents. These tests should examine the pH of the applied solution.

If you fail to satisfy these terms, conditions and data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

Enclosure

Appendix A

Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology:

Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September, 2013)

Testing Media:	Xtendimax™ with VaporGrip™ Technology + Xtendimax™ with VaporGrip™ Technology Proposed Tank Mix Product
Test Nozzle:	Tee Jet® TTI 11004 at 63 psi
Number of Replicates:	3 for each tested medium

Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test (p=Q.l) to determine if proposed tank-mix product is above Xtendimax™ with VaporGrip™ Technology 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition

Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for Xtendimax™ with VaporGrip™ Technology, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology contained on the web site. If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for Xtendimax™ with VaporGrip™ Technology, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

Appendix B

Validation Criteria

a. Detailed information of instrument setting and measurements
- The distance from the nozzle tips to the laser settings
- Measurements of airspeed and flow rate of liquid

b. Detailed information of test substances
- Volume composition and density of Xtendimax™ with VaporGrip™ Technology formulation and tank mixes

c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.

d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum

Report of DvO.l (SD), DvO.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

Appendix C

AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of "nozzle type"
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Xtendimax™ with VaporGrip™ Technology for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of "crops" cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	M 1768 at 1.72% v/v	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below[1]

[1]The tested mixture was 1.72% (v/v) M-1768. M-1768 has a density of 10.2 lb/gal and contains 42.8% (w/v) dicamba DGA salt (2.9 lb acid equivalent/gal).
For example, a 10-gallon batch would contain the following:
M-1768 1.71% * 10 gal = 0.172 gal ; 0.172 gal * 10.2 lb/gal = 1.753 lb
Water 10 gal (1280 fl oz) – 22 fl oz = 1258 fl oz = 82.0157 lb
Total weight 1.753 lb + 82.016 lb = 83.769 lb
Active ingredient fraction: 1.753 lb * 42.8% a.i. = 0.75 lb; 0.75 lb/83.769 lb = 0.00896 (dimensionless)
Non-volatile fraction: 0.00896/0.428 = 0.021 (dimensionless)

Appendix D

HERBICIDE RESISTANCE MANAGEMENT PLAN

Bayer CropScience must:

A. Field Detection and Remediation Components:

1. Update and implement an education program for growers, as set forth under the "Educational / Informational Component," below, that identifies appropriate best management practices (BMPs), as set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and that conveys to growers the importance of complying with BMPs. Such BMPs shall include that fields must be scouted after application to confirm herbicide effectiveness, and that users should report any incidence of lack of efficacy of this product against a particular weed species to Bayer CropScience or a Bayer CropScience representative.

2. If any grower informs you of a lack of herbicide efficacy, then you or your representative must make an effort to evaluate the field for "likely resistance" to M1768 herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al*., "Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations," Weed Science 2012 Special Issue:31–62 (*hereinafter* "Norsworthy criteria")[1] in each specific state until resistance to dicamba is confirmed for a specific weed species in that state using acceptable scientific methods. However, for each grower, you must continue to provide stewardship about resistance management throughout their use of this product. If resistance to dicamba is confirmed in a specific state for a specific weed species, then Bayer must immediately report such confirmation to EPA and need no longer investigate reports of lack of herbicide efficacy regarding that specific species in that specific state, but Bayer must continue to make an effort to help address of lack of herbicide efficacy regarding any other weed species in any such state;
3. Keep records of all field evaluations for "likely resistance" for a period of 3 years, and make such copies available to EPA upon request; and
4. If one or more of the Norsworthy criteria are met, then for a weed species not already confirmed to be resistant to dicamba in that specific state, Bayer CropScience will:
    a. Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by the grower, Bayer CropScience or their agent will become actively involved in implementation of weed control measures;
    b. Request, at the time of the initial determination that one or more of the Norsworthy criteria are met and prior to any application of alternative control practices, that the grower provide you with access to the relevant field(s) to collect specimens of the likely resistant weeds (potted specimens or seeds) for further evaluation in the greenhouse or laboratory, and so collect such specimens if

[1] The Norsworthy "likely herbicide resistance" criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that "likely herbicide resistance" is present.

possible (or, alternatively, request that the grower provide such specimens to you, at your expense);

c. Commence greenhouse or laboratory studies to confirm resistance as soon as practicable following sample collection;

d. To the extent possible, contact or visit the grower in an appropriate timeframe after implementation of the additional weed control measures in order to evaluate success of such measures; and

e. If the additional weed control measures were not successful in controlling the likely resistant weeds, then:

   i. Work with the grower to determine the reason(s) why the additional control measures were not successful;

   ii. Report annually the inability to control the likely resistant weeds to relevant stakeholders; and

   iii. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.

B. Educational / Informational Component:

1. Update and implement an education program for growers that includes the following elements:

   a. The education program shall identify appropriate best management practices (BMPs), set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and shall convey to growers the importance of complying with BMPs;

   b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of Xtendimax™ with VaporGrip™ Technology for use over-the-top on dicamba tolerant soybean or cotton; and

   c. You must make the education program available to Bayer CropScience sales representatives for distribution to growers.

2. Provide to EPA the original education program within three months of the issuance of this registration.

C. Evaluation Component:

1. Bayer CropScience will annually conduct a survey directed to users of Xtendimax™ with VaporGrip™ Technology for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. This survey shall evaluate, at a minimum, the following:

a. Growers' adherence to the terms of the Xtendimax™ with VaporGrip™ Technology Use Directions and Label Restrictions, and

b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of Xtendimax™ with VaporGrip™ Technology and, if so, how growers have responded.

2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following:

a. Efforts aimed at achieving adoption of BMP's;

b. Responses to incidents of likely resistance and confirmed resistance; and

c. The education program. At the initiative of either EPA or Bayer CropScience, EPA and Bayer CropScience shall consult about possible modifications of the education program.

D. Reporting Component:

1. Submit annual reports to EPA by January 15 of each year, beginning on January 15, 2019. Such reports shall include:

a. Annual sales of Xtendimax™ with VaporGrip™ Technology by state;

b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report;

c. Summary of your efforts aimed at achieving implementation of BMP's;

d. Summary of your determinations as to whether any reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, Bayer will list the cases of likely resistance by county and state.

e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including whether growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and

f. Summary of the status of any laboratory and greenhouse testing performed by, or at the direction of, Bayer CropScience following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing need not be included in the annual reports, but such data must be made available to EPA upon request.

Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.

E. Best Management Practices (BMPs) Component:

1. Best management practices (BMPs) must be identified in your education program. Growers will be advised of BMP's in product literature, educational materials and training. The following are examples of BMPs:

a. Regarding crop selection and cultural practices:

i. Understand the biology of the weeds present.

ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.

iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.

iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.

v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.

vi. Do not allow weed escapes to produce seeds, roots or tubers.

vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.

viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.

ix. Thoroughly clean plant residues from equipment before leaving fields.

x. Prevent an influx of weeds into the field by managing field borders.

xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.

xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.

xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.

b. Regarding herbicide selection:

i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.

ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.

iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.

iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.

v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.

vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.

vii. Report any incidence of lack of efficacy of this product against a particular weed species to Bayer CropScience or a Bayer CropScience representative.

This list may be updated or revised as new information becomes available

MASTER LABEL FOR EPA REG. NO. 524-617

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators

This labeling expires on 12/20/2020. Do not use or distribute this product after 12/20/2020.

ACCEPTED
11/01/2018
Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 524-617

Primary Brand Name:

M1768 Herbicide

Alternate Brand Name:

XtendiMax® With VaporGrip® Technology

DICAMBA	GROUP	4	HERBICIDE

ACTIVE INGREDIENT:

Diglycolamine salt of dicamba (3,6-dichloro-*o*-anisic acid)*	42.8%
OTHER INGREDIENTS:	57.2%
TOTAL:	100.0%

* contains 29.0%, 3,6-dichloro-*o*-anisic acid (2.9 pounds acid equivalent per U.S. gallon or 350 grams per liter).

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators

XtendiMax® With VaporGrip® Technology

Complete Directions for Use

This labeling expires on 12/20/2020. Do not use or distribute this product after 12/20/2020.

EPA Reg. Number: 524-617

For weed control in asparagus, conservation reserve programs, corn, cotton, fallow croplands, general farmstead (noncropland), sorghum, grass grown for seed, hay, proso millet, pasture, rangeland, small grains, sod farms and farmstead turf, soybean, sugarcane, cotton with XtendFlex Technology, Roundup Ready 2 Xtend Soybean, and XtendFlex Soybean.

DICAMBA	GROUP	4	HERBICIDE

This label supersedes any previously issued labeling for this product, including previously issued supplemental labeling.

XtendiMax® With VaporGrip® Technology is approved by U.S. EPA for all uses specified on this label in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Check the registration status of each product in each state before using.

READ THE ENTIRE LABEL FOR **XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY**
BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS LABEL

READ AND FOLLOW ALL APPLICABLE DIRECTIONS, RESTRICTIONS, AND PRECAUTIONS ON THE CONTAINER LABEL AND BOOKLET AND WWW.XTENDIMAXAPPLICATIONREQUIREMENTS.COM.

Read the ”LIMIT OF WARRANTY AND LIABILITY” statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

Net contents:

EPA Establishment No.:

CONTENTS

1.0 INGREDIENTS

ACTIVE INGREDIENT:

Diglycolamine salt of dicamba (3,6-dichloro-*o*-anisic acid)*	42.8%
OTHER INGREDIENTS:	57.2%
TOTAL:	100.0%

* contains 29.0%, 3,6-dichloro-*o*-anisic acid (2.9 pounds acid equivalent per U.S. gallon or 350 grams per liter).

DICAMBA	GROUP	4	HERBICIDE

2.0 IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE, 1-800-332-3111.
2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, (314)-694-4000.

IN CASE OF SPILL:

Steps to be taken in case material is released or spilled:

Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.

3.0 PRECAUTIONARY STATEMENTS

3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow.

	• Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
• Have the product container or label with you when calling a poison control center or doctor, or going for treatment. • You can call **(314) 694-4000**, collect day or night, for emergency medical treatment information. • This product is identified as **XtendiMax® With VaporGrip® Technology, EPA Registration No. 524-617.**	

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

See "Engineering Controls Statement" for additional requirements.
Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENT

When handlers use closed systems, or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "all mixers, loaders, applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

3.2 Environmental Hazards

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Ground and Surface Water Protection

Point source contamination - To prevent point source contamination, do not mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. Do not apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment wash waters, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent: a) back siphoning into wells, b) spills or c) improper disposal of excess pesticide, spray mixtures or rinsates. Check valves or anti-siphoning devices must be used on all mixing equipment.

Movement by surface runoff or through soil - Do not apply under conditions which favor runoff. Do not apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for ground water contamination. Ground water contamination may occur in areas where soils are permeable or coarse and ground water is near the surface. Do not apply to soils classified as sand with less than 3% organic matter and where ground water depth is shallow. To minimize the possibility of ground water contamination, carefully follow application rate recommendations as affected by soil type in the Crop Specific Information section of this label.

Movement by water erosion of treated soil - Do not apply or incorporate this product through any type of irrigation equipment nor by flood or furrow irrigation. Ensure treated areas have received at least one-half inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

Endangered Species Concerns
Use of this product in a manner inconsistent with its labeling may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult https://www.epa.gov/endangered-species or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product.

It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species.

3.3 Physical or Chemical Hazards

Do not store or heat near oxidizing agents, hazardous chemical reaction may occur.

4.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label. This labeling must be in the user's possession during application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

This is a restricted use pesticide.

4.1 Training

Prior to applying this product in the 2019 growing season and each growing season thereafter, all applicator(s) applying this product must complete dicamba or auxin-specific training. If training is available and required by the state where the applicator intends to apply this product, the applicator must complete that training. If the state where the application is intended does not require auxin or dicamba-specific training, then the applicator must complete dicamba or auxin-specific training provided by one of the following sources: a) a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops, or b) a state or state-authorized provider.

4.2 Record Keeping

Record keeping is required for applications of this product. **The certified applicator must keep the following records for a period of two years**; records must be generated as soon as practical but no later than 72 hours after application and a record must be kept for each application of Xtendimax with VaporGrip Technology. Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. An example form summarizing record keeping requirements can be found on www.xtendimaxapplicationrequirements.com.

1. All Items required by 7 CFR Part 110 (RECORDKEEPING ON RESTRICTED USE PESTICIDES BY CERTIFIED APPLICATORS) including:
    a. The brand or product name
    b. The EPA registration number
    c. The total amount applied
    d. The month, day, and year of application
    e. The location of the application
    f. The crop, commodity, stored product, or site of application
    g. The size of treated area
    h. The name of the certified applicator
    i. The certification number of the certified applicator
2. Training: Date and provider of required training completed and proof of completion.
3. Receipts of Purchase: Receipts or copies for the purchase of this product.
4. Product Label: A copy of this product label, and any state special local needs label that supplements this label.
5. Crop Planting Date: Record of the date at which the crop was planted.
6. Buffer Requirement: Record of the buffer distance calculation and any areas included within the buffer distance calculations as allowed in Section 9.1.4.a.
7. Sensitive Crops Awareness: Record that a sensitive crop registry was consulted and survey adjacent fields documenting the crops/areas surrounding the field prior to application. At a minimum, records must include the name of the sensitive crop registry and the date it was consulted and documentation of adjacent crops/areas and the date the survey was conducted (read Section 9.1.4.b for additional information).
8. Start and Finish Times of Each Application: Record of the time at which the application started and the time when the application finished.
9. Application Timing: Record of the type of application (for example: pre-emergence, post-emergence) and number of days after planting if post-emergence.
10. Air Temperature: Record of the air temperature in degrees Fahrenheit at the start and completion of each application.

11. Wind Speed and Direction: Record of the wind speed and direction (the direction from which the wind is blowing) at boom height at the start and completion of each application of this product (Read Section 9.1.1 for information on wind speed).
12. Nozzle and Pressure: Record of the spray nozzle manufacturer/brand, type, orifice size, and operating pressure used during each application of this product (Read Section 9.1.1 for information on nozzles and pressures.)
13. Tank Mix Products: Record of the brand names and EPA registration numbers (if available) for all products (pesticides, adjuvants, and other products) that were tank mixed with this product for each application (Read Section 8.0 for more information on tank mixing.)
14. Spray System Cleanout: Record of compliance with the section of this label titled Section 9.5: Proper Spray System Equipment Cleanout. At a minimum, records must include the confirmation that the spray system was clean before using this product and that the post-application cleanout was completed in accordance with Section 9.5.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Waterproof gloves
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow people (or pets) to enter the treated area until sprays have dried. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Do not enter or allow other people or pets to enter until sprays have dried.

5.0 STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage and disposal. Open dumping is prohibited. This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described above

5.1 Pesticide Storage

Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.
Store in original container in a well-ventilated and away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Avoid cross-contamination with other pesticides. Keep container closed to prevent spills and contamination.

5.2 Pesticide Disposal

To avoid wastes, use all material in this container, including rinsate, by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide

disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable federal, state and local regulations and procedures.
[*Alternate PESTICIDE DISPOSAL statement for transport vehicles only:* To avoid wastes, empty as much product from this transport vehicle as possible for repackaging or use in accordance with label directions. If wastes cannot be avoided, offer remaining product or rinsate to a waste disposal facility or pesticide disposal program. All disposal must be in accordance with applicable federal, state and local regulations and procedures.]

5.3 Container Handling and Disposal

[*Optional label statement if applicable*: See container label for container handling and disposal instructions and refilling limitations.]

[*CONTAINER HANDLING AND DISPOSAL STATEMENTS AND REFILLING LIMITATIONS FOR CONTAINER LABELS*]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID CONTAINERS OF LESS THAN 1-GALLON CAPACITY*]

Nonrefillable container. Do not reuse or refill this container.

[*Alternate container statement:* Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387). If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 2.5-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 1-GALLON BUT EQUAL TO OR LESS THAN 5-GALLON CAPACITY*]

Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.

[*Alternate container statement:* Nonrefillable container. Do not reuse or refill this container.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Optional container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 30-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 5-GALLON CAPACITY*]

Nonrefillable container. Do not reuse or refill this container.

[*Alternate container statement:* Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Alternate container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available,

dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer the container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*Optional container label statement:* Return Properly Rinsed Container to Monsanto for Recycling Contact: 1-800-ROUNDUP (1-800-768-6387)]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR ALL REFILLABLE CONTAINERS, EXCEPT TRANSPORT VEHICLES*]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning this container before refilling is the responsibility of the refiller. Cleaning this container before final disposal is the responsibility of the person disposing of the container.

To clean this container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer this container for recycling, if available.

[*Optional container disposal statement:* To obtain information about recycling refillable containers, contact Monsanto Company at 1-800-ROUNDUP (1-800-768-6387)]

[*Optional container label statement:* Return Properly Rinsed Container to Monsanto for Recycling, Call 1-800-ROUNDUP (1-800-768-6387)]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT FOR ALL TRANSPORT VEHICLES AS DEFINED IN 40 CFR 156.3]*

THIS LABEL FOR USE WITH TRANSPORT VEHICLES ONLY

Emptied container retains vapor and product residue. Observe all precautions stated on this label until the container is cleaned, reconditioned or destroyed. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, and worn-out threads and closures. Clean thoroughly before reuse for transportation of a material of different composition or before retiring this transport vehicle from service.

[Alternative label statement: NET CONTENTS: See Bill of Lading]

[Alternative label statement: LOT: See Bill of Lading]

[Alternative label statement: For Net Contents and Lot Number, see Bill of Lading]

6.0 PRODUCT INFORMATION

XtendiMax® With VaporGrip® Technology is approved by U.S. EPA for all uses specified on this label in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Additional state restrictions and requirements may apply. The applicator must comply with any additional state requirements and restrictions.

This product is a water-soluble formulation intended for control and suppression of many annual, biennials, and perennial broadleaf weeds, as well as woody brush and vines listed in the WEEDS CONTROLLED section of this label. This product may be used for control of these weeds in asparagus, corn, cotton, conservation reserve programs, fallow cropland, grass grown for seed, hay, proso millet, pasture, rangeland, general farmstead (noncropland), small grains, sod farms and farmstead turf, sorghum, soybean, sugarcane, Cotton with XtendFlex Technology, Roundup Ready 2 Xtend Soybean, and XtendFlex Soybean.

XtendiMax® With VaporGrip® Technology is a contact, systemic herbicide, which can have moderate residual control on small seeded broadleaf weeds, including waterhemp, lambsquarters and Palmer pigweed, depending on rainfall and soil type.

XtendiMax® With VaporGrip® Technology is readily absorbed by plants through shoot and root uptake, translocates throughout the plant's system, and accumulates in areas of active growth. XtendiMax® With VaporGrip® Technology interferes with the plant's growth hormones (auxins) resulting in death of many broadleaf weeds.

Failure to properly clean the entire spray system can result in inadvertent contamination of the spray system. You must ensure that the spray system used to apply this product is clean before using this product.

Rainfast period: Rainfall or irrigation occurring within 4 hours after postemergence applications may reduce the effectiveness of this product.

Refer to the CROP-SPECIFIC INFORMATION and CROPS WITH XTEND TECHNOLOGY sections for application timing and other crop-specific details.

6.1 Restrictions

The applicator must read the entire label, including product labeling and follow all restrictions for XtendiMax® With VaporGrip® Technology**.** Restrictions included, but are not limited to:

- DO NOT APPLY THIS PRODUCT AERIALLY.
- DO NOT TANK MIX WITH PRODUCTS CONTAINING AMMONIUM SALTS SUCH AS AMMONIUM SULFATE (AMS) AND UREA AMMONIUM NITRATE. Small quantities of AMS can greatly increase the volatility potential of dicamba. Read the TANK MIXING INSTRUCTIONS of this label (Section 8.0) for instructions regarding other tank mix products.
- DO NOT APPLY TO CROPS UNDER STRESS DUE TO LACK OF MOISTURE, HAIL DAMAGE, FLOODING, HERBICIDE INJURY, MECHANICAL INJURY, INSECTS, OR WIDELY FLUCTUATING TEMPERATURES AS INJURY MAY RESULT.
- DO NOT APPLY THROUGH ANY TYPE OF IRRIGATION EQUIPMENT. DO NOT TREAT IRRIGATION DITCHES OR WATER USED FOR CROP IRRIGATION OR DOMESTIC PURPOSES.

- DO NOT MAKE APPLICATION OF THIS PRODUCT IF RAIN THAT MAY EXCEED SOIL FIELD CAPACITY AND RESULT IN SOIL RUNOFF IS EXPECTED IN THE NEXT 24 HOURS

Review the entire label including, specific crop use direction sections for additional restrictions.

7.0 WEED RESISTANCE MANAGEMENT

DICAMBA	GROUP	4	HERBICIDE

Dicamba mimics auxin (a plant hormone) resulting in a hormone imbalance in sensitive plants that interferes with normal cell division, cell enlargement, and protein synthesis. Dicamba active ingredient is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population can contain plants naturally resistant to Group 4 herbicides. Weed species resistant to Group 4 herbicides can be effectively managed utilizing another herbicide from a different Group, or by using other cultural or mechanical practices.

7.1 Weed Management Practices

Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than the labeled rate of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful implementation of a weed resistance management program.

To aid in the prevention of developing weeds resistant to this product:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are relatively small (less than 4 inches).
- Apply full rates of XtendiMax® With VaporGrip® Technology for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Avoid tank mixtures with other herbicides that reduce the efficacy of this product (through antagonism), or with ones that encourage application rates of this product below those specified on this label.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer or representative or call 1-844-RRXTEND (1-844-779-8363).
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production. EPA defines suspected herbicide resistance as the situation where the following three indicators occur at a site or location:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Avoid making more than two applications of dicamba and any other Group 4 herbicides within a single growing season unless mixed with an herbicide with a different mechanism of action with an overlapping spectrum for the difficult to control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

7.2 Management of Dicamba-Resistant Biotypes

Appropriate testing is critical in order to determine if a weed is resistant to dicamba. Contact your Monsanto representative to determine if resistance in any particular weed biotype has been confirmed in your area, or visit on the Internet www.weedresistancemanagement.com or www.weedscience.org.

Monsanto Company is not responsible for any losses that result from the failure of this product to control dicamba-resistant weed biotypes.

The following good agronomic practices can reduce the spread of confirmed dicamba-resistant biotypes:

- If a naturally occurring resistant biotype is present in your field, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control (read Section 8.0 for more information on tank mixing).
- Cultural and mechanical control practices (e.g., crop rotation or tillage) can also be used as appropriate.
- Scout treated fields after herbicide application and control weed escapes, including resistant biotypes, before they set seed.
- Thoroughly clean equipment, as practical, for all weed seeds before leaving fields known to contain resistant biotypes.

8.0 TANK MIXING INSTRUCTIONS

Auxin herbicides such as dicamba have the potential to volatilize in lower pH spray mixtures. Knowing the pH of your spray mixture and making the appropriate adjustments to avoid a low pH spray mixture (e.g., pH less than 5) can reduce the potential for volatilization to occur. Talk to your local agricultural consultant, extension agent, or Bayer representative for recommendations to prevent low pH spray mixtures.

XtendiMax® With VaporGrip® Technology may only be tank-mixed with products that have been tested and found not to adversely affect the offsite movement potential of XtendiMax® With VaporGrip® Technology. The applicator must check the website found at www.xtendimaxapplicationrequirements.com no more than 7 days before applying XtendiMax® With VaporGrip® Technology.

DO NOT tank mix any product with XtendiMax® With VaporGrip® Technology unless:

1. The intended tank-mix product is identified on the list of tested products found at www.xtendimaxapplicationrequirments.com;
2. The intended products are not prohibited on either this label or the label of the tank mix product; and
3. All requirements and restrictions on www.xtendimaxapplicationrequirments.com are followed.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY. See the section titled “LIMIT OF WARRANTY AND LIABILITY” herein for more information.

8.1 Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

- For 15 gallons per acre spray volume, use 2.5 cups (591.5 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
- Add components in the sequence indicated in the Mixing Order section below using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.
- Cap the jar and invert 10 cycles between component additions.
- When the components have all been added to the jar, let the solution stand for 15 minutes.
- Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, then do not mix the ingredients in the same tank.

8.2 Mixing Order

Only use approved tank mix products as directed on www.xtendimaxapplicationrequirements.com. Always read and follow label directions for all products in the tank mixture. It is the pesticide user’s responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. See section 8.0 for additional restrictions on tank mixing.

1. Ensure application and mixing equipment are clean and in proper working order
2. Water - Begin by agitating a thoroughly **clean sprayer** tank three-quarters full of clean water.
3. Agitation - Maintain constant agitation throughout mixing and application.

4. Drift Reducing Adjuvants (DRA)-(when applicable)
5. Inductor - If an inductor is used, rinse it thoroughly after each component has been added.
6. Products in PVA bags - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
7. Water-dispersible products (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
8. Water-soluble products (such as XtendiMax® With VaporGrip® Technology)
9. Emulsifiable concentrates (such as oil concentrate when applicable)
10. Water-soluble additives (when applicable)
11. Add remaining quantity of water.

Maintain constant agitation during application

8.3 Adjuvants, Drift Reducing Adjuvants, Surfactants, and Other Tank Mixed Products

See Section 8.0 TANK MIXING INSTRUCTIONS for tank mixing instructions for adjuvants, drift reducing adjuvants, surfactants, and other tank mixed products.

9.0 APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT.

XtendiMax® With VaporGrip® Technology can be applied to actively growing weeds as broadcast, band, or spot spray applications using water as a carrier. For best results, treat weeds early when they are relatively small (less than 4 inches). Timely application to small weeds early in the season will improve control and reduce weed competition. Refer to Table 1 for XtendiMax® With VaporGrip® Technology application rates for control or suppression by weed type and growth stage. For crop-specific application timing and other details, refer to the CROP-SPECIFIC INFORMATION section of this label.

APPLY THIS PRODUCT USING PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING THE REQUIRED VOLUMES.

Using a hooded sprayer or other drift reduction technology in combination with approved nozzles may further reduce drift potential.

Cultivation: Do not cultivate within 7 days after applying this product.

Table 1. XtendiMax® With VaporGrip® Technology Application Rates for Control or Suppression by Weed Type and Growth Stage
Use rate limitations are given in sections 10 (RESTRICTIONS), 11 (CROP-SPECIFIC INFORMATION), and 12 (CROPS WITH XTEND TECHNOLOGY)

Weed Type and Stage	Rate Per Acre	Weed Type and Stage	Rate Per Acre
Annual[1]		**Perennial**	
Small, actively growing	11 – 22 fluid ounces	Top growth suppression	11 – 22 fluid ounces
		Top growth control and root suppression	22 – 44 fluid ounces
Established weed growth	22 – 33 fluid ounces	Noted perennials (footnote 1 in Section 13.0).	44 fluid ounces
		Other perennials (without footnote 1 in Section	44 fluid ounces

		13.0)[3]	
Biennial Rosette diameter 1 – 3 inches Rosette diameter 3 inches or more Bolting	 11 – 22 fluid ounces 22 – 44 fluid ounces 44 fluid ounces	**Woody Brush & Vines** Top growth suppression Top growth control[2,3] Stems and stem suppression[3]	 22 – 44 fluid ounces 44 fluid ounces 44 fluid ounces
[1] Rates below 11 fluid ounces per acre may provide control or suppression but should typically be applied with other herbicides that are effective on the same species and biotype. [2] Woody Species listed in section 13.0 may require tank mixes for adequate top growth control. [3] DO NOT broadcast apply more than 44 ounces per acre for a single application and DO NOT exceed broadcast applications of more than 88 ounces per acre within the growing season when a sequential application is needed for control. Use the higher rate when treating dense vegetation or perennial weeds with established root growth. Perennials and Woody Species are defined as those listed in Section 13.0.			

9.1 Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result.

The most effective way to reduce drift potential is to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the **"Temperature and Humidity"** and "**Temperature Inversions"** sections of this label).

9.1.1 Sprayer Setup

The following sprayer setup requirements for drift management must be followed:

- **Nozzle type.** The applicator must use an approved nozzle within a specified pressure range as found at www.xtendimaxapplicationrequirements.com when applying XtendiMax® With VaporGrip® Technology. Do not use any other nozzle and pressure combination not specifically listed on this website.

- **Spray Volume.** The applicator must apply this product in a **minimum of 15 gallons of spray solution per acre**. See Section 8.0 for information on approved tank mix products.

- **Equipment Ground Speed.** Do not exceed a **ground speed of 15 miles per hour**. Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but slower speeds generally result in better spray coverage and deposition on the target area. Provided the applicator can maintain the required nozzle pressure, it is recommended that tractor speed is reduced to 5 miles per hour at field edges.

- **Spray boom Height.** Do not exceed a **boom height of 24 inches** above target pest or crop canopy. Excessive boom height will increase the drift potential.

- **Wind Speed.** Do not apply when wind speeds are **less than 3 MPH or greater than 10 MPH**. Only apply when wind speed at boom height is between 3 and 10 mph.

9.1.2 Temperature and Humidity

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation (for example: increase orifice size and/or increase spray volume as directed on www.xtendimaxapplicationrequirements.com). Larger droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

9.1.3 Temperature Inversions

Do not apply this product during a temperature inversion as the off-target movement potential is high. In general, temperature inversions are more likely during nighttime hours. Applications of this product may ONLY occur one hour after sunrise though two hours before sunset.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions.
- Temperature inversions can be characterized by increasing temperatures with altitude and can be common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. Temperature inversions can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will typically dissipate with increased winds (above 3 miles per hour) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

9.1.4 Buffer Requirements and Protection of Sensitive Crops

Do not apply under circumstances where drift may occur to food, forage, or other plantings that might be damaged or the crops rendered unfit for sale, use, or consumption.

9.1.4.a. Buffer Requirement

The applicator **must always maintain** a 110 foot downwind buffer (when applying up to 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying greater than 22 up to 44 fluid ounces of this product per acre) between the last treated row and the nearest downwind field edge (in the direction the wind is blowing).

If you have questions regarding Buffer Requirement contact Bayer at 1-844-RRXTEND prior to application.

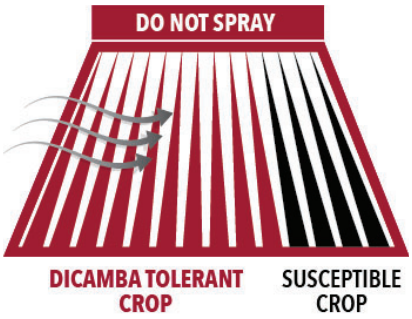
The following areas may be included in the buffer distance calculation when directly adjacent to the treated field edges:

- Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field such as rights of way.
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
- Agricultural fields that have been prepared for planting
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

9.1.4.b. **Sensitive Crops**

DO NOT APPLY this product when the wind is blowing toward adjacent non-dicamba tolerant sensitive crops; this includes **NON-DICAMBA TOLERANT SOYBEAN AND COTTON.**

It is important for the applicator to be aware that wind direction may vary during the application. If wind direction shifts such that the wind is blowing toward adjacent non-dicamba tolerant sensitive crops, the applicator must cease the application.



Before making an application, consult a sensitive crop registry (such as FieldWatch); and survey adjacent fields and confirm the crops/areas surrounding the field prior to application. At a minimum, records must include the name of the sensitive crop registry and the date it was consulted and documentation of adjacent crops/areas and the date the survey was conducted.

Sensitive crops include, but are not limited to non-dicamba tolerant soybeans and cotton, tomatoes and other fruiting vegetables (EPA crop group 8), fruit trees, cucurbits (EPA crop group 9), grapes, beans, flowers, ornamentals, peas, potatoes, sunflower, tobacco, other broadleaf plants, and including plants in a greenhouse. Severe injury or destruction could occur if any contact between this product and these plants occurs.

If you have questions regarding sensitive crop registries contact Bayer at 1-844-RRXTEND prior to application.

9.1.5 Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local pesticide drift regulations.

9.2 Ground Application (Banding)

When applying XtendiMax® With VaporGrip® Technology by banding, determine the amount of herbicide and water volume needed using the following formula:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

9.3 Ground Application (Broadcast)

Water Volume: Use a **minimum of 15 gallons** of spray solution per broadcast acre for optimal performance. Use 20 gallons per acre when treating dense or tall vegetation.

Application Equipment: Select nozzles (refer to section 9.1.1 Nozzle type of this product label) designed to produce minimal amounts of fine spray particles. Spray with nozzles as close to the weeds as practical for good weed coverage.

Using a hooded sprayer or other drift reduction technology in combination with approved nozzles may further reduce drift potential.

9.4 Ground Application (Wipers)

XtendiMax® With VaporGrip® Technology may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush and vines. Use a solution containing 1 part XtendiMax® With VaporGrip® Technology to 1 part water. Do not apply greater than 1 lb dicamba acid equivalent (1 quart of this product) per acre per application. Do not contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and non-cropland areas described in this label except for non-dicamba-tolerant cotton, sorghum, and non-dicamba-tolerant soybean.

9.5 Proper Spray System Equipment Cleanout

You must ensure that the spray system used to apply this product is clean before using this product.

Failure to properly clean the entire spray system can result in inadvertent contamination of the spray system. Small quantities of dicamba may cause injury to non-dicamba tolerant soybeans and other sensitive crops (see Section 9.1.4 of this label for more information).

Inadvertent contamination can also occur in equipment used for bulk product handling and mixing prior to use in the spray system. Care should be taken to reduce contamination not only in the spray system but in any equipment used to transfer or deliver product. For example, bulk handling and mixing equipment containing this product should be segregated when possible to reduce potential for cross-contamination. Consider using block and check valves to avoid backflow during transfer. Piping should be reviewed to ensure there not potential for product build-up. Dedicated nurse trucks and tender equipment should be used when possible.

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water. If equipped, open boom ends and flush.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
8. Drain pump, filter and lines.
9. Rinse the complete spraying system with clean water.
10. Clean and wash off the outside of the entire sprayer and boom.
11. All rinse water must be disposed of in compliance with local, state, and federal guidelines.

10.0 ADDITIONAL RESTRICTIONS

Maximum Application Rates: The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredients dicamba, whether applied separately or as a tank mixture, on a basis of total pounds of dicamba (acid equivalents) per acre. If more than one dicamba-containing product is applied to the same site within the same year, you must ensure that the total use of dicamba (pounds acid equivalents) does not exceed 2 pounds/A per year from all applications. See the INGREDIENTS section of this label for necessary product information.

Maximum seasonal use rate: Refer to Table 2. Crop-Specific Restrictions for crop-specific maximum seasonal use rates. Do not exceed 88 fluid ounces of XtendiMax® With VaporGrip® Technology (2 pounds acid equivalent) per acre, per year.

Preharvest Interval (PHI): Refer to the CROP-SPECIFIC INFORMATION section for preharvest intervals.

Restricted Entry Interval (REI): 24 hours

Crop Rotational Restrictions

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend® Soybeans, XtendFlex® Soybeans, or cotton seed with XtendFlex® Technology (including Bollgard® 3 XtendFlex® Cotton, Bollgard II® XtendFlex® Cotton, or XtendFlex® Cotton). For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions at application rates of 33 fluid ounces of this product per acre per season or less: Follow the planting restrictions in the directions for use for Preplant application in the Crop Specific Information section of this label. For corn, cotton (except cotton seed with XtendFlex® Technology), sorghum, and soybean (except Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean), follow the planting restrictions in the directions for use for preplant application in **Section 11. Crop-Specific Information** of this label. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions at application rates of more than 33 fluid ounces and up to 88 fluid ounces of this product per acre per season: Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except cotton seed with XtendFlex® Technology) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

Table 2. Crop-Specific Restrictions[1]

Crop	Maximum Rate Per Acre Per Application (fl oz)	Maximum Rate Per Acre Per Season (fl oz)	Livestock Grazing or Feeding
Asparagus	22	22	Yes
Barley; Fall Spring	11 11	16.5 15	Yes
Conservation Reserve Program (CRP)	44	88	Yes
Corn	22	33	Yes[2]
Cotton	11	11	Yes

Cotton with XtendFlex Technology	44	88	Yes
Fallow Ground	44	88	Yes
Grass grown for seed	44	88	Yes
Oats	5.5	5.5	Yes
Pastureland	44	44	Yes
Proso Millet	5.5	5.5	Yes
Small grains grown for grass, forage, fodder, hay and/or pasture	22	22	Yes
Sorghum	11	22	Yes
Soybean	44	44	Yes
Roundup Ready 2 Xtend Soybean and XtendFlex Soybean	44	88	Yes
Sugarcane	44	88	Yes
Triticale	5.5	5.5	Yes
Sod farms and farmstead turf	44	44	Yes
Wheat	11	22	Yes

[1]Refer to section **11. CROP-SPECIFIC INFORMATION** and section **12. CROPS WITH XTEND TECHNOLOGY** for more details.
[2]Once the crop reaches the ensilage (milk) stage or later in maturity

11.0 CROP-SPECIFIC INFORMATION

Read Sections: 8.0 for Tank Mixing Instructions and 9.1.4 for Buffer Requirements and Sensitive Crops for information on tank mixing, buffer requirements, and sensitive crops.

11.1 Asparagus

Apply XtendiMax® With VaporGrip® Technology to emerged and actively growing weeds in 40 - 60 gallons of diluted spray per treated acre immediately after cutting the field, but at least 24 hours before the next cutting. Multiple applications may be made per growing season.

If spray contacts emerged spears, crooking (twisting) of some spears may result. If such crooking occurs, discard affected spears.

Rates: Apply 11-22 fluid ounces of XtendiMax® With VaporGrip® Technology to control annual sowthistle, black mustard, Canada and Russian thistle, and redroot pigweed (carelessweed).

Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. Up to 2 applications may be made per growing season. Do not exceed a total of 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre, per crop year.

Do not harvest prior to 24 hours after treatment.

[Optional: Do not use in the Coachella Valley of California]

11.2 Between Crop Applications

Preplant Directions (Postharvest, Fallow, Crop Stubble, Set-Aside) for Broadleaf Weed Control:

XtendiMax® With VaporGrip® Technology can be applied either postharvest in the fall, spring, or summer during the fallow period or to crop stubble/set-aside acres. Apply XtendiMax® With VaporGrip® Technology as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost or in the fallow cropland or crop stubble the following spring or summer.

See the “Crop Rotational Restrictions” in Section 10 of this label for the recommended interval between application and planting to prevent crop injury.

Rates and Timings:

Apply 5.5 – 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre. Refer to Table 1 to determine use rates for specific targeted weed species. For best performance, apply XtendiMax® With VaporGrip® Technology when annual weeds are less than 4 inches tall, when biennial weeds are in the rosette stage and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. The most effective control of upright perennial broadleaf weeds such as Canada thistle and Jerusalem artichoke occurs if XtendiMax® With VaporGrip® Technology is applied when the majority of weeds have at least 4 – 6 inches of regrowth or for weeds such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts such as rhizomes or bulblets, after the effective period for XtendiMax® With VaporGrip® Technology. For seedling control, a follow-up program or other cultural practices could be instituted. For small grain in-crop uses of XtendiMax® With VaporGrip® Technology, refer to the small grain section for details.

11.3 Conservation Reserve Program (CRP)

XtendiMax® With VaporGrip® Technology is recommended for use on both newly seeded and established grasses grown in Conservation Reserve or federal Set-Aside Programs. Treatments of XtendiMax® With VaporGrip® Technology will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Newly Seeded Areas

XtendiMax® With VaporGrip® Technology may be applied either preplant or postemergence to newly seeded grasses or small grains such as barley, oats, rye, sudanqrass, wheat, or other grain species grown as a cover crop. Postemergence applications may be made after seedling grasses exceed the 3-leaf stage. Rates of XtendiMax® With VaporGrip® Technology greater than 22 fluid ounces per treated acre may severely injure newly seeded grasses.

Preplant applications may injure new seedlings if the interval between application and grass planting is less than 45 days per 22 fluid ounces of XtendiMax® With VaporGrip® Technology applied per treated acre west of the Mississippi River or 20 days per 22 fluid ounces applied east of the Mississippi River.

Established Grass Stands

Established grass stands are perennial grasses planted one or more seasons prior to treatment. Certain species (bentgrass, carpetgrass, smooth brome, buffalograss, or St. Augustinegrass) may be injured when treated with more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre.

When applied at recommended rates, XtendiMax® With VaporGrip® Technology will control many annual and biennial weeds and provide control or suppression of many perennial weeds.

Rates and Timings

Apply 5.5 - 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre. Refer to **Table 1** for rates based on target weed species. Retreatments may be made as needed; however, do not exceed a total of 88 fluid ounces (4 pints) of XtendiMax® With VaporGrip® Technology per acre per year.

11.4 Corn (Field, Pop, Seed, And Silage)

Direct contact of XtendiMax® With VaporGrip® Technology with corn seed must be avoided. If corn seeds are less than 1.5 inches below the surface, delay application until corn has emerged.

Applications of XtendiMax® With VaporGrip® Technology to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. Cultivation should be delayed until after corn is growing normally to avoid breakage.

Corn may be harvested or grazed for feed once the crop has reached the ensilage (milk) stage or later in maturity.

Up to 2 applications of XtendiMax® With VaporGrip® Technology may be made during a growing season. Sequential applications must be separated by 2 weeks or more.

Do not apply XtendiMax® With VaporGrip® Technology to seed corn or popcorn without first verifying with your local seed corn company (supplier) the selectivity of XtendiMax® With VaporGrip® Technology on your inbred line or variety of popcorn. This precaution will help avoid potential injury of sensitive varieties.

Avoid using crop oil concentrates after crop emergence as crop injury may result. Use crop oil concentrates only in dry conditions when corn is less than 5 inches tall when applying XtendiMax® With VaporGrip® Technology.

Use of sprayable fluid fertilizer as the carrier is not recommended for applications of XtendiMax® With VaporGrip® Technology made after corn emergence.

XtendiMax® With VaporGrip® Technology is not registered for use on sweet corn.

Preplant and Preemergence Application in No-Tillage Corn:

Rates: Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 11 fluid ounces per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

Timing: XtendiMax® With VaporGrip® Technology can be applied to emerging weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g., alfalfa or clover), apply XtendiMax® With VaporGrip® Technology after 4 – 6 inches of regrowth has occurred

Preemergence Application in Conventional or Reduced Tillage Corn:

Rates: Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre on medium- or fine-textured soils containing 2.5% organic matter or more. Do not apply to coarse textured soils (sand, loamy sand, or sandy loam) of any soil with less than 2.5% organic matter until after corn emergence (See Early Postemergence uses below).

Timing: XtendiMax® With VaporGrip® Technology may be applied after planting and prior to corn emergence. Pre-emergence application of XtendiMax® With VaporGrip® Technology does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g., drags, harrows) which concentrates treated soil over seed furrow as seed damage could result.

Preemergence control of cocklebur, jimsonweed, and velvetleaf may be reduced if conditions such as low temperature or lack of soil moisture cause delayed or deep germination of weeds.

Early Postemergence Application in All Tillage Systems:

Rates: Apply 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre. Reduce the rate to 11 fluid ounces per treated acre if corn is growing on coarse textured soils (sand, loamy sand, and sandy loam).

Timing: Apply between corn emergence and the 5-leaf stage or 8 inches tall, whichever occurs first. Refer to Late Postemergence Applications if the sixth true leaf is emerging from whorl or corn is greater than 8 inches tall.

Late Postemergence Application:

Rate: Apply 11 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre.

Timing: Apply XtendiMax® With VaporGrip® Technology from 8 - 36 inch tall corn or 15 days before tassel emergence, whichever comes first. For best performance, apply when weeds are less than 3 inches tall.

Apply directed spray when corn leaves prevent proper spray.

11.5 Cotton

For directions for use with crops with Xtend Technology see the “CROPS WITH XTEND TECHNOLOGY” section of this label.

Preplant Application:

Apply up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to control emerged broadleaf weeds prior to planting cotton in conventional or conservation tillage systems.

For best performance, apply XtendiMax® With VaporGrip® Technology when weeds are in the 2 - 4 leaf stage and rosettes are less than 2 inches across.

Following application of XtendiMax® With VaporGrip® Technology and a minimum accumulation of 1 inch of rainfall or overhead irrigation, allow a minimum of 21 days between treatment and planting per application of 11 fluid ounces per acre or less. This plant back interval must be observed prior to planting cotton.

Do not apply preplant to cotton west of the Rockies.

Do not make XtendiMax® With VaporGrip® Technology preplant applications to cotton in geographic areas with average annual rainfall less than 25 inches.

If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds acid equivalent per acre.

11.6 Grass Grown For Seed

Apply 11 - 22 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre on seedling grass after the crop reaches the 3 -5 leaf stage. Apply up to 44 fluid ounces of XtendiMax® With VaporGrip® Technology on well-established perennial grass. For best performance, apply XtendiMax® With VaporGrip® Technology when weeds are in the 2 - 4 leaf stage and rosettes are less than 2 inches across. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.

To suppress annual grasses such as brome (downy and ripgut), rattail fescue, and windgrass, apply up to 44 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre in the fall or late summer after harvest and burning of established grass seed crops. Applications should be made immediately following the first irrigation when the soil is moist and before weeds have more than 2 leaves.

Do not apply XtendiMax® With VaporGrip® Technology after the grass seed crop begins to joint.

Refer to the Pasture, Hay, Rangeland, and General Farmstead section for grazing and feeding restrictions.

11.7 Proso Millet

For use only within Colorado, Nebraska, North Dakota, South Dakota, [Optional: **and Wyoming].**

XtendiMax® With VaporGrip® Technology combined with an appropriate tank-mix partner will provide control or suppression of the annual broadleaf weeds listed in **Section 13.**

11.8 Pasture, Hay, Rangeland, And General Farmstead (Noncropland)

XtendiMax® With VaporGrip® Technology is recommended for use on pasture, hay, rangeland, and general farmstead (non-cropland) (including fencerows and non-irrigation ditch banks) for control or suppression of broadleaf weed and brush species listed in Section 12.

XtendiMax® With VaporGrip® Technology may also be applied to non-cropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides and highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

XtendiMax® With VaporGrip® Technology uses described in this section also pertain to grasses and small grains (forage sorghum, rye, sudangrass, or wheat) grown for grass, forage, fodder, hay and/or pasture use only. Grasses and small grains not grown for grass, forage, fodder, hay and/or pasture must comply with crop-specific uses in this label. Some perennial weeds may be controlled with lower rates of XtendiMax® With VaporGrip® Technology (refer to **Table 1**).

Rates and Timings

Refer to **Table 1** for rate selection based on targeted weed or brush species.

Rates above 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre are for spot treatments only. Spot treatment is defined as no more than a total of 1000 square feet of treated area per acre. Do not broadcast apply more than 44 fluid ounces per acre.

Retreatments may be made as needed; however, do not exceed a total of 44 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre during a growing season.

Grass grown for hay requires a minimum of 7-days between treatment and harvest.

Crop-Specific Restrictions

Do not apply more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to small grains grown for pasture.

Newly seeded areas may be severely injured if more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology is applied per acre.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, carpetgrass, buffalograss, and St. Augustin grass may be injured if more than 22 fluid ounces of XtendiMax® With VaporGrip® Technology is applied per acre. Usually colonial bent grasses are more tolerant than creeping types. Velvet grasses are most easily injured. Treatments will kill or injure alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Table 3 lists the timing restrictions for grazing or harvesting hay from treated fields. There are no grazing restrictions for animals other than lactating dairy animals.

Table 3. Timing Restrictions for Lactating Dairy Animals Following Treatment

XtendiMax® With VaporGrip® Technology Rate per Treated Acre (fluid ounces)	**Days Before Grazing (days)**	**Days Before Hay Harvest (days)**
Up to 22	7	37
Up to 44	21	51

- **Spot Treatments:** XtendiMax® With VaporGrip® Technology may be applied to individual clumps or small areas of undesirable vegetation using handgun or similar types of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

Cut Surface Treatments:

XtendiMax® With VaporGrip® Technology may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees.

Rate: Mix 1 part XtendiMax® With VaporGrip® Technology with 1 - 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.

- **For Frill or Girdle Treatments**: Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint the cut surface with the solution.
- **For Stump Treatments:** Spray or paint freshly cut surface with the water mix. The area adjacent to the bark should be thoroughly wet.

Applications For Control of Dormant Multiflora Rose:

XtendiMax® With VaporGrip® Technology can be applied when plants are dormant as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-water emulsion solution.

- **Spot treatments:** Spot treatment applications of XtendiMax® With VaporGrip® Technology should be applied directly to the soil as close as possible to the root crown but within 6 - 8 inches of the crown. On sloping terrain, apply XtendiMax® With VaporGrip® Technology to the uphill side of the crown. Do not apply when snow or water prevents applying XtendiMax® With VaporGrip® Technology directly to the soil. The use rate of XtendiMax® With VaporGrip® Technology depends on the canopy diameter of the multiflora rose.

  Examples: Use 0.34, 1.38, or 3.23 fluid ounces of XtendiMax® With VaporGrip® Technology respectively, for 5, 10, or 15 feet canopy diameters.

- **Lo-Oil basal bark treatments:** For Lo-Oil basal bark treatments, apply XtendiMax® With VaporGrip® Technology to the basal stem region from the ground line to a height of 12 - 18 inches. Spray until runoff, with special emphasis on covering the root crown. For best results, apply XtendiMax® With VaporGrip® Technology when plants are dormant. Do not apply after bud break or when plants are showing signs of active growth. Do not apply when snow or water prevents applying XtendiMax® With VaporGrip® Technology to the ground line.

  To prepare approximately 2 gallons of a Lo-Oil spray solution:

  1) Combine 1.5 gallons of water, 1 ounce of emulsifier, 22 fluid ounces of XtendiMax® With VaporGrip® Technology, and 2.5 pints of No. 2 diesel fuel.
  2) Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

  Do not exceed 8 gallons of spray solution mix applied per acre, per year.

11.9 SMALL GRAINS

11.9.1 Small Grains Not Underseeded To Legumes (fall- and spring-seeded barley, oat, triticale and wheat)

Refer to the specific crop sections below for use rates. When treating difficult to control weeds such as kochia, wild buckwheat, cow cockle, prostrate knotweed, Russian thistle, and prickly lettuce or when dense vegetative growth occurs, use the 4.12 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology per acre.

Timings: Apply XtendiMax® With VaporGrip® Technology before, during, or after planting small grains. See specific small grain crop uses below for maximum crop stage. For best performance, apply XtendiMax® With VaporGrip® Technology when weeds are in the 2 - 3 leaf stage and rosettes are less than 2 inches across. Applying XtendiMax® With VaporGrip® Technology to small grains during periods of rapid growth may result in crop leaning. This condition is temporary and will not reduce crop yields.

Restrictions for small grain areas that are grazed or cut for hay are indicated in **Table 3** in Pasture, Hay, Rangeland, and General Farmstead section of this label.

11.9.2 Small Grains: Barley (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology to fall-seeded barley prior to the jointing stage. Apply 2.75 – 4.12 fluid ounces of XtendiMax® With VaporGrip® Technology before spring-seeded barley exceeds the 4-leaf stage.

Note: For spring barley varieties that are seeded during the winter months or later, follow the rates and timings given for spring-seeded barley.

Preharvest applications:

XtendiMax® With VaporGrip® Technology can be used to control weeds that may interfere with harvest of fall and spring-seeded barley. Apply 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre as a broadcast or spot treatment to annual broadleaf weeds when barley is in the hard dough stage and the green color is gone from the nodes (joints) of the stern. Best results will be obtained if application can be made when weeds are actively growing, but before weeds canopy.

Allow a minimum of 7 days between treatment and harvest. Do not use preharvest-treated barley for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

[Optional: Do not make preharvest applications in California.]

11.9.3 Small Grains: Oats (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to fall-seeded oat prior to the jointing stage. Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology before spring-seeded oat exceed the 5-leaf stage.

Do not tank mix XtendiMax® With VaporGrip® Technology with 2,4-D in oat.

Allow a minimum of 7 days between treatment and harvest.

11.9.4 Small Grains: Triticale (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology to triticale.

Early season applications to fall-seeded triticale must be made prior to the jointing stage.

Early season applications to spring-seeded triticale must be made before triticale reaches the 6-leaf stage.

11.9.5 Small Grains: Wheat (fall- and spring-seeded)

Early Season Applications:

Apply 2.75 – 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology to wheat unless using one of the fall-seeded wheat specific programs below.

Early season applications to fall-seeded wheat must be made prior to the jointing stage.

Early season applications to spring-seeded wheat must be made before wheat exceeds the 6-leaf stage.

Early developing wheat varieties such as TAM 107, Madison, or Wakefield must receive application between early tillering and the jointing stage. Care should be taken in staging these varieties to be certain that the application occurs prior to the jointing stage.

Specific use programs for fall-seeded wheat only:

[Optional: XtendiMax® With VaporGrip® Technology may be used at 8.25 fluid ounces on fall-seeded wheat in Western Oregon as a spring application only.] In Colorado, Kansas, New Mexico, Oklahoma, and Texas, up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology may be applied on fall-seeded wheat after it exceeds the 3-leaf stage for suppression of perennial weeds, such as field bindweed. Applications may be made in the fall following a frost but before a killing freeze.

Preharvest applications:

XtendiMax® With VaporGrip® Technology can be used to control weeds that may interfere with harvest of wheat. Apply 11 fluid ounces XtendiMax® With VaporGrip® Technology per acre as a broadcast or spot treatment to annual broadleaf weeds when wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing but before weeds canopy.

Allow a minimum of 7 days between treatment and harvest. Do not use preharvest-treated wheat for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

[Optional: Do not make preharvest applications in California.]

11.10 Sorghum

XtendiMax® With VaporGrip® Technology may be applied preplant, postemergence, or preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds, as well as control their seedlings.

Do not graze or feed treated sorghum forage or silage prior to mature grain stage. If sorghum is grown for pasture or hay, refer to Pasture, Hay, Rangeland, and General Farmstead section of this label for specific grazing and feeding restrictions.

Do not apply XtendiMax® With VaporGrip® Technology to sorghum grown for seed production.

Preplant Application:

Up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology may be applied per acre if applied at least 15 days before sorghum planting.

Postemergence Application:

Up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15 inches tall. For best performance, apply XtendiMax® With VaporGrip® Technology when the sorghum crop is in the 3 - 5 leaf stage and weeds are small (less than 3 inches tall). Use drop pipes (drop nozzles) if sorghum is taller than 8 inches. Keep the spray off the sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage. Applying XtendiMax® With VaporGrip® Technology to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 - 14 days. Delay harvest until 30 days after a preharvest treatment.

Preharvest uses in Texas and Oklahoma only: Up to 11 fluid ounces of XtendiMax® With VaporGrip® Technology per acre may be applied for weed suppression any time after the sorghum has reached the soft dough stage. An agriculturally approved surfactant may be used to improve performance (read Section 8.0 for tank mixing instructions). Delay harvest until 30 days after a preharvest treatment.

Split Application:

XtendiMax® With VaporGrip® Technology may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. Do not exceed 11 fluid ounces per acre, per application or a total of 22 ounces per acre, per season.

11.11 Soybean

For directions for use with crops with Xtend Technology see the "CROPS WITH XTEND TECHNOLOGY" section of this label.

Preplant Applications:

Apply 5.5 -22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to control emerged broadleaf weeds prior to planting soybeans. Do not exceed 22 fluid ounces of XtendiMax® With VaporGrip® Technology per acre in a spring application prior to planting soybeans.

Following application of XtendiMax® With VaporGrip® Technology and a minimum accumulation of 1 inch rainfall or overhead irrigation, allow a minimum of 14 days between treatment and planting for applications of 11 fluid ounces per acre or less, and allow a minimum of 28 days between treatment and planting for applications of 22 fluid ounces per acre. These plant back intervals must be observed prior to planting soybeans or crop injury may occur.

Do not make XtendiMax® With VaporGrip® Technology preplant applications to soybeans in geographic areas with average annual rainfall less than 25 inches.

Preharvest Applications:

XtendiMax® With VaporGrip® Technology can be used to control many annual and perennial broadleaf weeds and control or suppress many biennial and perennial broadleaf weeds in soybean prior to harvest (refer to **Section 10**). Apply 11 - 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre as a broadcast or spot treatment to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Do not harvest soybeans until 7 days after application.

Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulblets, after the effective period for XtendiMax® With VaporGrip® Technology. For seedling control, a follow-up program or other cultural practice could be instituted.

Do not use preharvest-treated soybean for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

Do not feed soybean fodder or hay following a preharvest application of XtendiMax® With VaporGrip® Technology.

[Optional: Do not make preharvest applications in California.]

11.12 Sugarcane

Apply XtendiMax® With VaporGrip® Technology for control of annual, biennial, or perennial broadleaf weeds listed in Section 11. Apply 11 - 33 fluid ounces of XtendiMax® With VaporGrip® Technology per acre for control of annual weeds, 22 - 44 fluid ounces for control of biennial weeds, and 44 fluid ounces for control or suppression of perennial weeds.

Use the higher level of listed rate ranges when treating dense vegetative growth.

A single retreatment may be made as needed, however, do not exceed a total of 88 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre during a growing season.

Timing: XtendiMax® With VaporGrip® Technology may be applied to sugarcane any time after weeds have emerged, but before the close-in stage of sugarcane. Applications of 44 fluid ounces of XtendiMax®

With VaporGrip® Technology per acre made over the top of actively growing sugarcane may result in crop injury.

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

Allow a minimum of 87 days between treatment and harvest.

11.13 Farmstead Turf (noncropland) and Sod Farms

Do not use on residential sites.

For use in general farmstead (noncropland) and sod farms, apply 4.12 – 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre to control or suppress growth of many annual, biennial, and some perennial broadleaf weeds commonly found in turf. XtendiMax® With VaporGrip® Technology will also suppress many other listed perennial broadleaf weeds and woody brush and vine species. Refer to Table 1 for rate recommendations based on targeted weed or brush species and growth stage.

Repeat treatments may be made as needed; however, do not exceed 44 fluid ounces of XtendiMax® With VaporGrip® Technology per acre, per growing season.

Apply 30 - 200 gallons of diluted spray per treated acre (3 - 17 quarts of water per 1,000 square feet), depending on density or height of weeds treated and on the type of equipment used.

To avoid injury to newly seeded grasses, delay application of XtendiMax® With VaporGrip® Technology until after the second mowing. Furthermore, applying more than 16 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre may cause noticeable stunting or discoloration of sensitive grass species such as bentgrass, carpetgrass, buffalograss, and St. Augustinegrass.

In areas where roots of sensitive plants extend, do not apply more than 5.5 fluid ounces of XtendiMax® With VaporGrip® Technology per treated acre on coarse-textured (sandy-type) soils, or in excess of 8 fluid ounces per treated acre on fine-textured soils. Do not make repeat applications in these areas for 30 days and until previous applications of XtendiMax® With VaporGrip® Technology have been activated in the soil by rain or irrigation.

12.0 CROPS WITH XTEND® TECHNOLOGY

COTTON WITH XTENDFLEX® TECHNOLOGY (INCLUDING BOLLGARD II® XTENDFLEX® COTTON, BOLLGARD® 3 XTENDFLEX® COTTON, OR XTENDFLEX® COTTON), ROUNDUP READY 2 XTEND® SOYBEAN, AND XTENDFLEX® SOYBEAN CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO COTTON AND SOYBEAN THAT ARE NOT DICAMBA TOLERANT, INCLUDING COTTON AND SOYBEAN WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean can be obtained from your seed supplier or Monsanto representative. Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean must be purchased from an authorized licensed seed supplier.

Note: Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean and methods of controlling weeds and applying dicamba in a Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean crop are protected under U.S. patent law. No license to use Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean is granted or implied with the purchase of this herbicide product. Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean are owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean.

12.1 Cotton with XtendFlex® Technology

DO NOT combine these instructions with other instructions in the "COTTON" Section of **this** label for use over crops that do not contain the dicamba tolerance trait.

TYPES OF APPLICATIONS: Burndown/Early Preplant; Preplant; At-Planting; Preemergence; Postemergence (In-crop)

USE INSTRUCTIONS
Apply this product in a minimum of 15 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with cotton with XtendFlex® Technology.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early Preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all in-crop applications up to mid-bloom stage or no more than 60 days after planting, whichever occurs first	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Burndown/Early Preplant, Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting cotton with XtendFlex® Technology. Refer to the "WEEDS CONTROLLED" section of this label for XtendiMax® With VaporGrip® Technology for specific weeds controlled.

RESTRICTIONS:
- The maximum combined quantity of this product that may be applied for all burndown/early preplant, preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.

- The maximum application rate for a single, burndown/early preplant, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in cotton with XtendFlex® Technology. In-crop applications of this product can be made up to mid-bloom stage or no more than 60 days after planting, whichever occurs first.

The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. To the extent permitted by applicable law, Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. Sequential applications of this product may be necessary to control new flushes of weeds or on tough-to-control weeds. Allow at least 7 days between applications.

Postemergence applications of this product mixed with adjuvants may cause a leaf response to cotton with XtendFlex® Technology. The symptoms usually appear as necrotic spots on fully expanded leaves. EC-based products that are tank mixed with products containing dicamba may increase the severity of the leaf damage.

RESTRICTIONS:
- The combined total applied in-crop up to mid-bloom stage or no more than 60 days after planting, whichever occurs first, must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre and a maximum of two in-crop applications.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb a.e. dicamba).
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 44 fluid ounces (1.0 lb a.e. dicamba) per acre was made, then the combined total in-crop applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.

12.2 Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean

DO NOT combine these instructions with other instructions in the "SOYBEAN" Section of **this** label for use over crops that do not contain the dicamba tolerance trait.

TYPES OF APPLICATIONS: Burndown/Early Preplant; Preplant; At-Planting; Preemergence; Postemergence (In-crop); Lay-By

USE INSTRUCTIONS
Apply this product in a minimum of 15 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early Preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)

Total of all In-crop applications from emergence prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Burndown/Early Preplant, Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. Refer to the "WEEDS CONTROLLED" section of this label for specific weeds controlled.

RESTRICTIONS:
- The maximum combined quantity of this product that may be applied for all burndown/early preplant, preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.
- The maximum application rate for a single, burndown/early preplant, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. In-crop applications of this product can be made prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first.

The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. To the extent permitted by applicable law, Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height.

A second application of this product may be necessary to control new flushes of weeds and can be made prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first. Allow at least 7 days between applications. For best results, apply XtendiMax® With VaporGrip® Technology after some weed re-growth has occurred.

Application of this product postemergence and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS:
- The combined total application rate in-crop prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first, must not exceed 44 fluid ounces (1.0 lb. a.e. dicamba) per acre a maximum of two in-crop applications.
- Do not make in-crop applications of this product during and after beginning bloom (R1 stage soybeans) or more than 45 days after planting.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb. a.e. dicamba) per acre. The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb. a.e. dicamba) per acre.

13.0 WEEDS CONTROLLED

General Weed List, Including ALS-, Glyphosate, and Triazine-Resistant Biotypes

Annuals

- Alkanet
- Amaranth, Palmer, Powell, Spiny
- Aster, Slender
- Bedstraw, Catchweed
- Beggarweed, Florida
- Broomweed, Common
- Buckwheat, Tartary, Wild
- Buffalobur
- Burclover, California
- Burcucumber
- Buttercup, Corn, Creeping, Roughseed, Western Field
- Carpetweed
- Catchfly, Nightflowering
- Chamomile, Corn
- Chevil, Bur
- Chickweed, Common
- Clovers
- Cockle, Corn, Cow, White
- Cocklebur, Common
- Copperleaf, Hophornbeam
- Cornflower (Bachelor Button)
- Croton, Tropic, Woolly
- Daisy, English
- Dragonhead, American
- Eveningprimrose, Cutleaf
- Falseflax, Smallseed
- Fleabane, Annual
- Flixweed
- Fumitory
- Goosefoot, Nettleleaf
- Hempnettle
- Henbit
- Jacobs-Ladder
- Jimsonweed
- Knawel (German Moss)
- Knotweed, Prostrate
- Kochia
- Ladysthumb
- Lambsquarters Common
- Lettuce, Miners, Prickly
- Mallow, Common, Venice
- Marestail (Horseweed)
- Mayweed
- Morningglory, Ivyleaf, Tall
- Mustard, Black, Blue, Tansy, Treacle, Tumble, Wild, Yellowtops
- Nightshade, Black, Cutleaf
- Pennycress, Field (Fanweed, Frenchweed, Stinkweed)
- Pepperweed, Virginia (Peppergrass)
- Pigweed, Prostrate, Redroot (Carelessweed), Rough, Smooth, Tumble
- Pineappleweed
- Poorjoe
- Poppy, Red-horned
- Puncturevine
- Purslane, Common
- Pusley, Florida
- Radish, Wild
- Ragweed, Common, Giant (Buffaloweed), Lance-Leaf
- Rocket, London, Yellow
- Rubberweed, Bitter (Bitterweed)
- Salsify
- Senna, Coffee
- Sesbania, Hemp
- Shepherdpurse
- Sicklepod
- Sida, Prickly (Teaweed)
- Smartweed, Green, Pennsylvania
- Sneezeweed, Bitter
- Sowthistle, Annual, Spiny
- Spanish Needles
- Spikeweed, Common
- Spurge, Prostrate, Leafy
- Spurry, Corn
- Starbur, Bristly
- Starwort, Little
- Sumpweed, Rough
- Sunflower, Common (Wild), Volunteer
- Thistle, Russian
- Velvetleaf
- Waterhemp, Common, Tall
- Waterprimrose, Winged
- Wormwood

Biennials

- Burdock, Common
- Carrot, Wild (Queen Anne's Lace)
- Cockle, White
- Eveningprimrose, Common
- Geranium, Carolina
- Gromwell
- Knapweed, Diffuse, Spotted
- Mallow, Dwarf
- Plantain, Bracted
- Ragwort, Tansy
- Starthistle, Yellow
- Sweetclover
- Teasel
- Thistle, Bull, Milk, Musk, Plumeless

Perennials

- Alfalfa[1]
- Artichoke, Jerusalem
- Aster, Spiny, Whiteheath
- Bedstraw, Smooth
- Bindweed, Field, Hedge
- Blueweed, Texas
- Bursage, Woollyleaf[1] (Bur Ragweed, Povertyweed)
- Buttercup, Tall
- Campion, Bladder
- Chickweed, Field, Mouseear

Chicory[1]
Clover[1], Hop
Dandelion[1], Common
Dock[1] Broadleaf (Bitterdock), Curly
Dogbane, Hemp
Dogfennel[1] (Cypressweed)
Fern, Bracken
Garlic, Wild
Goldenrod, Canada, Missouri
Goldenweed, Common
Hawkweed
Henbane, Black[1]
Horsenettle, Carolina
Ironweed
Knapweed, Black, Diffuse, Russian[1], Spotted
Milkweed, Climbing, Common, Honeyvine, Western Whorled
Nettle, Stinging
Nightshade, Silverleaf (White Horsenettle)
Onion, Wild
Plaintain, Broadleaf, Buckhorn
Pokeweed
Ragweed, Western
Redvine
Sericia Lespedeza
Smartweed, Swamp
Snakeweed, Broom
Sorrel[1], Red (Sheep Sorrel)
Sowthistle[1], Perennial
Spurge, Leafy
Sundrops
Thistle, Canada, Scotch
Toadflex, Dalmatian
Tropical Soda Apple
Trumpetcreeper (Buckvine)
Vetch
Waterhemlock, Spotted
Waterprimrose, Creeping
Woodsorrel[1], Creeping, Yellow
Wormwood, Absinth, Louisiana
Yankeeweed
Yarrow, Common[1]

[1] Noted perennials may be controlled using lower rates of **XtendiMax® With VaporGrip® Technology** than those recommended for other listed perennial weeds.

Woody Species

Alder
Ash
Aspen
Basswood
Beech
Birch
Blackberry[2]
Blackgum[2]
Cedar[2]
Cherry
Chinquapin
Cottonwood
Creosotebush[2]
Cucumbertree
Dewberry[2]
Dogwood[2]
Elm
Grape
Hawthorn (Thornapple)[2]
Hemlock
Hickory
Honeylocust
Honeysuckle
Hornbeam
Huckleberry
Huisache
Ivy, Poison
Kudzu
Locust, Black
Maple
Mesquite
Oak
Oak, Poison
Olive, Russian
Persimmon, Eastern
Pine
Plum, Sand (Wild Plum)[2]
Poplar
Rabbitbrush
Redcedar, Eastern[2]
Rose[2], McCartney, Multiflora
Sagebrush, Fringed[2]
Sassafras
Serviceberry
Spicebush
Spruce
Sumac
Sweetgum[2]
Sycamore
Tarbush
Willow
Witchhazel
Yaupon[2]
Yucca[2]

[2]Growth suppression only

14.0 LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCTS THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN

CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on crops with Xtend® Technology, crop safety and weed control performance are not warranted by Monsanto when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

EPA Reg. No. 524-617

EPA Establishment No. [insert appropriate est. no.]

Lot number [insert appropriate lot number]

Net contents [insert net contents]

Packed for:
MONSANTO COMPANY
800 N. Lindbergh Blvd.
ST. LOUIS, MISSOURI, 63167 U.S.A.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

NOTICE OF PESTICIDE:
_X_ Registration
___ Reregistration
(under FIFRA, as amended)

EPA Reg. Number:	Date of Issuance:
352-913	11/5/18

Term of Issuance:
Conditional

Name of Pesticide Product:
DuPont FeXapan Herbicide

Name and Address of Registrant (include ZIP Code):

Diego Fonseca
DuPont Crop Protection
974 Centre Road
Wilmington, DE 19805

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(B). You must comply with the following terms and conditions:

General Terms

1. You must submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Michael L. Goodis, P.E.
Director, Registration Division (RD)
Office of Pesticide Programs (OPP)

Date: 11/5/18

EPA Form 8570-6

2. You are required to comply with the data requirements described in the DCIs identified below:

    a. Dicamba GDCI-029801-1721

    You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Chemical Review Manager in the Pesticide Reevaluation Division: http://iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1

3. This registration will automatically expire on December 20, 2020.

Labeling/Relabeling

The previously approved labeling contains an expiration date of November 9, 2018 and cannot be used beyond that date. New labeling is required on the product beyond this date. Beginning November 10, 2018, before using any product with expired labeling, users must first access a website maintained by DuPont Crop Protection to review directions for use and obtain a copy of the current final printed label, and must have that label in their possession at the time of use.

4. Final Printed Label. You must submit one copy of the final printed labeling that is consistent with the new accepted label to EPA before any existing product already in the channels of trade is relabeled with that label, or before you release any new product for shipment featuring that label. Any changes to the final printed labeling must be submitted to EPA before being used in future production.

5. Posting Updated Information for Users. From November 10, 2018 through December 20, 2020, you must maintain a website and publish the following material and statements in a clear and easily accessible manner:
    a. A copy of the most current final printed label submitted to EPA per paragraph 4;
    b. "DuPont FeXapan Herbicide is a Restricted Use Pesticide.";
    c. "The label affixed to the container in your possession may contain incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the labeling linked on this website featuring an expiration date of December 20, 2020 at the time of use.";
    d. "Users must comply in all respects with labeling featuring an expiration date of December 20, 2020, regardless of any contrary language on the label physically affixed to any individual container."; and
    e. "If you have any questions about the use of this product, please contact *1-844-RRXTEND*."

When relabeling or labeling as set forth below, either the sticker or the new label (approved on October 31, 2018) must be affixed to *each individual container* of DuPont FeXapan Herbicide (EPA Reg. No. 352-913) that is intended for end use, sale or distribution.

6. Relabeling Product Already in Trade. All product currently in the channels of trade, in retail inventories, in the distribution chain (packaged and released for shipment), and product that was manufactured before November 9, 2018 must be relabeled with a sticker on the container with an approved label (dated October 31, 2018) accompanying the container, or the approved label (per paragraph number 4 above) on the container. If stickering is used then a sufficient number of copies of the current labeling (approved October 31, 2018) listing an expiration date of December 20, 2020 will be placed in the carton to accompany the number of individual containers in the carton. DuPont Crop Protection agrees to the following:
    a. All relabeling will be conducted in an EPA-registered establishment, and production must be reported per FIFRA Section 7.
    b. The sticker will contain the following information:
        i. "Restricted Use Pesticide";
        ii. "The label affixed to this container contains incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the current labeling listing an expiration date of December 20, 2020 at the time of use."; and
        iii. "User must comply in all respects with new label(ing) listing an expiration date of December 20, 2020, regardless of any contrary language on existing label physically affixed to any individual container."
    c. Copies of the approved labels must be provided to distributors and must accompany each stickered container at all times.
    d. Communicate efficiently with DuPont Crop Protection's entire distribution chain. Specifically:
        i. By December 31, 2018, DuPont Crop Protection submits to EPA a list of known distributors and retailers that may have received product with previously-accepted labels. (Such list shall be treated by EPA as confidential business information).
        ii. By December 31, 2018, DuPont Crop Protection must inform all distributors and retailers on that list of the need, as it is represented in this letter, to relabel, of the legal liability that would result from their sale or distribution of product with previously-accepted labels after October 31, 2018, and that relabeling are production activities under FIFRA and no retailer or distributor may begin any production activities until their establishment is registered with EPA.
        iii. For those distributors and retailers that are able to relabel in an EPA-registered establishment, DuPont Crop Protection must instruct them how to affix the Sticker or the new printed label to each product container, and must supply the new approved labels (dated October 31, 2018) and stickers in order for them to do so.
        iv. For those distributors and retailers that are interested in registering an establishment for pesticide production, DuPont Crop Protection must refer them to procedures on how to register with EPA as a registered establishment and remind them of FIFRA's production reporting requirements.
        v. For those distributors and retailers who do not intend to relabel themselves, DuPont Crop Protection must inform them who to contact so that DuPont Crop Protection can immediately reclaim the inventory. If DuPont Crop Protection

performs the relabeling, it must be done at an EPA-registered establishment, and all production must be reported per FIFRA section 7.

e. DuPont Crop Protection must provide EPA a copy of each communication required above within 30 days of each communication.

7. New Production. DuPont Crop Protection is responsible for ensuring all product produced, packaged, and released for shipment beginning November 10, 2018 and thereafter bears the new final printed labeling submitted to EPA per paragraph number 4 above. DuPont Crop Protection must ensure all production activities take place in an EPA-registered establishment and that all production is reported pursuant to FIFRA section 7.

You are advised that if you wish to add/retain a reference to the company's website on your label, then the website becomes "labeling" under FIFRA. If the website content is false or misleading, all products referencing the website would be misbranded and it would be unlawful to sell or distribute them under FIFRA section 12(a)(1)(E). In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Should the Agency find, or if it is brought to our attention, that a website contains false or misleading statements or claims substantially differing from the EPA-accepted registration, the matter will be referred to the EPA's Office of Enforcement and Compliance.

Tank Mixing and Spray Drift Requirements

8. You must maintain a website at http://Xtendimaxapplicationrequirements.com. That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of DuPont FeXapan Herbicide. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of DuPont FeXapan Herbicide. The website must state that any person seeking to have a product added to the list must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of DuPont FeXapan Herbicide, to EPA. EPA will notify you when the Agency determines that a product has been certified to be appropriately added to the list, and you will add appropriately certified products to the list no more than 90 days after you receive such notice from EPA. Testing of Tank-Mix Products must be conducted in compliance with procedures as stated forth in Appendix A.
9. All test data relating to the impact of tank-mixing any product with DuPont FeXapan Herbicide on drift properties of DuPont FeXapan Herbicide generated by you or somebody working for you must be submitted to EPA, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of DuPont FeXapan Herbicide, to the EPA's Office of Pesticide Programs.

10. The prohibition of using products in a tank-mix with DuPont FeXapan Herbicide unless the product used is contained on the list http://Xtendimaxapplicationrequirements.com, and the identification of the website address, shall be included in educational and information materials developed for DuPont Crop Protection, including the materials identified in Appendix D, Section B(l).
11. You must maintain, update and follow an Herbicide Resistance Management Plan (HRM) as laid out in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

Enhanced Reporting

If DuPont Crop Protection acquires any of the information identified below, that information must be reported to EPA's Office of Pesticide Programs under section 6(a)(2), or under 40 CFR 159.195 unless you have previously submitted that information to EPA's Office of Pesticide Programs.

12. Information, other than personally identifiable information, received by telephone or in writing regarding potential damage to non-target vegetation from use of dicamba during the 2019 and 2020 growing seasons regardless of any determination that the incident resulted from misuse (intentional or accidental). Information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged damage resulted from a product being used according to label directions. Data should be organized by product and state and should include available information regarding acreage involved, plant species involved, severity of damage, and similar information received. This information must be submitted with cumulative totals and be submitted monthly, beginning March 1, 2019.
13. Information, other than personally identifiable information, received by telephone or in writing regarding reports of dicamba-resistant weeds, and cases of weed control failure and/or suspected resistance. All information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged resistance occurred after an application made according to label directions.
14. A summary of all studies being conducted or sponsored by DuPont Crop Protection, pertaining to off-target movement of the labelled use of DuPont FeXapan Herbicide (e.g., volatility, physical drift, runoff) must be provided to the EPA.
15. Any information or analysis finding that foods/commodities contain dicamba residues that are not covered by a tolerance or exceed established tolerance levels.

Given the high number of alleged dicamba-related adverse incidents reported to EPA in 2017 and 2018 by state lead agencies (SLAs) as well as registrants under FIFRA section 6(a)(2), it is an Agency priority to work with registrants to better understand potential risks and impacts from the use of dicamba on dicamba-tolerant soybean and dicamba-tolerant cotton. The following information, which shall be treated by EPA as confidential business information, is being required to be submitted to the Agency to assist the Agency in making future regulatory decisions regarding these uses.

16. Seed sales information for dicamba tolerant soybean seed and dicamba tolerant cotton seed. This information should include all sales of such seed for planting or planted in the 2017 though 2020 growing seasons and should be categorized by state.
17. Number and type of containers, including volume of material produced by registrant DuPont FeXapan Herbicide that were relabeled with the amended labeling approved by the Agency on October 31, 2018. This information should be categorized by the state to which registrant shipped such material.

Additional Data Requirements

The following additional confirmatory studies are required as a condition of this amended registration. Since these are non-guideline studies, prior to developing a protocol and initiating any study, DuPont Crop Protection must meet with EPA staff by November 12, 2018 to present and engage in a data quality objective discussion regarding environmental conditions, sampling, and species evaluated. Protocols must be submitted before December 31, 2018 for the Agency's consideration. This work to agree on final protocols will be undertaken on a schedule that recognizes the timing for conducting research during 2019. Field studies must be conducted during the 2019 growing season and final reports must be submitted to the Agency in connection with the January 15, 2020 required reporting submission outlined in Appendix D, Section D.

18. Field studies examining off-site movement of dicamba. Specifically, the study design needs to evaluate impacts on plant height and yield from primary and secondary drift off-target, with transects in all four cardinal directions. These studies should represent varied geographic areas and include locations where high numbers of complaints have been logged and ranges of environmental conditions (e.g., temperature and humidity). Additionally, a study needs to evaluate the effects of dicamba-containing agricultural irrigation water on non-target plants. Data evaluating the response of non-DT soybean or other non-target plants exposed to irrigation water contaminated with dicamba. A consistent protocol is required for all field locations.
19. Studies to investigate temperature effects on volatility of dicamba. The use of humidome studies would allow EPA to evaluate the effects of temperature in a controlled environment for a multitude of temperature, relative humidity, and tank mix pH conditions.
20. Ecological effects data on non-target plants, related to survival, growth and reproduction for select sensitive tree/shrub/woody perennial species. The study design could involve an extended period for consideration of such species.
21. Study which evaluates the effect of pH on secondary movement of dicamba. The analysis should examine variability introduced by tank mix partners and different water conditions on the pH of the mixed material. The study should reflect a variety of water pH throughout the country, particularly in areas with the largest technology adoption and incidents. These tests should examine the pH of the applied solution.

If you fail to satisfy these terms, conditions and data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

Enclosure

Appendix A

Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of DuPont FeXapan Herbicide contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of DuPont FeXapan Herbicide:

Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September, 2013)

Testing Media:	DuPont FeXapan Herbicide + DuPont FeXapan Herbicide Proposed Tank Mix Product
Test Nozzle:	Tee Jet® TTI 11004 at 63 psi
Number of Replicates:	3 for each tested medium

Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test (p=Q.l) to determine if proposed tank-mix product is above DuPont FeXapan Herbicide 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition

Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for DuPont FeXapan Herbicide, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of DuPont FeXapan Herbicide contained on the web site. If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for DuPont FeXapan Herbicide, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of DuPont FeXapan Herbicide contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of DuPont FeXapan Herbicide provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

Appendix B

Validation Criteria

a. Detailed information of instrument setting and measurements
- The distance from the nozzle tips to the laser settings
- Measurements of airspeed and flow rate of liquid

b. Detailed information of test substances
- Volume composition and density of DuPont FeXapan Herbicide formulation and tank mixes

c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.

d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum

Report of DvO.l (SD), DvO.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

Appendix C

AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of "nozzle type"
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as DuPont FeXapan Herbicide for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of "crops" cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	M 1768 at 1.72% v/v	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below[1]

[1]The tested mixture was 1.72% (v/v) DuPont FeXapan Herbicide. DuPont FeXapan Herbicide has a density of 10.2 lb/gal and contains 42.8% (w/v) dicamba DGA salt (2.9 lb acid equivalent/gal).
For example, a 10-gallon batch would contain the following:
DuPont FeXapan Herbicide 1.71% * 10 gal = 0.172 gal ; 0.172 gal * 10.2 lb/gal = 1.753 lb
Water 10 gal (1280 fl oz) – 22 fl oz = 1258 fl oz = 82.0157 lb
Total weight 1.753 lb + 82.016 lb = 83.769 lb
Active ingredient fraction: 1.753 lb * 42.8% a.i. = 0.75 lb; 0.75 lb/83.769 lb = 0.00896 (dimensionless)
Non-volatile fraction: 0.00896/0.428 = 0.021 (dimensionless)

Appendix D

HERBICIDE RESISTANCE MANAGEMENT PLAN

DuPont Crop Protection must:

A. Field Detection and Remediation Components:

1. Update and implement an education program for growers, as set forth under the "Educational / Informational Component," below, that identifies appropriate best management practices (BMPs), as set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and that conveys to growers the importance of complying with BMPs. Such BMPs shall include that fields must be scouted after application to confirm herbicide effectiveness, and that users should report any incidence of lack of efficacy of this product against a particular weed species to DuPont Crop Protection or a DuPont Crop Protection representative.

2. If any grower informs you of a lack of herbicide efficacy, then you or your representative must make an effort to evaluate the field for "likely resistance" to DuPont FeXapan Herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al*., "Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations," Weed Science 2012 Special Issue:31–62 (*hereinafter* "Norsworthy criteria")[1] in each specific state until resistance to dicamba is confirmed for a specific weed species in that state using acceptable scientific methods. However, for each grower, you must continue to provide stewardship about resistance management throughout their use of this product. If resistance to dicamba is confirmed in a specific state for a specific weed species, then DuPont must immediately report such confirmation to EPA and need no longer investigate reports of lack of herbicide efficacy regarding that specific species in that specific state, but DuPont must continue to make an effort to help address of lack of herbicide efficacy regarding any other weed species in any such state;
3. Keep records of all field evaluations for "likely resistance" for a period of 3 years, and make such copies available to EPA upon request; and
4. If one or more of the Norsworthy criteria are met, then for a weed species not already confirmed to be resistant to dicamba in that specific state, DuPont Crop Protection will:
    a. Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by the grower, DuPont Crop Protection or their agent will become actively involved in implementation of weed control measures;
    b. Request, at the time of the initial determination that one or more of the Norsworthy criteria are met and prior to any application of alternative control practices, that the grower provide you with access to the relevant field(s) to collect specimens of the likely resistant weeds (potted specimens or seeds) for further evaluation in the greenhouse or laboratory, and so collect such specimens if

[1] The Norsworthy "likely herbicide resistance" criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that "likely herbicide resistance" is present.

possible (or, alternatively, request that the grower provide such specimens to you, at your expense);

c. Commence greenhouse or laboratory studies to confirm resistance as soon as practicable following sample collection;

d. To the extent possible, contact or visit the grower in an appropriate timeframe after implementation of the additional weed control measures in order to evaluate success of such measures; and

e. If the additional weed control measures were not successful in controlling the likely resistant weeds, then:

   i. Work with the grower to determine the reason(s) why the additional control measures were not successful;

   ii. Report annually the inability to control the likely resistant weeds to relevant stakeholders; and

   iii. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.

B. Educational / Informational Component:

1. Update and implement an education program for growers that includes the following elements:

   a. The education program shall identify appropriate best management practices (BMPs), set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and shall convey to growers the importance of complying with BMPs;

   b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of DuPont FeXapan Herbicide for use over-the-top on dicamba tolerant soybean or cotton; and

   c. You must make the education program available to DuPont Crop Protection sales representatives for distribution to growers.

2. Provide to EPA the original education program within three months of the issuance of this registration.

C. Evaluation Component:

1. DuPont Crop Protection will annually conduct a survey directed to users of DuPont FeXapan Herbicide for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. This survey shall evaluate, at a minimum, the following:

a. Growers' adherence to the terms of the DuPont FeXapan Herbicide Use Directions and Label Restrictions, and

b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of DuPont FeXapan Herbicide and, if so, how growers have responded.

2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following:

a. Efforts aimed at achieving adoption of BMP's;

b. Responses to incidents of likely resistance and confirmed resistance; and

c. The education program. At the initiative of either EPA or DuPont Crop Protection, EPA and DuPont Crop Protection shall consult about possible modifications of the education program.

D. Reporting Component:

1. Submit annual reports to EPA by January 15 of each year, beginning on January 15, 2019. Such reports shall include:

a. Annual sales of DuPont FeXapan Herbicide by state;

b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report;

c. Summary of your efforts aimed at achieving implementation of BMP's;

d. Summary of your determinations as to whether any reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, DuPont will list the cases of likely resistance by county and state.

e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including whether growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and

f. Summary of the status of any laboratory and greenhouse testing performed by, or at the direction of, DuPont Crop Protection following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing need not be included in the annual reports, but such data must be made available to EPA upon request.

Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.

E. Best Management Practices (BMPs) Component:

1. Best management practices (BMPs) must be identified in your education program. Growers will be advised of BMP's in product literature, educational materials and training. The following are examples of BMPs:

a. Regarding crop selection and cultural practices:

i. Understand the biology of the weeds present.

ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.

iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.

iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.

v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.

vi. Do not allow weed escapes to produce seeds, roots or tubers.

vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.

viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.

ix. Thoroughly clean plant residues from equipment before leaving fields.

x. Prevent an influx of weeds into the field by managing field borders.

xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.

xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.

xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.

b. Regarding herbicide selection:

i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.

ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.

iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.

iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.

v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.

vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.

vii. Report any incidence of lack of efficacy of this product against a particular weed species to DuPont Crop Protection or a DuPont Crop Protection representative.

This list may be updated or revised as new information becomes available

RESTRICTED USE PESTICIDE
For retail sale to and use only by Certified Applicators.

This labeling expires on 12/20/2020. Do not use or distribute this product after 12/20/2020.

DuPont™ FeXapan™

herbicide

[ABN: DuPont™ FeXapan™ herbicide Plus VaporGrip® Technology]

DICAMBA	GROUP	4	HERBICIDE

For weed control in asparagus, conservation reserve programs, corn, cotton, fallow croplands, general farmstead (noncropland), sorghum, grass grown for seed, hay, proso millet, pasture, rangeland, small grains, sod farms and farmstead turf, soybean, sugarcane, cotton with XtendFlex Technology, and Roundup Ready 2 Xtend Soybean and XtendFlex Soybean.

This label supersedes any previously issued labeling for this product, including previously issued supplemental labeling.

DuPont™ FeXapan™ herbicide is approved by U.S. EPA for all uses specified on this label in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Check the registration status of each product in each state before using.

READ THE ENTIRE LABEL FOR DUPONT™ FEXAPAN™BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS LABEL

READ AND FOLLOW ALL APPLICABLE DIRECTIONS, RESTRICTIONS, AND PRECAUTIONS ON THE CONTAINER LABEL AND BOOKLET AND WWW.FEXAPANAPPLICATIONREQUIREMENTS.DUPONT.COM.

Read the "Limitation of Warranty and Liability" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened

Active Ingredient	By Weight
Diglycolamine salt of dicamba (3,6-dichloro-o-anisic acid)*	42.8%
Other Ingredients	57.2%
Total	100.0%

* contains 29.0%, 3,6-dichloro-o-anisic acid (2.9 pounds acid equivalent per U.S. gallon or 350 grams per liter).

EPA Reg. No. 352-913 EPA Est. No.

Nonrefillable Container

Net:

OR

Refillable Container

Net:

KEEP OUT OF REACH OF CHILDREN

CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for emergency medical treatment information.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOCMESTIC ANIMALS

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

USER SAFETY RECOMMENDATIONS

Users should: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks.

See “Engineering Controls Statement” for additional requirements.

Follow the manufacturer’s instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statement: When handlers use closed systems, or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for “all mixers, loaders, applicators and other handlers” and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

GROUND AND SURFACE WATER PROTECTION

Point source contamination - To prevent point source contamination, do not mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. Do not apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment wash waters, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent: a) back siphoning into wells, b) spills or c) improper disposal of excess pesticide, spray mixtures or rinsates. Check valves or anti-siphoning devices must be used on all mixing equipment.

Movement by surface runoff or through soil - Do not apply under conditions which favor runoff. Do not apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for ground water contamination. Ground water contamination may occur in areas where soils are permeable or coarse and ground water is near the surface. Do not apply to soils classified as sand with less than 3% organic matter and where ground water depth is shallow. To minimize the possibility of ground water contamination, carefully follow application rate recommendations as affected by soil type in the Crop Specific Information section of this label.

Movement by water erosion of treated soil - Do not apply or incorporate this product through any type of irrigation equipment nor by flood or furrow irrigation. Ensure treated areas have received at least one-half inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

Endangered Species Concerns – Use of this product in a manner inconsistent with its labeling may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult: https://www.epa.gov/endangered-species or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product.

It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species.

PHYSICAL OR CHEMICAL HAZARDS

Do not store or heat near oxidizing agents, hazardous chemical reaction may occur.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label. This labeling must be in the user's possession during application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

This is a restricted use pesticide.

TRAINING

Prior to applying this product in the 2019 growing season and each growing season thereafter, applicator(s) must complete dicamba or auxin-specific training. If training is available and required by the state where the applicator intends to apply this product, the applicator must complete that training. If the state where the application is intended does not require auxin or dicamba-specific training, then the applicator must complete dicamba or auxin-specific training provided by one of the following sources: a) a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops, or b) a state or state-authorized provider.

RECORD KEEPING

Record keeping is required for applications of this product. **The certified applicator must keep the following records for a period of two years**; records must be generated as soon as practical but no later than 72 hours after application and a

record must be kept for each application of DuPont™ FeXapan™. Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. An example form summarizing record keeping requirements can be found on www.fexapanapplicationrequirements.dupont.com.

1. Applicator must record the items required by 7 CFR Part 110 (RECORDKEEPING ON RESTRICTED USE PESTICIDES BY CERTIFIED APPLICATORS) including:
   a. The brand or product name
   b. The EPA registration number
   c. The total amount applied
   d. The month, day, and year of application
   e. The location of the application
   f. The crop, commodity, stored product, or site of application
   g. The size of treated area
   h. The name of the certified applicator
   i. The certification number of the certified applicator
2. Training: Date and provider of required training completed and proof of completion.
3. Receipts of Purchase: Receipts or copies for the purchase of this product.
4. Product Label: A copy of this product label, and any state special local needs label that supplements this label.
5. Crop Planting Date: Record the date which the crop was planted.
6. Buffer Requirement: Record the buffer distance calculation and any areas included within the buffer distance calculations as allowed in the BUFFER REQUIREMENT section of this label.
7. Sensitive Crops Awareness: Record that a sensitive crop registry was consulted and survey adjacent fields documenting the crops/area surrounding the field prior to application. At minimum, records must include the name of the sensitive crop registry and the date it was consulted and documentation of adjacent crops/areas and the date the survey was conducted read Buffer Requirements and Protection for Sensitive Crops for additional information.
8. Start and Finish Times of Each Application: Record of the time at which the application started and the time when the application finished.
9. Application Timing: Record the type of application (for example: pre-emergence, post-emergence) and number of days after planting if post-emergence.
10. Air Temperature: Record of the air temperature in degrees Fahrenheit at the start and completion of each application.
11. Wind Speed and Direction: Record of the wind speed and direction (the direction from which the wind is blowing) at boom height at the start and completion of each application of this product (See the SPRAYER SETUP section of this label for information on wind speed).
12. Nozzle and Pressure: Record of the spray nozzle manufacturer/brand, type, orifice size, and operating pressure used during each application of this product (See the SPRAYER SETUP section of this label for information on nozzles and pressures.)
13. Tank Mix Products: Record of the brand names and EPA registration numbers (if available) for all products (pesticides, adjuvants, and other products) that were tank mixed with this product for each application (See the TANK MIXING INSTRUCTIONS section of this label for more information on tank mixing.)
14. Spray System Cleanout: Record of compliance with the section of this label titled PROPER SPRAY SYSTEM EQUIPMENT CLEANOUT. At a minimum, records must include the confirmation that the spray system was clean before using this product and that the post-application cleanout was completed in accordance with PROPER SPRAY SYSTEM EQUIPMENT CLEANOUT section of this label.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Waterproof gloves
- Chemical-resistant headgear for overhead exposure

Protective evewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.
Do not enter or allow people (or pets) to enter the treated area until sprays have dried. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Do not enter or allow other people or pets to enter until sprays have dried.

PRODUCT INFORMATION

DuPont™ FeXapan™ is approved by U.S. EPA for all uses specified on this label in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Additional state restrictions and requirements may apply. The applicator must comply with any additional state requirements and restrictions.

This product is a water-soluble formulation intended for control and suppression of many annual, biennial, and perennial broadleaf weeds, as well as woody brush and vines listed in the WEEDS CONTROLLED section of this label. This product may be used for control of these weeds in asparagus, corn, cotton, conservation reserve programs, fallow cropland, grass grown for seed, hay, proso millet, pasture, rangeland, general farmstead (noncropland), small grains, sod farms and farmstead turf, sorghum, soybean, and sugarcane, Cotton with XtendFlex Technology Roundup Ready 2 Xtend Soybean and XtendFlex Soybean.

DuPont™ FeXapan™ is a contact, systemic herbicide, which can have moderate residual control on small seeded broadleaf weeds, including waterhemp, lambsquarters and Palmer pigweed, depending on rainfall and soil type.

DuPont™ FeXapan™ is readily absorbed by plants through shoot and root uptake, translocates throughout the plant's system, and accumulates in areas of active growth. DuPont™ FeXapan™ interferes with the plant's growth hormones (auxins) resulting in death of many broadleaf weeds.

Failure to properly clean the entire spray system can result in inadvertent contamination of the spray system. You must ensure that the spray system used to apply this product is clean before using this product.

Rainfast period: Rainfall or irrigation occurring within 4 hours after postemergence applications may reduce the effectiveness of this product.

Refer to the CROP-SPECIFIC INFORMATION and CROPS WITH XTEND TECHNOLOGY sections for application

timing and other crop-specific details.

RESTRICTIONS

The applicator must read the entire label, including product labeling and follow all restrictions for DuPont™ FeXapan™. Restrictions included, but are not limited to:

- DO NOT APPLY THIS PRODUCT AERIALLY.
- DO NOT TANK MIX WITH PRODUCTS CONTAINING AMMONIUM SALTS SUCH AS AMMONIUM SULFATE (AMS) AND UREA AMMONIUM NITRATE. Small quantities of AMS can greatly increase the volatility potential of dicamba. Read the TANK MIXING instructions section of this label for instructions regarding other tank mix products.
- DO NOT APPLY TO CROPS UNDER STRESS DUE TO LACK OF MOISTURE, HAIL DAMAGE, FLOODING, HERBICIDE INJURY, MECHANICAL INJURY, INSECTS OR WIDELY FLUCTUATING TEMPERATURES AS INJURY MAY RESULT.
- DO NOT APPLY THROUGH ANY TYPE OF IRRIGATION EQUIPMENT. DO NOT TREAT IRRIGATION DITCHES OR WATER USED FOR CROP IRRIGATION OR DOMESTIC PURPOSES.
- DO NOT MAKE APPLICATION OF THIS PRODUCT IF RAIN THAT MAY EXCEED SOIL FIELD CAPACITY AND RESULT IN SOIL RUNOFF IS EXPECTED IN THE NEXT 24 HOURS.

Review the entire label including, specific crop use direction sections for additional restrictions

WEED RESISTANCE MANAGEMENT

DICAMBA	GROUP	4	HERBICIDE

Dicamba mimics auxin (a plant hormone) resulting in a hormone imbalance in sensitive plants that interferes with normal cell division, cell enlargement, and protein synthesis. Dicamba active ingredient is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population can contain plants naturally resistant to Group 4 herbicides. Weed species resistant to Group 4 herbicides can be effectively managed utilizing another herbicide from a different Group, or by using other cultural or mechanical practices.

Weed Management Practices

Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than the labeled rate of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful implementation of a weed resistance management program.

To aid in the prevention of developing weeds resistant to this product:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are relatively small (less than 4 inches).
- Apply full rates of DuPont™ FeXapan™ for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Avoid tank mixtures with other herbicides that reduce the efficacy of this product (through antagonism), or with ones that encourage application rates of this product below those specified on this label.

- Scout fields after application to detect weed escapes or shifts in weed species.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Report any incidence of non-performance of this product against a particular weed to your DuPont representative, local retailer, or county extension agent.
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non- chemical methods to remove escapes, as practical, with the goal of preventing further seed production. EPA defines suspected herbicide resistance as the situation where the following three indicators occur at a site or location:
    - Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
    - A spreading patch of non-controlled plants of a particular weed species; and
    - Surviving plants mixed with controlled individuals of the same species.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical: Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Avoid making more than two applications of dicamba and any other Group 4 herbicides within a single growing season unless mixed with an herbicide with a different mechanism of action with an overlapping spectrum for the difficult to control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed- free crop seeds, as part of an integrated weed control program.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, DuPont representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

Management of Dicamba-Resistant Biotypes

Appropriate testing is critical in order to determine if a weed is resistant to dicamba. Contact your DuPont representative to determine if resistance in any particular weed biotype has been confirmed in your area, or visit on the Internet www.weedscience.org.

DuPont is not responsible for any losses that result from the failure of this product to control dicamba-resistant weed biotypes.

The following good agronomic practices can reduce the spread of confirmed dicamba-resistant biotypes:
- If a naturally occurring resistant biotype is present in your field, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control.
- Cultural and mechanical control practices (e.g., crop rotation or tillage) can also be used as appropriate.
- Scout treated fields after herbicide application and control weed escapes, including resistant biotypes, before they set seed.
- Thoroughly clean equipment, as practical, for all weed seeds before leaving fields known to contain resistant biotypes.
-

INTEGRATED PEST MANAGEMENT

This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

TANK MIXING INSTRUCTIONS

Auxin herbicides such as dicamba have the potential to volatilize in lower pH spray mixtures. Knowing the pH of your spray mixture and making the appropriate adjustments to avoid a low pH spray mixture (e.g., pH less than 5) can reduce the potential for volatilization to occur. Talk to your local agricultural consultant, extension agent or DuPont representative for recommendations to prevent low pH spray mixtures.

DuPont™ FeXapan™ may only be tank-mixed with products that have been tested and found not to adversely affect the offsite movement potential of DuPont™ FeXapan™. A list of those products may be found at www.fexapanapplicationrequirements.dupont.com no more than 7 days before applying DuPont™ FeXapan™.

DO NOT tank mix any product with DuPont™ FeXapan™ unless:
1. The intended tank-mix product is identified on the list of tested products found at www.fexapanapplicationrequirements.dupont.com
2. The intended products are not prohibited on either this label or the label of the tank mix product; and
3. All requirements and restrictions on www.fexapanapplicationrequirements.dupont.com are followed.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, DUPONT MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH DUPONT™ FEXAPAN™. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH DUPONT™ FEXAPAN™ HERBICIDE PLUS VAPORGRIP® TECHNOLOGY. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.
- For 15 gallons per acre spray volume, use 2.5 cups (591.5 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
- Add components in the sequence indicated in the Mixing Order section below using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.
- Cap the jar and invert 10 cycles between component additions.
- When the components have all been added to the jar, let the solution stand for 15 minutes.
- Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, then do not mix the ingredients in the same tank.

Mixing Order

Only use approved tank mix products as directed on www.fexapanapplicationrequirements.dupont.com. Always read and follow label directions for all products in the tank mixture. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. See the TANK MIXING INSTRUCTIONS section of this label for additional restrictions on tank mixing.
1. Ensure application and mixing equipment are clean and in proper working order
2. Water - Begin by agitating a thoroughly **clean sprayer** tank three-quarters full of clean water.
3. Agitation - Maintain constant agitation throughout mixing and application.
4. Drift Reducing Adjuvants (DRA)-(when applicable)
5. Inductor - If an inductor is used, rinse it thoroughly after each component has been added.
6. Products in PVA bags - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
7. Water-dispersible products (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
8. Water-soluble products (such as DuPont™ FeXapan™)
9. Emulsifiable concentrates (such as oil concentrate when applicable)
10. Water-soluble additives (when applicable)
11. Add remaining quantity of water

Maintain constant agitation during application.

Adjuvants, Drift Reducing Adjuvants, Surfactants, and Other Tank Mixed Products
See the TANK MIXING INSTRUCTIONS section of this label for tank mixing instructions for adjuvants, drift reducing adjuvants, surfactants, and other tank mixed products.

APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT.
DuPont™ FeXapan™ can be applied to actively growing weeds as broadcast, band, or spot spray applications using water as a carrier. For best results, treat weeds early when they are relatively small (less than 4 inches). Timely application to small weeds early in the season will improve control and reduce weed competition. Refer to Table 1 for DuPont™ FeXapan™ application rates for control or suppression by weed type and growth stage. For crop-specific application timing and other details, refer to the CROP-SPECIFIC INFORMATION section of this label.

APPLY THIS PRODUCT USING PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING THE DESIRED VOLUMES.

Using a hooded sprayer or other drift reduction technology in combination with approved nozzles may further reduce drift potential.

CULTIVATION: Do not cultivate within 7 days after applying this product.

Table 1. DuPont™ FeXapan™ Application Rates for Control or Suppression by Weed Type and Growth Stage
Use rate limitations are given in the RESTRICTIONS, CROP SPECIFIC INFORMATION and CROPS WITH XTEND TECHNOLOGY sections of this label. .

Weed Type and Stage	Rate Per Acre	Weed Type and Stage	Rate Per Acre
Annual[1]		**Perennial**	
Small, actively growing	11 – 22 fluid ounces	Top growth suppression	11 – 22 fluid ounces
Established weed growth	22 – 33 fluid ounces	Top growth control and root suppression	22 – 44 fluid ounces
		Noted perennials (footnote 1 in CROP-SPECIFIC INFORMATION).	44 fluid ounces
		Other perennials (without footnote 1 in CROP-SPECIFIC INFORMATION)[3]	44 fluid ounces
Biennial		**Woody Brush & Vines**	
Rosette diameter 1 – 3”	11 – 22 fluid ounces	Top growth suppression	22 – 44 fluid ounces
Rosette diameter 3” or more	22 – 44 fluid ounces	Top growth control[2,3]	44 fluid ounces
Bolting	44 fluid ounces	Stems and stem suppression[3]	44 fluid ounces

[1] Rates below 11 fluid ounces per acre may provide control or suppression but should typically be applied with other herbicides that are effective on the same species and biotype.
[2] Woody Species listed in the CROP-SPECIFIC INFORMATION section may require tank mixes for adequate top growth control.
[3] Do not broadcast apply more than 44 fluid ounces per acre in any single application and DO NOT exceed broadcast applications of more than 88 ounces per acre within the growing season when a sequential application is needed for control. Use the higher rate when treating dense vegetation or perennial weeds with established root growth. Perennials and Woody Species are defined as those listed in the CROP-SPECIFIC INFORMATION section.

SPRAY DRIFT MANAGEMENT

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result.

The most effective way to reduce drift potential is to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the "**Temperature and Humidity**" and "**Temperature Inversions**" sections of this label).

Sprayer Setup
The following sprayer setup requirements for drift management must be followed:

- **Nozzle Type** - The applicator must use an approved nozzle within a specified pressure range as found at www.fexapanapplicationrequirements.dupont.com when applying DuPont™ FeXapan™. Do not use any other nozzle and pressure combination not specifically listed on this website.
- **Spray Volume -** The applicator must apply this product in a minimum of **15 gallons of spray solution per acre**. See the **TANK MIXING INSTRUCTIONS** section of this label for information on approved tank mix products.
- **Equipment Ground Speed** - Do not exceed a **ground speed of 15 miles per hour**. Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but slower speeds generally result in better spray coverage and deposition on the target area. Provided the applicator can maintain the required nozzle pressure, it is recommended that tractor speed is reduced to 5 miles per hour at field edges.
- **Spray boom Height -** Do not exceed a **boom height of 24 inches** above target pest or crop canopy. Excessive boom height will increase the drift potential.
- **Wind Speed -** Do not apply when wind speeds are **less than 3 MPH or greater than 10 MPH**. Only apply when wind speed at boom height is between 3 and 10 mph.

TEMPERATURE AND HUMIDITY
When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation (for example: increase orifice size and/or increase spray volume as directed on www.fexapanapplicationrequirements.dupont.com). Larger droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS
Do not apply this product during a temperature inversion as the off-target movement potential is high. In general, temperature inversions are more likely during nighttime hours. Applications of this product may ONLY occur one hour after sunrise through two hours before sunset.

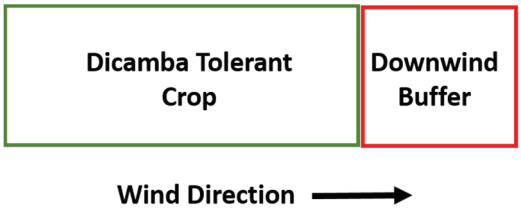
- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions.
- Temperature inversions can be characterized by increasing temperatures with altitude and can be common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. Temperature inversions can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will typically dissipate with increased winds (above 3 miles per hour) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Buffer Requirements and Protection of Sensitive Crops
Do not apply under circumstances where drift may occur to food, forage, or other plantings that might be damaged or the crops rendered unfit for sale, use, or consumption.

Buffer Requirement
The applicator **must always maintain** a 110 foot downwind buffer (when applying up to 22 fluid ounces of this

product per acre) or a 220 foot downwind buffer (when applying greater than 22 up to 44 fluid ounces of this product per acre) between the last treated row and the nearest downwind field edge (in the direction the wind is blowing).

If you have questions regarding Buffer Requirements contact DuPont at 1-800-441-3637 prior to application.



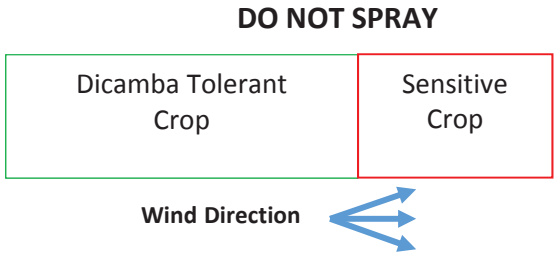
The following areas may be included in the buffer distance calculation when directly adjacent to the treated field edges:

- Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field such as rights of way.
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

Sensitive Crops

DO NOT APPLY this product when the wind is blowing toward adjacent non-dicamba tolerant sensitive crops; this includes **NON-Dicamba Tolerant Soybean and Cotton.**

It is important for the applicator to be aware that wind direction may vary during the application. If wind direction shifts such that the wind is blowing toward adjacent non-dicamba tolerant sensitive crops, the applicator must cease the application.



Before making an application, consult a sensitive crop registry (such as FieldWatch): and survey adjacent fields and confirm the crops/areas surrounding the field prior to application. At a minimum, records must include the name of the sensitive crop registry and the date it was consulted and documentation of adjacent crops/areas and the date the survey was conducted.

Sensitive crops include, but are not limited to non-dicamba tolerant soybeans and cotton, tomatoes and other fruiting vegetables (EPA crop group 8), fruit trees, cucurbits (EPA crop group 9), grapes, beans, flowers, ornamentals, peas, potatoes, sunflower, tobacco, other broadleaf plants, and including plants in a greenhouse. Severe injury or destruction could occur if any contact between this product and these plants occurs.

If you have any questions regarding sensitive crop registries contact DuPont at 1-800-441-3637 prior to application.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local pesticide drift regulations.

Ground Application (Banding)

When applying DuPont™ FeXapan™ by banding, determine the amount of herbicide and water volume needed using the following formula:

Bandwidth in inches / Row width in inches	X	Broadcast rate per acre	=	Banding herbicide rate per acre
Bandwidth in inches / Row width in inches	X	Broadcast volume per acre	=	Banding water volume per acre

Ground Application (Broadcast)
Water Volume: Use a **minimum of 15 gallons** of spray solution per broadcast acre for optimal performance. Use 20 gallons per acre when treating dense or tall vegetation.

Application Equipment: Select nozzles (refer to the SPRAYER SETUP section of this label) designed to produce minimal amounts of fine spray particles. Spray with nozzles as close to the weeds as practical for good weed coverage.

Using a hooded sprayer or other drift reduction technology in combination with approved nozzles may further reduce drift potential.

Ground Application (Wipers)
DuPont™ FeXapan™ may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush and vines. Use a solution containing 1 part DuPont™ FeXapan™ to 1 part water. Do not apply greater than 1 lb dicamba acid equivalent (1 quart of this product) per acre per application. Do not contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and non-cropland areas described in this label with the exception of cotton, sorghum, and non-dicamba-tolerant soybean.

Proper Spray System Equipment Cleanout
You must ensure that the spray system used to apply this product is clean before using this product.

Failure to properly clean the entire spray system can result in inadvertent contamination of the spray system. Small quantities of dicamba may cause injury to non-dicamba tolerant soybeans and other sensitive crops (See Buffer Requirements and protection of Sensitive Crops Section of this label for more information).

Inadvertent contamination can also occur in equipment used for bulk product handling and mixing prior to use in the spray system. Care should be taken to reduce contamination not only in the spray system but in any equipment used to transfer or deliver product. For example, bulk handling and mixing equipment containing this product should be segregated when possible to reduce potential for cross-contamination.

Consider using block and check valves to avoid backflow during transfer. Piping should be reviewed to ensure there is not potential for product build-up. Dedicated nurse trucks and tender equipment should be used when possible.

Clean equipment immediately after using this product, using a triple rinse procedure as follows:
1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water. If equipped, open boom ends and flush.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.

5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
8. Drain sump, filter and lines.
9. Rinse the complete spraying system with clean water.
10. Clean and wash off the outside of the entire sprayer and boom.
11. All rinse water must be disposed of in compliance with local, state, and federal guidelines.

ADDITIONAL RESTRICTIONS

Maximum Application Rates: The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredients dicamba, whether applied separately or as a tank mixture, on a basis of total pounds of dicamba (acid equivalents) per acre. If more than one dicamba- containing product is applied to the same site within the same year, you must ensure that the total use of dicamba (pounds acid equivalents) does not exceed 2 pounds/A per year from all applications. See the INGREDIENTS section of this label for necessary product information.

Maximum seasonal use rate: Refer to Table 2. Crop-Specific Restrictions for crop-specific maximum seasonal use rates. Do not exceed 88 fluid ounces of DuPont™ FeXapan™ (2 pounds acid equivalent) per acre, per year.

Preharvest Interval (PHI): Refer to the CROP-SPECIFIC INFORMATION section for preharvest intervals.

Restricted Entry Interval (REI): 24 hours

Crop Rotational Restrictions

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend® Soybeans, XtendFlex® Soybeans, or cotton seed with XtendFlex® Technology (including Bollgard® 3 XtendFlex® Cotton, Bollgard II® XtendFlex® Cotton, or XtendFlex® Cotton). For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions at application rates of 33 fluid ounces of this product per acre per season or less: Follow the planting restrictions in the directions for use for Preplant application in the Crop Specific Information section of this label. For corn, cotton (except cotton seed with XtendFlex® Technology), sorghum, and soybean (except Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean), follow the planting restrictions in the directions for use for preplant application in the Crop- Specific Information section of this label. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions at application rates of more than 33 fluid ounces and up to 88 fluid ounces of this product per acre per season: Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except cotton seed with XtendFlex® Technology) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend® Soybean Xtendflex® Soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

Table 2. Crop-Specific Restrictions[1]

Crop	Maximum Rate Per Acre Per Application (fl oz)	Maximum Rate Per Acre Per Season (fl oz)	Livestock Grazing or Feeding
Asparagus	22	22	Yes

Barley; Fall	11	16.5	Yes
Barley; Spring	11	15	Yes
Conservation Reserve Program (CRP)	44	88	Yes
Corn	22	33	Yes[2]
Cotton	11	11	Yes
Cotton with XtendFlex Technology	44	88	Yes
Fallow Ground	44	88	Yes
Grass grown for seed	44	88	Yes
Oats	5.5	5.5	Yes
Pastureland	44	44	Yes
Proso Millet	5.5	5.5	Yes
Small grains grown for grass, forage, fodder, hay and/or pasture	22	22	Yes
Sorghum	11	22	Yes
Soybean	44	44	Yes
Roundup Ready 2 Xtend Soybean and XtendFlex Soybean	44	88	Yes
Sugarcane	44	88	Yes
Triticale	5.5	5.5	Yes
Sod farms and farmstead turf	44	44	Yes
Wheat	11	22	Yes

[1] Refer to **CROP-SPECIFIC INFORMATION** and **CROPS WITH XTEND TECHNOLOGY** sections of this label for more details.

[2] Once the crop reaches the ensilage (milk) stage or later in maturity.

CROP-SPECIFIC INFORMATION

Read the TANK MIXING INSTRUCTIONS section and BUFFER REQUIREMENTS AND SENSITIVE CROPS sections of this label for information on tank mixing, buffer requirements, and sensitive crops.

ASPARAGUS

Apply DuPont™ FeXapan™ to emerged and actively growing weeds in 40 - 60 gallons of diluted spray per treated acre immediately after cutting the field, but at least 24 hours before the next cutting. Multiple applications may be made per growing season (not to exceed the maximum yearly application rate).

If spray contacts emerged spears, crooking (twisting) of some spears may result. If such crooking occurs, discard affected spears.

Rates: Apply 11-22 fluid ounces of DuPont™ FeXapan™ to control annual sowthistle, black mustard, Canada and Russian thistle, and redroot pigweed (carelessweed).

Apply 22 fluid ounces of DuPont™ FeXapan™ to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. Up to 2 applications may be made per growing season. Do not exceed a total of 22 fluid ounces of DuPont™ FeXapan™ per treated acre, per crop year.

Do not harvest prior to 24 hours after treatment.

(Optional: Do not use in the Coachella Valley of California.)

BETWEEN CROP APPLICATIONS

Preplant Directions (Postharvest, Fallow, Crop Stubble, Set-Aside) for Broadleaf Weed Control:

DuPont™ FeXapan™ can be applied either postharvest in the fall, spring, or summer during the fallow period or to crop stubble/set-aside acres. Apply DuPont™ FeXapan™ as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost or in the fallow cropland or crop stubble the following spring or summer.

See the RESTRICTIONS section for the recommended interval between application and planting to prevent crop injury.

Rates and Timings:

Apply 5.5 – 44 fluid ounces of DuPont™ FeXapan™ per acre. Refer to Table 1 to determine use rates for specific targeted weed types. For best performance, apply DuPont™ FeXapan™ when annual weeds are less than 4" tall, when biennial weeds are in the rosette stage and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. The most effective control of upright perennial broadleaf weeds listed on this label such as Canada thistle and Jerusalem artichoke occurs if DuPont™ FeXapan™ is applied when the majority of weeds have at least 4 - 6" of regrowth or for weeds listed in this label such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts such as rhizomes or bulblets, after the effective period for DuPont™ FeXapan™. For seedling control, a follow-up program or other cultural practices could be instituted. For small grain in- crop uses of DuPont™ FeXapan™, refer to the small grain section for details.

CONSERVATION RESERVE PROGRAM (CRP)

DuPont™ FeXapan™ is recommended for use on both newly seeded and established grasses grown in Conservation Reserve or federal Set-Aside Programs. Treatments of DuPont™ FeXapan™ will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Newly Seeded Areas

DuPont™ FeXapan™ may be applied either preplant or postemergence to newly seeded grasses or small grains (barley, oats, rye, sudanqrass, wheat, or other grain species grown as a cover crop). Postemergence applications may be made after seedling grasses exceed the 3-leaf stage. Rates of DuPont™ FeXapan™ greater than 22 fluid ounces per treated acre may severely injure newly seeded grasses.

Preplant applications may injure new seedlings if the interval between application and grass planting is less than 45 days per 22 fluid ounces of DuPont™ FeXapan™ applied per treated acre west of the Mississippi River or 20 days per 22 fluid ounces applied east of the Mississippi River.

Established Grass Stands

Established grass stands are perennial grasses planted one or more seasons prior to treatment. Certain species (bentgrass, carpetgrass, smooth brome, buffalograss, or St. Augustinegrass) may be injured when treated with more than 22 fluid ounces of DuPont™ FeXapan™ per treated acre.

When applied at specified rates, DuPont™ FeXapan™ will control many annual and biennial weeds and provide control or suppression of many perennial weeds.

Rates and Timings

Apply 5.5 - 44 fluid ounces of DuPont™ FeXapan™ per acre. Refer to Table 1 for rates based on target weed species. Retreatments may be made as needed; however, do not exceed a total of 88 fluid ounces (4 pints) of DuPont™ FeXapan™ per acre per year.

CORN (FIELD, POP, SEED, AND SILAGE)

Direct contact of DuPont™ FeXapan™ with corn seed must be avoided. If corn seeds are less than 1.5 inches below the surface, delay application until corn has emerged.

Applications of DuPont™ FeXapan™ to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. Cultivation should be delayed until after corn is growing normally to avoid breakage.

Corn may be harvested or grazed for feed once the crop has reached the ensilage (milk) stage or later in maturity.

Up to 2 applications of DuPont™ FeXapan™ may be made during a growing season not to exceed 33 fluid ounces per acre per season. Sequential applications must be separated by 2 weeks or more.

Do not apply DuPont™ FeXapan™ to seed corn or popcorn without first verifying with your local seed corn company (supplier) the selectivity of DuPont™ FeXapan™ on your inbred line or variety of popcorn. This

precaution will help avoid potential injury of sensitive varieties.

Avoid using crop oil concentrates after crop emergence as crop injury may result. Use crop oil concentrates only in dry conditions when corn is less than 5 inches tall and when applying DuPont™ FeXapan™ alone or tank mixed with atrazine.

Use of sprayable fluid fertilizer as the carrier is not recommended for applications of DuPont™ FeXapan™ made after corn emergence.

DuPont™ FeXapan™ is not registered for use on sweet corn.

Preplant and Preemergence Application in No-Tillage Corn:
Rates: Apply 22 fluid ounces of DuPont™ FeXapan™ per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 11 fluid ounces per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

Timing: DuPont™ FeXapan™ can be applied to emerging weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g., alfalfa or clover), apply DuPont™ FeXapan™ after 4 - 6 inches of regrowth has occurred.

Preemergence Application in Conventional or Reduced Tillage Corn:
Rates: Apply 22 fluid ounces of DuPont™ FeXapan™ per treated acre on medium- or fine-textured soils containing 2.5% organic matter or more. Do not apply to coarse textured soils (sand, loamy sand, or sandy loam) of any soil with less than 2.5% organic matter until after corn emergence (See Early Postemergence uses below).

Timing: DuPont™ FeXapan™ may be applied after planting and prior to corn emergence. Pre-emergence application of DuPont™ FeXapan™ does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g., drags, harrows) which concentrates treated soil over seed furrow as seed damage could result.

Preemergence control of cocklebur, jimsonweed, and velvetleaf may be reduced if conditions such as low temperature or lack of soil moisture cause delayed or deep germination of weeds.

Early Postemergence Application in All Tillage Systems:
Rates: Apply 22 fluid ounces of DuPont™ FeXapan™ per treated acre. Reduce the rate to 11 fluid ounces per treated acre if corn is growing on coarse textured soils (sand, loamy sand, and sandy loam).

Timing: Apply between corn emergence and the 5-leaf stage or 8 inches tall, whichever occurs first. Refer to Late Postemergence Applications if the sixth true leaf is emerging from whorl or corn is greater than 8 inches tall.

Late Postemergence Application:
Rate: Apply 11 fluid ounces of DuPont™ FeXapan™ per treated acre.

Timing: Apply DuPont™ FeXapan™ from 8 – 36 inches tall corn or 15 days before tassel emergence, whichever comes first. For best performance, apply when weeds are less than 3 inches tall.

Apply directed spray when corn leaves prevent proper spray coverage.

COTTON
For directions for use with crops with Xtend Technology see the "CROPS WITH XTEND TECHNOLOGY" section of this label.

Preplant Application:
Apply up to 11 fluid ounces of DuPont™ FeXapan™ per acre to control emerged broadleaf weeds prior to planting cotton in conventional or conservation tillage systems.

For best performance, apply DuPont™ FeXapan™ when weeds are in the 2 - 4 leaf stage and rosettes are less than 2 inches across.

Following application of DuPont™ FeXapan™ and a minimum accumulation of 1 inch of rainfall or overhead irrigation, allow a minimum of 21 days between treatment and planting per application of 11 fluid ounces per acre or less. This plant back interval must be observed prior to planting cotton.

Do not apply preplant to cotton west of the Rockies.

Do not make DuPont™ FeXapan™ preplant applications to cotton in geographic areas with average annual rainfall less than 25 inches.

If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds acid equivalent per acre.

GRASS GROWN FOR SEED

Apply 11 - 22 fluid ounces of DuPont™ FeXapan™ per treated acre on seedling grass after the crop reaches the 3 - 5 leaf stage. Apply up to 44 fluid ounces of DuPont™ FeXapan™ on well-established perennial grass. For best performance, apply DuPont™ FeXapan™ when weeds are in the 2 - 4 leaf stage and rosettes are less than 2 inches across. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.

To suppress annual grasses such as brome (downy and ripgut), rattail fescue, and windgrass, apply up to 44 fluid ounces of DuPont™ FeXapan™ per treated acre in the fall or late summer after harvest and burning of established grass seed crops. Applications should be made immediately following the first irrigation when the soil is moist and before weeds have more than 2 leaves.

Do not apply DuPont™ FeXapan™ after the grass seed crop begins to joint. Refer to the Pasture, Hay, Rangeland, and General Farmstead section for grazing and feeding restrictions.

PROSO MILLET

For use only within Colorado, Nebraska, North Dakota, South Dakota, [Optional: and Wyoming].

DuPont™ FeXapan™ combined with an appropriate tank-mix partner will provide control or suppression of the annual broadleaf weeds listed in WEEDS CONTROLLED section.

PASTURE, HAY, RANGELAND, AND GENERAL FARMSTEAD (NONCROPLAND) AND SMALL GRAINS (FORAGE SORGHUM, RYE, SUDANGRASS, OR WHEAT) GROWN FOR PASTURE, HAY, AND SILAGE ONLY

DuPont™ FeXapan™ is recommended for use on pasture, hay, rangeland, and general farmstead (non-cropland) (including fencerows and non-irrigation ditch banks) for control or suppression of broadleaf weed and brush species listed in the WEEDS CONTROLLED section.

DuPont™ FeXapan™ may also be applied to non-cropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides and highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

DuPont™ FeXapan™ uses described in this section also pertain to grasses and small grains (forage sorghum, rye, sudangrass, or wheat) grown for grass, forage, fodder, hay and/or pasture use only. Grasses and small grains not grown ONLY for grass, forage, fodder, hay and/or pasture must comply with crop-specific uses in this label.) . Some perennial weeds may be controlled with lower rates of DuPont™ FeXapan™ (refer to **Table 1**).

Rates and Timings

Refer to **Table 1** for rate selection based on targeted weed or brush species. . Some weed species will require tank mixes for adequate control. (Read the TANK MIXING INSTRUCTIONS section of this label for tank mixing

instructions)

Rates above 44 fluid ounces of DuPont™ FeXapan™ per acre are for spot treatments only. Spot treatment is defined as no more than a total of 1000 square feet of treated area per acre. Do not broadcast apply more than 44 fluid ounces per acre.

Retreatments may be made as needed; however, do not exceed a total of 44 fluid ounces of DuPont™ FeXapan™ per treated acre during a growing season.

Grass grown for hay requires a 7-day wait period between treatment and harvest.

Crop-Specific Restrictions
Do not apply more than 22 fluid ounces of DuPont™ FeXapan™ per acre to small grains grown for pasture.

Newly seeded areas may be severely injured if more than 22 fluid ounces of DuPont™ FeXapan™ is applied per acre.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, carpetgrass, buffalograss, and St. Augustingrass may be injured if more than 22 fluid ounces of DuPont™ FeXapan™ is applied per acre. Usually colonial bent grasses are more tolerant than creeping types. Velvet grasses are most easily injured. Treatments will kill or injure alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Table 3 lists the timing restrictions for grazing or harvesting hay from treated fields. There are no grazing restrictions for animals other than lactating dairy animals.

Table 3. Timing Restrictions for Lactating Dairy Animals Following Treatment

DuPont™ FeXapan™ Rate per Treated Acre (fluid ounces)	Days Before Grazing (days)	Days Before Hay Harvest (days)
Up to 22	7	37
Up to 44	21	51

- **Spot Treatments:** DuPont™ FeXapan™ may be applied to individual clumps or small areas of undesirable vegetation using handgun or similar types of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

Cut Surface Treatments:
DuPont™ FeXapan™ may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees.

Rate: Mix 1 part DuPont™ FeXapan™ with 1 - 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.
- **For Frill or Girdle Treatments:** Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint the cut surface with the solution.
- **For Stump Treatments:** Spray or paint freshly cut surface with the water mix. The area adjacent to the bark should be thoroughly wet.

Applications for Control of Dormant Multiflora Rose:
DuPont™ FeXapan™ can be applied when plants are dormant as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-water emulsion solution.
- **Spot treatments:** Spot treatment applications of DuPont™ FeXapan™ should be applied directly to the soil as close as possible to the root crown but within 6 - 8 inches of the crown. On sloping terrain, apply DuPont™ FeXapan™ to the uphill side of the crown. Do not apply when snow or water prevents applying DuPont™

FeXapan™ directly to the soil. The use rate of DuPont™ FeXapan™ depends on the canopy diameter of the multiflora rose.

Examples: Use 0.34, 1.38, or 3.23 fluid ounces of DuPont™ FeXapan™ respectively, for 5, 10, or 15 feet canopy diameters.

- **Lo-Oil basal bark treatments:** For Lo-Oil basal bark treatments, apply DuPont™ FeXapan™ to the basal stem region from the ground line to a height of 12 - 18 inches. Spray until runoff, with special emphasis on covering the root crown. For best results, apply DuPont™ FeXapan™ when plants are dormant. Do not apply after bud break or when plants are showing signs of active growth. Do not apply when snow or water prevents applying DuPont™ FeXapan™ to the ground line.

To prepare approximately 2 gallons of a Lo-Oil spray solution:
1) Combine 1.5 gallons of water, 1 ounce of emulsifier, 22 fluid ounces of DuPont™ FeXapan™, and 2.5 pints of No. 2 diesel fuel.
2) Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

Do not exceed 8 gallons of spray solution mix applied per acre, per year.

SMALL GRAINS

SMALL GRAINS NOT UNDERSEEDED TO LEGUMES (FALL- AND SPRING-SEEDED BARLEY, OAT, TRITICALE AND WHEAT)
Refer to the specific crop sections below for use rates. When treating difficult to control weeds such as kochia, wild buckwheat, cow cockle, prostrate knotweed, Russian thistle, and prickly lettuce or when dense vegetative growth occurs, use the 4.12 – 5.5 fluid ounces of DuPont™ FeXapan™ per acre.

Timings: Apply DuPont™ FeXapan™ before, during, or after planting small grains. See specific small grain crop uses below for maximum crop stage. For best performance, apply DuPont™ FeXapan™ when weeds are in the 2 - 3 leaf stage and rosettes are less than 2 inches across. Applying DuPont™ FeXapan™ to small grains during periods of rapid growth may result in crop leaning. This condition is temporary and will not reduce crop yields.

Restrictions for small grain areas that are grazed or cut for hay are indicated in **Table 3** in Pasture, Hay, Rangeland, and General Farmstead section of this label.

SMALL GRAINS: BARLEY (FALL- AND SPRING-SEEDED)

Early season applications:
Apply 2.75 – 5.5 fluid ounces of DuPont™ FeXapan™ to fall-seeded barley prior to the jointing stage. Apply 2.75 – 4.12 fluid ounces of DuPont™ FeXapan™ before spring-seeded barley exceeds the 4-leaf stage.

Note: For spring barley varieties that are seeded during the winter months or later, follow the rates and timings given for spring-seeded barley.

Preharvest applications:
DuPont™ FeXapan™ can be used to control weeds that may interfere with harvest of fall and spring-seeded barley. Apply 11 fluid ounces of DuPont™ FeXapan™ per acre as a broadcast or spot treatment to annual broadleaf weeds when barley is in the hard dough stage and the green color is gone from the nodes (joints) of the stern. Best results will be obtained if application can be made when weeds are actively growing, but before weeds canopy.

Allow a minimum of 7 days between treatment and harvest. Do not use preharvest-treated barley for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.
(Optional: Do not make preharvest applications in California.)

SMALL GRAINS: OATS (FALL- AND SPRING-SEEDED)
Early season applications:

Apply 2.75 – 5.5 fluid ounces of DuPont™ FeXapan™ per acre to fall-seeded oat prior to the jointing stage. Apply 2.75 – 5.5 fluid ounces of DuPont™ FeXapan™ before spring-seeded oat exceed the 5-leaf stage.
Allow a minimum of 7 days between treatment and harvest.
Do not tank mix DuPont™ FeXapan™ with 2,4-D in oat.

SMALL GRAINS: TRITICALE (FALL- AND SPRING-SEEDED)
Early season applications:
Apply 2.75 – 5.5 fluid ounces of DuPont™ FeXapan™ to triticale.
Early season applications to fall-seeded triticale must be made prior to the jointing stage.
Early season applications to spring-seeded triticale must be made before triticale reaches the 6-leaf stage.

SMALL GRAINS: WHEAT (FALL- AND SPRING-SEEDED)
Early Season Applications:
Apply 2.75 – 5.5 fluid ounces of DuPont™ FeXapan™ to wheat unless using one of the fall-seeded wheat specific programs below.
Early season applications to fall-seeded wheat must be made prior to the jointing stage.
Early season applications to spring-seeded wheat must be made before wheat exceeds the 6-leaf stage.
Early developing wheat varieties such as TAM 107, Madison, or Wakefield must receive application between early tillering and the jointing stage. Care should be taken in staging these varieties to be certain that the application occurs prior to the jointing stage.

Specific use programs for fall-seeded wheat only:
(Optional: DuPont™ FeXapan™ may be used at 8.25 fluid ounces on fall-seeded wheat in Western Oregon as a spring application only.) In Colorado, Kansas, New Mexico, Oklahoma, and Texas, up to 11 fluid ounces of DuPont™ FeXapan™ may be applied on fall-seeded wheat after it exceeds the 3-leaf stage for suppression of perennial weeds, such as field bindweed. Applications may be made in the fall following a frost but before a killing freeze.

Preharvest applications:
DuPont™ FeXapan™ can be used to control weeds that may interfere with harvest of wheat. Apply 11 fluid ounces DuPont™ FeXapan™ per acre as a broadcast or spot treatment to annual broadleaf weeds when wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing but before weeds canopy.

Allow a minimum of 7 days between treatment and harvest. Do not use preharvest-treated wheat for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.
(Optional: Do not make preharvest applications in California.)

SORGHUM
DuPont™ FeXapan™ may be applied preplant, postemergence, or preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds, as well as control their seedlings.

Do not graze or feed treated sorghum forage or silage prior to mature grain stage. If sorghum is grown for pasture or hay, refer to Pasture, Hay, Rangeland, and General Farmstead section of this label for specific grazing and feeding restrictions.

Do not apply DuPont™ FeXapan™ to sorghum grown for seed production.

Preplant Application:
Up to 11 fluid ounces of DuPont™ FeXapan™ may be applied per acre if applied at least 15 days before sorghum planting.

Postemergence Application:
Up to 11 fluid ounces of DuPont™ FeXapan™ per acre may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15 inches tall. For best performance, apply DuPont™ FeXapan™ when the

sorghum crop is in the 3 - 5 leaf stage and weeds are small (less than 3" tall). Use drop pipes (drop nozzles) if sorghum is taller than 8 inches. Keep the spray off the sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage. Applying DuPont™ FeXapan™ to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 - 14 days. Delay harvest until 30 days after treatment.

Preharvest uses in Texas and Oklahoma only: Up to 11 fluid ounces of DuPont™ FeXapan™ per acre may be applied for weed suppression any time after the sorghum has reached the soft dough stage. An agricultural surfactant may be used to improve performance (read the TANK MIXING INSTRUCTIONS section of this label for tank mixing instructions). Delay harvest until 30 days after a preharvest treatment.

Split Application:
DuPont™ FeXapan™ may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. Do not exceed 11 fluid ounces per acre, per application or a total of 22 ounces per acre, per season.

SOYBEAN
For directions for use with crops with Xtend Technology see the "CROPS WITH XTEND TECHNOLOGY" section of this label.

Preplant Applications:
Apply 5.5 -22 fluid ounces of DuPont™ FeXapan™ per acre to control emerged broadleaf weeds prior to planting soybeans. Do not exceed 22 fluid ounces of DuPont™ FeXapan™ per acre in a spring application prior to planting soybeans.

Following application of DuPont™ FeXapan™ and a minimum accumulation of 1 inch rainfall or overhead irrigation, allow a minimum of 14 days between treatment and planting for applications of 11 fluid ounces per acre or less, and allow a minimum of 28 days between treatment and planting for 22 fluid ounces per acre.

These plant back intervals must be observed prior to planting soybeans or crop injury may occur.

Do not make DuPont™ FeXapan™ preplant applications to soybeans in geographic areas with average annual rainfall less than 25".

Preharvest Applications:
DuPont™ FeXapan™ can be used to control many annual and perennial broadleaf weeds and control or suppress many biennial and perennial broadleaf weeds in soybean prior to harvest. Apply 11 - 44 fluid ounces of DuPont™ FeXapan™ per acre as a broadcast or spot treatment to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Do not harvest soybeans until 7 days after application.

Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulblets, after the effective period for DuPont™ FeXapan™. For seedling control, a follow-up program or other cultural practice could be instituted.

Do not use preharvest-treated soybean for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

Do not feed soybean fodder or hay following a preharvest application of DuPont™ FeXapan™.

(Do not make preharvest applications in California.)

SUGARCANE
Apply DuPont™ FeXapan™ for control of annual, biennial, or perennial broadleaf weeds listed in the WEEDS CONTROLLED section. Apply 11 - 33 fluid ounces of DuPont™ FeXapan™ per acre for control of annual weeds,

22 - 44 fluid ounces for control of biennial weeds, and 44 fluid ounces for control or suppression of perennial weeds.

Use the higher level of listed rate ranges when treating dense vegetative growth.

A single retreatment may be made as needed, however, do not exceed a total of 88 fluid ounces of DuPont™ FeXapan™ per treated acre during a growing season.

Timing: DuPont™ FeXapan™ may be applied to sugarcane any time after weeds have emerged, but before the close-in stage of sugarcane. Applications of 44 fluid ounces of DuPont™ FeXapan™ per acre made over the top of actively growing sugarcane may result in crop injury.

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

Allow a minimum of 87 days between treatment and harvest.

FARMSTEAD TURF (NONCROPLAND) AND SOD FARMS
Do not use on residential sites.

For use in general farmstead (noncropland) and sod farms, apply 4.12 – 44 fluid ounces of DuPont™ FeXapan™ per acre to control or suppress growth of many annual, biennial, and some perennial broadleaf weeds commonly found in turf. DuPont™ FeXapan™ will also suppress many other listed perennial broadleaf weeds and woody brush and vine species. Refer to Table 1 for rates based on targeted weed or brush species and growth stage.

Repeat treatments may be made as needed; however, do not exceed 44 fluid ounces of DuPont™ FeXapan™ per acre, per growing season.

Apply 30 - 200 gallons of diluted spray per treated acre (3 - 17 quarts of water per 1,000 square feet), depending on density or height of weeds treated and on the type of equipment used.

To avoid injury to newly seeded grasses, delay application of DuPont™ FeXapan™ until after the second mowing. Furthermore, applying more than 16 fluid ounces of DuPont™ FeXapan™ per treated acre may cause noticeable stunting or discoloration of sensitive grass species such as bentgrass, carpetgrass, buffalograss, and St. Augustinegrass.

In areas where roots of sensitive plants extend, do not apply more than 5.5 fluid ounces of DuPont™ FeXapan™ per treated acre on coarse-textured (sandy-type) soils, or in excess of 8 fluid ounces per treated acre on fine-textured soils. Do not make repeat applications in these areas for 30 days and until previous applications of DuPont™ FeXapan™ have been activated in the soil by rain or irrigation.

CROPS WITH XTEND® TECHNOLOGY
COTTON WITH XTENDFLEX® TECHNOLOGY (INCLUDING BOLLGARD II® XTENDFLEX® COTTON, BOLLGARD® 3 XTENDFLEX® COTTON, OR XTENDFLEX® COTTON) AND ROUNDUP READY 2 XTEND® SOYBEAN, AND XTENDFLEX® SOYBEAN, CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO COTTON AND SOYBEAN THAT ARE NOT DICAMBA TOLERANT, INCLUDING COTTON AND SOYBEAN WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® soybean can be obtained from your seed supplier or DuPont representative. Cotton with XtendFlex® Technology, Roundup Ready 2

Xtend® Soybean, and XtendFlex® Soybean must be purchased from an authorized licensed seed supplier.

Note: Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean and methods of controlling weeds and applying dicamba in a Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean crop are protected under U.S. patent law. No license to use Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean is granted or implied with the purchase of this herbicide product. Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean are owned by the seed provider and a license must be obtained from the seed provider before using it. Contact your Authorized DuPont Retailer for information on obtaining a license to Cotton with XtendFlex® Technology, Roundup Ready 2 Xtend® Soybean, and XtendFlex® Soybean.

Cotton with XtendFlex® Technology
DO NOT combine these instructions with other instructions in the "COTTON" Section of this label for use over crops that do not contain the dicamba tolerance trait.

TYPES OF APPLICATIONS: Burndown/Early Preplant; Preplant; At-Planting; Preemergence; Postemergence (In-crop)

USE INSTRUCTIONS
Apply this product in a minimum of 15 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with cotton with XtendFlex® Technology.

Maximum Application Rates

Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early Preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all In-crop applications up to mid-bloom stage or no more than 60 days after planting, whichever occurs first.	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent
Refer to Table 1 for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Burndown/Early Preplant, Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting cotton with XtendFlex® Technology. Refer to the "WEEDS CONTROLLED" section this label for DuPont™ FeXapan™ for specific weeds controlled.

RESTRICTIONS:
- The maximum combined quantity of this product that may be applied for all burndown/early preplant, preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.
- The maximum application rate for a single, burndown/early preplant, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in cotton with XtendFlex® Technology. In-crop applications of this product can be made up to mid-bloom stage or no more than 60 days after planting, whichever occurs first.

The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. To the extent permitted by applicable law, DuPont does not warrant product performance of applications to labeled weeds greater than 4 inches in height. Sequential applications of this product may be necessary to control new flushes of weeds or on tough-to-control weeds. Allow at least 7 days between applications.

Postemergence applications of this product mixed with adjuvants may cause a leaf response to cotton with XtendFlex® Technology. The symptoms usually appear as necrotic spots on fully expanded leaves. EC-based products that are tank mixed with products containing dicamba may increase the severity of the leaf damage.

RESTRICTIONS:
- The combined total applied in-crop up to mid-bloom stage or no more than 60 days after planting, whichever comes first, must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb a.e. dicamba).
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 44 fluid ounces (1.0 lb a.e. dicamba) per acre was made, then the combined total in-crop applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.

Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean
DO NOT combine these instructions with other instructions in the "SOYBEAN" Section of this label for use over crops that do not contain the dicamba tolerance trait.

TYPES OF APPLICATIONS: Burndown/Early Preplant; Preplant; At-Planting; Preemergence; Postemergence (In-crop)

USE INSTRUCTIONS
Apply this product in a minimum of 15 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean.

Maximum Application Rates

Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early Preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all In-crop applications from emergence prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first.	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre 0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Burndown/Early Preplant, Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. Refer to the "WEEDS CONTROLLED" section of the label booklet for DuPont™ FeXapan™ for specific weeds controlled.

RESTRICTIONS:
- The maximum combined quantity of this product that may be applied for all burndown/early preplant, preplant, at-

planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.
- The maximum application rate for a single, burndown/early preplant, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. In-crop applications of this product can be made prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever comes first.

The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. To the extent permitted by applicable law, DuPont does not warrant product performance of applications to labeled weeds greater than 4 inches in height.

A second application of this product may be necessary to control new flushes of weeds and can be made prior to beginning bloom (R1 stage soybeans) or no more than 45 days after planting, whichever occurs first. Allow at least 7 days between applications. For best results, apply DuPont™ FeXapan™ after some weed re-growth has occurred.

Application of this product postemergence and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in Roundup Ready 2 Xtend® Soybean and XtendFlex® Soybean. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS:
- The combined total application rate in-crop prior to beginning bloom (R1 growth stage of soybeans) or no more than 45 days after planting whichever occurs first, must not exceed 44 fluid ounces (1.0 lb. a.e. dicamba) per acre, a maximum of two in-crop applications.
- Do not make in-crop applications of this product during and after beginning bloom (R1 growth stage of soybeans) or more than 45 days after planting.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb. a.e. dicamba) per acre. The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb. a.e. dicamba) per acre.

WEEDS CONTROLLED

General Weed List, Including ALS-, Glyphosate, and Triazine-Resistant Biotypes

ANNUALS

Alkanet	Goosefoot, Nettlel Hempnettle	Pusley, Florida
Amaranth, Palmer, Powell, Spiny	Henbit	Radish, Wild
Aster, Slender	Jacobs-Ladder	Ragweed, Common, Giant (Buffaloweed), Lance-Leaf
Bedstraw, Catchweed	Jimsonweed	Rocket, London, Yellow
Beggarweed, Florida	Knawel (German Moss)	Rubberweed, Bitter (Bitterweed)
Broomweed, Common	Knotweed, Prostrate	Salsify
Buckwheat, Tartary, Wild	Kochia	Senna, Coffee
Buffalobur	Ladysthumb	Sesbania, Hemp
Burclover, California	Lambsquarters Common	Shepherdpurse
Burcucumber	Lettuce, Miners, Prickly	Sicklepod
Buttercup, Corn, Creeping, Roughseed, Western Field	Mallow, Common, Venice	Sida, Prickly (Teaweed)
Carpetweed	Marestail (Horseweed)	Smartweed, Green, Pennsylvania
Catchfly, Nightflowering	Mayweed	Sneezeweed, Bitter
Chamomile, Corn	Morningglory, Ivyleaf, Tall	Sowthistle, Annual, Spiny
Chevil, Bur	Mustard, Black, Blue, Tansy, Treacle, Tumble, Wild, Yellowtops	Spanish Needles
Chickweed, Common	Nightshade, Black, Cutleaf	Spikeweed, Common
Clovers	Pennycress, Field (Fanweed, Frenchweed, Stinkweed)	Spurge, Prostrate, Leafy
Cockle, Corn, Cow, White	Pepperweed, Virginia (Peppergrass)	Spurry, Corn
Cocklebur, Common	Pigweed, Prostrate, Redroot (Carelessweed), Rough, Smooth, Tumble	Starbur, Bristly
Copperleaf, Hophornbeam	Pineappleweed	Starwort, Little
Cornflower (Bachelor Button)	Poorjoe	Sumpweed, Rough
Croton, Tropic, Woolly	Poppy, Red-horned	Sunflower, Common (Wild), Volunteer
Daisy, English	Puncturevine	Thistle, Russian
Dragonhead, American	Purslane, Common	Velvetleaf
Eveningprimrose, Cutleaf		Waterhemp, Common, Tall
Falseflax, Smallseed		Waterprimrose, Winged
Fleabane, Annual		Wormwood
Flixweed		
Fumitory		

BIENNIALS

Burdock, Common	Gromwell	Sweetclover
Carrot, Wild (Queen Anne's Lace)	Knapweed, Diffuse, Spotted	Teasel
Cockle, White	Mallow, Dwarf	Thistle, Bull, Milk, Musk, Plumeless
Eveningprimrose, Common	Plantain, Bracted	
Geranium, Carolina	Ragwort, Tansy	
	Starthistle, Yellow	

PERENNIALS

Alfalfa[1]	Goldenrod, Canada, Missouri	Smartweed, Swamp
Artichoke, Jerusalem	Goldenweed, Common	Snakeweed, Broom
Aster, Spiny, Whiteheath	Hawkweed	Sorrel[1], Red (Sheep Sorrel)
Bedstraw, Smooth	Henbane, Black[1]	Sowthistle[1], Perennial
Bindweed, Field, Hedge	Horsenettle, Carolina	Spurge, Leafy
Blueweed, Texas	Ironweed	Sundrops
Bursage, Woollyleaf[1] (Bur Ragweed, Povertyweed)	Knapweed, Black, Diffuse, Russian[1], Spotted	Thistle, Canada, Scotch
Buttercup, Tall Campion, Bladder	Milkweed, Climbing, Common, Honeyvine, Western Whorled	Toadflex, Dalmatian
Chickweed, Field, Mouseear	Nettle, Stinging	Tropical Soda Apple
Chicory[1]	Nightshade, Silverleaf (White Horsenettle)	Trumpetcreeper (Buckvine)
Clover, Hop	Onion, Wild	Vetch
Dandelion[1], Common	Plaintain, Broadleaf, Buckhorn	Waterhemlock, Spotted
Dock[1] Broadleaf (Bitterdock), Curly	Pokeweed	Waterprimrose, Creeping
Dogbane, Hemp	Ragweed, Western	Woodsorrel[1], Creeping, Yellow
Dogfennel[1] (Cypressweed)	Redvine	Wormwood, Absinth, Louisiana
Fern, Bracken	Sericia Lespedeza	Yankeeweed
Garlic, Wild		Yarrow, Common[1]

[1] Noted perennials may be controlled using lower rates of DuPont™ FeXapan™ than those recommended for other listed perennial weeds.

WOODY SPECIES

Alder	Hawthorn (Thornapple)[2]	Plum, Sand (Wild Plum)[2]
Ash	Hemlock	Poplar
Aspen	Hickory	Rabbitbrush
Basswood	Honeylocust	Redcedar, Eastern[2]
Beech	Honeysuckle	Rose[2], McCartney, Multiflora
Birch	Hornbeam	Sagebrush, Fringed[2]
Blackberry[2]	Huckleberry	Sassafras
Blackgum[2]	Huisache	Serviceberry
Cedar[2]	Ivy, Poison	Spicebush
Cherry	Kudzu	Spruce
Chinquapin	Locust, Black	Sumac
Cottonwood	Maple	Sweetgum[2]
Creosotebush[2]	Mesquite	Sycamore
Cucumbertree	Oak	Tarbush
Dewberry[2]	Oak, Poison Olive,	Willow
Dogwood[2]	Russian	Witchhazel
Elm	Persimmon, Eastern	Yaupon[2]
Grape	Pine	Yucca[2]

[2] Growth suppression only

STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage and disposal.

Open dumping is prohibited. This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes.

PESTICIDE STORAGE: Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.

Store in original container in a well-ventilated and away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Avoid cross-contamination with other pesticides. Keep container closed to prevent spills and contamination.

PESTICIDE DISPOSAL: To avoid wastes, use all material in this container, including rinsate, by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable federal, state and local regulations and procedures.

CONTAINER HANDLING: Refer to the Net Contents section of this product's labeling for the applicable "Nonrefillable Container" or "Refillable Container" designation.

Nonrefillable Rigid Plastic and Metal Containers (Capacity Equal to or Less Than 5 Gallons): Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Nonrefillable Rigid Plastic and Metal Containers (Capacity Greater Than 5 Gallons): Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Nonrefillable Rigid Plastic and Metal Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down): Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

All Refillable Containers: Refillable container. Refilling Container: Refill this container with DuPont™ FeXapan™ herbicide containing dicamba only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn out threads and closure devices. If damage is found, do not use container, contact DuPont at the number below for instructions. Check for leaks after refilling and before transporting. If leaks are found, do not reuse or transport container, contact DuPont at the number below for instructions. Disposing of Container: Do not reuse this container for any other purpose other than refilling (see preceding). Cleaning the container before final disposal is the responsibility of the person disposing of the container. To clean the container before final disposal, use the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Do not transport if container is damaged or leaking. If the container is damaged, leaking or obsolete, or in the event of a major spill, fire or other emergency, contact DuPont at 1-800-441-3637, day or night.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.

EPA Accepted: __/__/__

LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read this Limitation of Warranty and Liability Before Buying or Using This Product. DuPont Will Not Be Responsible for Losses or Damages Resulting from the Use of This Product in Any Manner Not Specifically Directed by DuPont. User Assumes All Risks Associated With Such Non-Directed Use.

If the Terms Are Not Acceptable, Return the Product at Once, Unopened, and the Purchase Price Will Be Refunded.

It is impossible to eliminate all risks associated with the use of this product. Such risks arise from weather conditions, soil factors, off target movement, unconventional farming techniques, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of DuPont. These risks can cause: ineffectiveness of the product, crop injury, or injury to non-target crops or plants. WHEN YOU BUY OR USE THIS PRODUCT, YOU AGREE TO ACCEPT THESE RISKS.

DuPont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for the purpose stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal conditions.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, DUPONT MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL DUPONT OR SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BUYER'S OR USER'S BARGAINED-FOR EXPECTATION IS CROP PROTECTION. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER AND THE EXCLUSIVE LIABILITY OF DUPONT OR SELLER, FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY OR CONTRACT, NEGLIGENCE, TORT OR STRICT LIABILITY), WHETHER FROM FAILURE TO PERFORM OR INJURY TO CROPS OR OTHER PLANTS, AND RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT, OR AT THE ELECTION OF DUPONT OR SELLER, THE REPLACEMENT OF THE PRODUCT.

To the extent consistent with applicable law that allows such requirement, DuPont or its Ag Retailer must have prompt notice of any claim so that an immediate inspection of buyer's or user's growing crops can be made. Buyer and all users shall promptly notify DuPont or a DuPont Ag Retailer of any claims, whether based on contract, negligence, strict liability, other tort or otherwise, or be barred from any remedy.

This Limitation of Warranty and Liability may not be amended by any oral or written agreement.

For product information call: 1-888-6-DUPONT [1-888-638-7668] Internet address: http://cropprotection.dupont.com/

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

NOTICE OF PESTICIDE:
_X_ Registration
___ Reregistration
(under FIFRA, as amended)

EPA Reg. Number:	Date of Issuance:
7969-345	11/2/18

Term of Issuance: Conditional

Name of Pesticide Product: Engenia Herbicide

Name and Address of Registrant (include ZIP Code):

Dr. Jeffery Birk
Regulatory Manager
BASF
26 Davis Drive
Research Triangle Park, NC 27709

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(B). You must comply with the following terms and conditions:

General Terms

1. You must submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Michael L. Goodis, P.E.
Director, Registration Division (RD)
Office of Pesticide Programs (OPP)

Date: 11/2/18

EPA Form 8570-6

2. You are required to comply with the data requirements described in the DCIs identified below:

    a. Dicamba GDCI-029801-1721

    You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Chemical Review Manager in the Pesticide Reevaluation Division: http://iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1

3. This registration will automatically expire on December 20, 2020.

Labeling/Relabeling

The previously approved labeling contains an expiration date of December 20, 2018 and cannot be used beyond that date. New labeling is required on the product beyond this date. Beginning December 21, 2018, before using any product with expired labeling, users must first access a website maintained by BASF to review directions for use and obtain a copy of the current final printed label, and must have that label in their possession at the time of use.

4. Final Printed Label. You must submit one copy of the final printed labeling that is consistent with the new accepted label to EPA before any existing product already in the channels of trade is relabeled with that label, or before you release any new product for shipment featuring that label. Any changes to the final printed labeling must be submitted to EPA before being used in future production.

5. Posting Updated Information for Users. From December 21, 2018 through December 20, 2020, you must maintain a website and publish the following material and statements in a clear and easily accessible manner:
    a. A copy of the most current final printed label submitted to EPA per paragraph 4;
    b. "Engenia Herbicide is a Restricted Use Pesticide.";
    c. "The label affixed to the container in your possession may contain incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the labeling linked on this website featuring an expiration date of December 20, 2020 at the time of use.";
    d. "Users must comply in all respects with labeling featuring an expiration date of December 20, 2020, regardless of any contrary language on the label physically affixed to any individual container."; and
    e. "If you have any questions about the use of this product, please contact EngeniaQuestions@BASF.com."

When relabeling or labeling as set forth below, either the sticker or the new label (approved on October 31, 2018) must be affixed to *each individual container* of Engenia Herbicide(EPA Reg. No. 7969-345) that is intended for end use, sale or distribution.

6. Relabeling Product Already in Trade. All product currently in the channels of trade, in retail inventories, in the distribution chain (packaged and released for shipment), and product that was manufactured before December 20, 2018 must be relabeled with a sticker on the container with an approved label (dated October 31, 2018) accompanying the container, or the approved label (per paragraph number 4 above) on the container. If stickering is used then a sufficient number of copies of the current labeling (approved October 31, 2018) listing an expiration date of December 20, 2020 will be placed in the carton to accompany the number of individual containers in the carton. BASF agrees to the following:
    a. All relabeling will be conducted in an EPA-registered establishment, and production must be reported per FIFRA Section 7.
    b. The sticker will contain the following information:
        i. "Restricted Use Pesticide";
        ii. "The label affixed to this container contains incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the current labeling listing an expiration date of December 20, 2020 at the time of use."; and
        iii. "User must comply in all respects with new label(ing) listing an expiration date of December 20, 2020, regardless of any contrary language on existing label physically affixed to any individual container."
    c. Copies of the approved labels must be provided to distributors and must accompany each stickered container at all times.
    d. Communicate efficiently with BASF's entire distribution chain. Specifically:
        i. By December 31, 2018, BASF submits to EPA a list of known distributors and retailers that may have received product with previously-accepted labels. Such list shall be treated by EPA as confidential business information.
        ii. By December 31, 2018, BASF must inform all distributors and retailers on that list of the need, as it is represented in this letter, to relabel, of the legal liability that would result from their sale or distribution of product with previously-accepted labels after October 31, 2018, and that relabeling are production activities under FIFRA and no retailer or distributor may begin any production activities until their establishment is registered with EPA.
        iii. For those distributors and retailers that are able to relabel in an EPA-registered establishment, BASF must instruct them how to affix the Sticker or the new printed label to each product container, and must supply the new approved labels (dated October 31, 2018) and stickers in order for them to do so.
        iv. For those distributors and retailers that are interested in registering an establishment for pesticide production, BASF must refer them to procedures on how to register with EPA as a registered establishment and remind them of FIFRA's production reporting requirements.
        v. For those distributors and retailers who do not intend to relabel themselves, BASF must inform them who to contact so that BASF can immediately reclaim the inventory. If BASF performs the relabeling, it must be done at an EPA-registered establishment, and all production must be reported per FIFRA section 7.

e. BASF must provide EPA a copy of each communication required above within 30 days of each communication.

7. New Production. BASF is responsible for ensuring all product produced, packaged, and released for shipment beginning December 21, 2018 and thereafter bears the new final printed labeling submitted to EPA per paragraph number 4 above. BASF must ensure all production activities take place in an EPA-registered establishment and that all production is reported pursuant to FIFRA section 7.

You are advised that if you wish to add/retain a reference to the company's website on your label, then the website becomes "labeling" under FIFRA. If the website content is false or misleading, all products referencing the website would be misbranded and it would be unlawful to sell or distribute them under FIFRA section 12(a)(1)(E). In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Should the Agency find, or if it is brought to our attention, that a website contains false or misleading statements or claims substantially differing from the EPA-accepted registration, the matter will be referred to the EPA's Office of Enforcement and Compliance.

Tank Mixing and Spray Drift Requirements

8. You must maintain a website at http://www.engeniatankmix.com. That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Engenia Herbicide. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Engenia Herbicide. The website must state that any person seeking to have a product added to the list must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, to EPA. EPA will notify you when the Agency determines that a product has been certified to be appropriately added to the list, and you will add appropriately certified products to the list no more than 90 days after you receive such notice from EPA. Testing of Tank-Mix Products must be conducted in compliance with procedures as stated forth in Appendix A.
9. All test data relating to the impact of tank-mixing any product with Engenia Herbicide on drift properties of Engenia Herbicide generated by you or somebody working for you must be submitted to EPA, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, to the EPA's Office of Pesticide Programs.

10. The prohibition of using products in a tank-mix with Engenia Herbicide unless the product used is contained on the list http://www.engeniatankmix.com, and the identification of the website address, shall be included in educational and information materials developed for BASFs, including the materials identified in Appendix D, Section B(l).
11. You must maintain, update and follow an Herbicide Resistance Management Plan (HRM) as laid out in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

Enhanced Reporting

If BASF acquires any of the information identified below, that information must be reported to EPA's Office of Pesticide Programs under section 6(a)(2), or under 40 CFR 159.195 unless you have previously submitted that information to EPA's Office of Pesticide Programs.

12. Information, other than personally identifiable information, received by telephone or in writing regarding potential damage to non-target vegetation from use of dicamba during the 2019 and 2020 growing seasons regardless of any determination that the incident resulted from misuse (intentional or accidental). Information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged damage resulted from a product being used according to label directions. Data should be organized by product and state and should include available information regarding acreage involved, plant species involved, severity of damage, and similar information received. This information must be submitted with cumulative totals and be submitted monthly, beginning March 1, 2019.
13. Information, other than personally identifiable information, received by telephone or in writing regarding reports of dicamba-resistant weeds, and cases of weed control failure and/or suspected resistance. All information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged resistance occurred after an application made according to label directions.
14. A summary of all studies being conducted or sponsored by BASF, pertaining to off-target movement of the labelled use of Engenia Herbicide (e.g., volatility, physical drift, runoff) must be provided to the EPA.
15. Any information or analysis finding that foods/commodities contain dicamba residues that are not covered by a tolerance or exceed established tolerance levels.

Given the high number of alleged dicamba-related adverse incidents reported to EPA in 2017 and 2018 by state lead agencies (SLAs) as well as registrants under FIFRA section 6(a)(2), it is an Agency priority to work with registrants to better understand potential risks and impacts from the use of dicamba on dicamba-tolerant soybean and dicamba-tolerant cotton. The following information, which shall be treated by EPA as confidential business information, is being required to be submitted to the Agency to assist the Agency in making future regulatory decisions regarding these uses.

16. Number and type of containers, including volume of material produced by BASF of Engenia Herbicide that were relabeled with the amended labeling approved by the Agency on October 31,

2018. This information should be categorized by the state to which registrant shipped such material.

Additional Data Requirements

The following additional confirmatory studies are required as a condition of this amended registration. Since these are non-guideline studies, prior to developing a protocol and initiating any study, BASF must meet with EPA staff by November 12, 2018 to present and engage in a data quality objective discussion regarding environmental conditions, sampling, and species evaluated. Protocols must be submitted before December 31, 2018 for the Agency's consideration. This work to agree on final protocols will be undertaken on a schedule that recognizes the timing for conducting research during 2019. Field studies must be conducted during the 2019 growing season and final reports must be submitted to the Agency in connection with the January 15, 2020 required reporting submission outlined in Appendix D, Section D.

17. Field studies examining off-site movement of dicamba. Specifically, the study design needs to evaluate impacts on plant height and yield from primary and secondary drift off-target, with transects in all four cardinal directions. These studies should represent varied geographic areas and include locations where high numbers of complaints have been logged and ranges of environmental conditions (e.g., temperature and humidity). Additionally, a study needs to evaluate the effects of dicamba-containing agricultural irrigation water on non-target plants. Data evaluating the response of non-DT soybean or other non-target plants exposed to irrigation water contaminated with dicamba. A consistent protocol is required for all field locations.
18. Studies to investigate temperature effects on volatility of dicamba. The use of humidome studies would allow EPA to evaluate the effects of temperature in a controlled environment for a multitude of temperature, relative humidity, and tank mix pH conditions.
19. Ecological effects data on non-target plants, related to survival, growth and reproduction for select sensitive tree/shrub/woody perennial species. The study design could involve an extended period for consideration of such species.
20. Study which evaluates the effect of pH on secondary movement of dicamba. The analysis should examine variability introduced by tank mix partners and different water conditions on the pH of the mixed material. The study should reflect a variety of water pH throughout the country, particularly in areas with the largest technology adoption and incidents. These tests should examine the pH of the applied solution.

If you fail to satisfy these terms, conditions and data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

Enclosure

Appendix A

Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide:

Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September 2013)

Testing Media:	Engenia Herbicide + Engenia Herbicide Proposed Tank Mix Product
Test Nozzle:	Tee Jet® TTI 11004 at 63 psi
Number of Replicates:	3 for each tested medium

Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test (p=Q.l) to determine if proposed tank-mix product is above Engenia Herbicide 110 foot (0.5 lb ae/A rate) spray drift deposition

Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for Engenia Herbicide, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site. If mean 110 foot (0.5 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) deposition for Engenia Herbicide, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

Appendix B

Validation Criteria

a. Detailed information of instrument setting and measurements
- The distance from the nozzle.tips to the laser settings
- Measurements of airspeed and flow rate of liquid

b. Detailed information of test substances
- Volume composition and density of Engenia Herbicide formulation and tank mixes

c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.

d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum

Report of DvO.l (SD), DvO.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

Appendix C

AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of "nozzle type"
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Engenia Herbicide for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of "crops" cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	Engenia (60.8% BAPMA salt of Dicamba)	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below[1]

Appendix D

HERBICIDE RESISTANCE MANAGEMENT PLAN

BASF must:

A. Field Detection and Remediation Components:

1. Update and implement an education program for growers, as set forth under the "Educational / Informational Component," below, that identifies appropriate best management practices (BMPs), as set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and that conveys to growers the importance of complying with BMPs. Such BMPs shall include that fields must be scouted after application to confirm herbicide effectiveness, and that users should report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.

2. If any grower informs you of a lack of herbicide efficacy, then you or your representative must make an effort to evaluate the field for "likely resistance" to Engenia Herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al*., "Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations," Weed Science 2012 Special Issue:31–62 (*hereinafter* "Norsworthy criteria")[1] in each specific state until resistance to dicamba is confirmed for a specific weed species in that state using acceptable scientific methods. However, for each grower, you must continue to provide stewardship about resistance management throughout their use of this product. If resistance to dicamba is confirmed in a specific state for a specific weed species, then BASF must immediately report such confirmation to EPA and need no longer investigate reports of lack of herbicide efficacy regarding that specific species in that specific state, but BASF must continue to make an effort to help address of lack of herbicide efficacy regarding any other weed species in any such state;
3. Keep records of all field evaluations for "likely resistance" for a period of 3 years, and make such copies available to EPA upon request; and
4. If one or more of the Norsworthy criteria are met, then for a weed species not already confirmed to be resistant to dicamba in that specific state, BASF will:
    a. Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by the grower, BASF or their agent will become actively involved in implementation of weed control measures;
    b. Request, at the time of the initial determination that one or more of the Norsworthy criteria are met and prior to any application of alternative control practices, that the grower provide you with access to the relevant field(s) to collect specimens of the likely resistant weeds (potted specimens or seeds) for further evaluation in the greenhouse or laboratory, and so collect such specimens if

[1] The Norsworthy "likely herbicide resistance" criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that "likely herbicide resistance" is present.

possible (or, alternatively, request that the grower provide such specimens to you, at your expense);

c. Commence greenhouse or laboratory studies to confirm resistance as soon as practicable following sample collection;

d. To the extent possible, contact or visit the grower in an appropriate timeframe after implementation of the additional weed control measures in order to evaluate success of such measures; and

e. If the additional weed control measures were not successful in controlling the likely resistant weeds, then:

   i. Work with the grower to determine the reason(s) why the additional control measures were not successful;

   ii. Report annually the inability to control the likely resistant weeds to relevant stakeholders; and

   iii. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.

B. Educational / Informational Component:

1. Update and implement an education program for growers that includes the following elements:

   a. The education program shall identify appropriate best management practices (BMPs), set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and shall convey to growers the importance of complying with BMPs;

   b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of Engenia Herbicide for use over-the-top on dicamba tolerant soybean or cotton; and

   c. You must make the education program available to BASF sales representatives for distribution to growers.

2. Provide to EPA the original education program within three months of the issuance of this registration.

C. Evaluation Component:

1. BASF will annually conduct a survey directed to users of Engenia Herbicide for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. This survey shall evaluate, at a minimum, the following:

a. Growers' adherence to the terms of the Engenia Herbicide Use Directions and Label Restrictions, and

b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of Engenia Herbicide and, if so, how growers have responded.

2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following:

a. Efforts aimed at achieving adoption of BMP's;

b. Responses to incidents of likely resistance and confirmed resistance; and

c. The education program. At the initiative of either EPA or BASF, EPA and BASF shall consult about possible modifications of the education program.

D. Reporting Component:

1. Submit annual reports to EPA by January 15 of each year, beginning on January 15, 2019. Such reports shall include:

a. Annual sales of Engenia Herbicide by state;

b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report;

c. Summary of your efforts aimed at achieving implementation of BMP's;

d. Summary of your determinations as to whether any reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, BASF will list the cases of likely resistance by county and state.

e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including whether growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and

f. Summary of the status of any laboratory and greenhouse testing performed by, or at the direction of, BASF following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing need not be included in the annual reports, but such data must be made available to EPA upon request.

Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.

E. Best Management Practices (BMPs) Component:

1. Best management practices (BMPs) must be identified in your education program. Growers will be advised of BMP's in product literature, educational materials and training. The following are examples of BMPs:

a. Regarding crop selection and cultural practices:

i. Understand the biology of the weeds present.

ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.

iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.

iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.

v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.

vi. Do not allow weed escapes to produce seeds, roots or tubers.

vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.

viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.

ix. Thoroughly clean plant residues from equipment before leaving fields.

x. Prevent an influx of weeds into the field by managing field borders.

xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.

xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.

xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.

b. Regarding herbicide selection:

i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.

ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.

iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.

iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.

v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.

vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.

vii. Report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.

This list may be updated or revised as new information becomes available

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators.

This label supersedes any previously issued labeling, including previously issued supplemental labeling.

This EPA registration expires December 20, 2020. **DO NOT** use or distribute this product after December 20, 2020.

BASF

We create chemistry

Dicamba	Group 4	Herbicide

Engenia®

Herbicide

ACCEPTED
11/02/2018
Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 7969-345

For weed control in Dicamba-tolerant (DT) cotton†; Dicamba-tolerant (DT) soybean†; asparagus; conservation reserve programs (CRP); corn; cotton; fallow cropland; farmstead turf (noncropland) and sod farms; grass grown for seed; pasture, hay, rangeland, and farmstead (noncropland); proso millet; small grain; sorghum; soybean; and sugarcane

† Only for use in states listed as US EPA approved in the **Dicamba-tolerant (DT) Crops** section of this label.

Active Ingredient*:

dicamba: N,N-Bis-(3-aminopropyl)methylamine salt of 3,6-dichloro-o-anisic acid	60.8%
Other Ingredients:	39.2%
Total:	100.0%

* Contains 48.38% dicamba (5 pounds acid equivalent per gallon or 600 grams per liter)

EPA Reg. No. 7969-345 **EPA Est. No.**

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See inside for complete **First Aid**, **Precautionary Statements**, **Directions For Use**, **Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents:

BASF Corporation
26 Davis Drive, Research Triangle Park, NC 27709

ER 0182

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • **DO NOT** induce vomiting unless told to do so by a poison control center or doctor. • **DO NOT** give anything by mouth to an unconscious person.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed or inhaled. Avoid breathing vapor or spray mist. Remove and wash contaminated clothing before reuse. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Personal Protective Equipment (PPE)

All mixers, loaders, applicators, and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- A NIOSH-approved dust/mist filtering respirator with any R, P, or HE filter. Examples include a filtering facepiece respirator with approval number prefix TC-84A and an R or P designation, or a full-face or half-mask respirator with R, P, or HE cartridges.

See **Engineering Controls** for additional requirements. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

DO NOT apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into groundwater under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Ground and Surface Water Protection

Point-source Contamination

To prevent point-source contamination, **DO NOT** mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sinkholes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. **DO NOT** apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be

maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment washwater, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent:
- Back-siphoning into wells
- Spills
- Improper disposal of excess pesticide, spray mixtures, or rinsate

Check valves or antisiphoning devices must be used on all mixing equipment.

Movement by Surface Runoff or Through Soil

DO NOT apply under conditions which favor runoff.
DO NOT apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for groundwater contamination. Groundwater contamination may occur in areas where soils are permeable or coarse and groundwater is near the surface. **DO NOT** apply to soils classified as sand with less than 3% organic matter and where groundwater depth is shallow. To minimize the possibility of groundwater contamination, carefully follow the specified rates as affected by soil type in the **Crop-specific Information** section of this label.

Movement by Water Erosion of Treated Soil

DO NOT apply this product through any type of irrigation system including sprinkler, drip, flood, or furrow irrigation. Ensure treated areas have received at least 1/2-inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

Endangered Species

It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law. Use of this product may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult **http://www.epa.gov/espp/** or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product. Please Note: Additional endangered or threatened species obligations are listed under **Endangered Species** on this label. See **Crop-specific Information – Dicamba-tolerant (DT) Crops** section for more details regarding protection of endangered species.

Directions For Use

RESTRICTED USE PESTICIDE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the user's possession during application.

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Observe all precautions, restrictions, and limitations in this label and the labels of products used in combination with this product. Keep containers closed to avoid spills and contamination.

All applicable directions, restrictions, precautions, and **Conditions of Sale and Warranty** are to be followed.

RESTRICTED USE PESTICIDE
RECORD KEEPING REQUIREMENTS

Applicators must keep the following records for a period of two years; records must be generated within 72 hours after application and a record must be kept for every individual application. Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. The following information must be recorded and kept as required by the Federal Pesticide Record Keeping Program, 7 CFR Part 110:

1. **Full name of the certified applicator**
2. **Certification number of the certified applicator**
3. **Product name**
4. **EPA registration number**
5. **Total amount applied**
6. **Application month, day, and year**
7. **Crop planting date**
8. **Start and Finish Times:** the time the applicator begins and the time the applicator completes applications of this product.
9. **Location of the application**
10. **Crop or site receiving the application**
11. **Size of area treated**
12. **Training Requirement:** proof that the applicator completed training described in this section.
13. **Application Timing:** whether the applicator applied this product preemergence or, the number of days after planting if the applicator applied this product postemergence.
14. **Receipts of purchase:** receipts for the purchase of this product.
15. **Product Label:** a copy of this product label(s), and any state special local needs label that supplements this label.

(continued)

RESTRICTED USE PESTICIDE

RECORD KEEPING REQUIREMENTS

(continued)

16. **Sensitive Areas, Sensitive Crops, and Residential Awareness:** Document/record that the applicator checked an applicable sensitive crop/specialty crop registry; and document that the applicator surveyed all neighboring fields for any sensitive areas, sensitive crops, or residential areas surrounding the field prior to application. The applicator must be aware that **WIND DIRECTION** may vary during the application. If wind direction shifts such that the wind is blowing toward neighboring sensitive crops or residential areas, **STOP** the application. At a minimum, records must include the date the applicator consulted the sensitive crop registry/specialty crop registry and the date the applicator surveyed neighboring fields, and the name of the sensitive crop registry/specialty crop registry the applicator consulted.
17. **Buffer Requirement:** Record of the buffer distance calculation and any areas included within the buffer distance calculations.
18. **Spray System Cleanout:** Document that the applicator complied with the section of this label titled: "**Spray System Equipment Clean-out**". At a minimum, records must include the date the applicator performed the required cleanout, and cleanout method that the applicator followed.
19. **Tank Mix Products:** a list of all products (pesticides, adjuvants, and other products) that the applicator tank mixed with this product for each application. Include EPA registration numbers in the case of any pesticides.
20. **Nozzle Selection:** which spray nozzle the applicator used to apply this product, and the nozzle pressure the applicator set the sprayer to.
21. **Air Temperature:** the air temperature at boom height at the time the applicator starts and finishes applications of this product.
22. **Wind Speed and Direction:** the wind speed at boom height at the time the applicator starts and finishes applications of this product, and the wind direction at the time the applicator starts and finishes applications of this product.

Training Requirements

Prior to applying this product in the 2019 growing season, all applicators must complete dicamba or auxin-specific training on an annual basis. If training is available and required by the state where the applicator intends to apply this product, the applicator must complete that training before applying this product in-crop. If your state does not require auxin or dicamba-specific training, then the applicator must complete dicamba or auxin-specific training provided by one of the following sources: a) a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops, or b) a state or state-authorized provider.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about **Personal Protective Equipment (PPE)** and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **24 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Waterproof gloves
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

Pesticide Storage

Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides. **Engenia® herbicide** freezes around 15° F and is stable under conditions of freezing and thawing. Product that has been frozen should be thawed and recirculated prior to use.

Pesticide Disposal

Wastes resulting from this product may be disposed of on-site or at an approved waste disposal facility. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state or local procedures under **Subtitle C** of the **Resource Conservation and Recovery Act**. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law.

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

(continued)

STORAGE AND DISPOSAL *(continued)*

Container Handling *(continued)*

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Triple rinse containers too large to shake (capacity > 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

Triple rinse as follows: To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

In Case of Emergency

In case of large-scale spill of this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Steps to take if material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

Product Information

Engenia® herbicide is a water-soluble herbicide that provides postemergence and moderate rate-dependent residual control of many annual broadleaf weeds. **Engenia** is also active on many biennial and perennial broadleaf weeds as well as woody brush and vines (refer to **Table 1** for weeds controlled or suppressed).

Engenia may be applied preplant, at-planting, preemergence, and postemergence (in-crop) for weed control in dicamba-tolerant cotton and dicamba-tolerant soybeans. The use in dicamba-tolerant crops is only allowed in the following states:

Alabama, Arizona, Arkansas, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Additional state restrictions and requirements may apply. The applicator must comply with any additional state requirements and restrictions.

Engenia can be used in specific field and row crops, fallow and postharvest croplands, and sod farms. **Engenia** does not control grass weeds and must be used sequentially or tank mixed with a grass herbicide for a complete weed control program. See **Tank Mixing Information** section for important information on herbicide tank mixes or **Crop-specific Information** section(s) for recommendations on sequential programs.

Table 1. Weeds Controlled or Suppressed

Engenia® herbicide will control or suppress the following weeds when used at rates described in **Table 2**.

Common Name	Scientific Name
Annuals	
Alkanet	*Lithospermum arvense*
Amaranth, Palmer	*Amaranthus palmeri*
Amaranth, Powell	*Amaranthus powellii*
Amaranth, spiny	*Amaranthus spinosus*
Aster, slender	*Aster subulatus*
Bedstraw, catchweed	*Galium aparine*
Beggarweed, Florida	*Desmodium tortuosum*
Broomweed, common	*Gutierrezia dracunculoides*
Buckwheat, tartary	*Fagopyrum tataricum*
Buckwheat, wild	*Polygonum convolvulus*
Buffalobur	*Solanum rostratum*
Burclover, California	*Medicago polymorpha*
Burcucumber	*Sicyos angulatus*
Buttercup, corn	*Ranunculus arvensis*
Buttercup, creeping	*Ranunculus repens*
Buttercup, roughseed	*Ranunculus muricatus*
Buttercup, western field	*Ranunculus occidentalis*
Carpetweed	*Mollugo verticillata*
Catchfly, nightflowering	*Silene noctiflorum*
Chamomile, corn	*Anthemis arvensis*
Chervil, bur	*Anthriscus caucalis*
Chickweed, common	*Stellaria media*
Clover	*Trifolium* spp.
Cockle, corn	*Agrostemma githago*
Cockle, cow	*Vaccaria pyramidata*
Cocklebur, common	*Xanthium strumarium*
Copperleaf, hophornbeam	*Acalypha ostryifolia*
Cornflower	*Centaurea cyanus*
Croton, tropic	*Croton glandulosus*
Croton, woolly	*Croton capitatus*
Daisy, English	*Bellis perennis*
Dragonhead, American	*Dracocephalum parviflorum*
Eveningprimrose, cutleaf	*Oenothera laciniata*
Falseflax, smallseed	*Camelina microcarpa*
Fleabane, hairy	*Conyza bonariensis*
Flixweed	*Descurainia sophia*
Fumitory	*Fumaria officinalis*

(continued)

Table 1. Weeds Controlled or Suppressed *(continued)*

Common Name	Scientific Name
Annuals *(continued)*	
Goosefoot, nettleleaf	*Chenopodium murale*
Hempnettle	*Galeopsis tetrahit*
Henbit	*Lamium amplexicaule*
Horseweed (Marestail)	*Conyza canadensis*
Jacob's-ladder	*Polemonium caeruleum*
Jimsonweed	*Datura stramonium*
Knawel (German moss)	*Scleranthus annuus*
Knotweed, prostrate	*Polygonum aviculare*
Kochia[3]	*Kochia scoparia*
Ladysthumb	*Polygonum persicaria*
Lambsquarters, common	*Chenopodium album*
Lettuce, miner's	*Claytonia perfoliata*
Lettuce, prickly	*Lactuca serriola*
Mallow, common	*Malva neglecta*
Mallow, Venice	*Hibiscus trionum*
Mayweed	*Anthemis cotula*
Morningglory, ivyleaf	*Ipomoea hederacea*
Morningglory, tall	*Ipomoea purpurea*
Mustard, black	*Brassica nigra*
Mustard, blue	*Chorispora tenella*
Mustard, tansy	*Descurainia pinnata*
Mustard, treacle	*Erysimum repandum*
Mustard, tumble	*Sisymbrium altissimum*
Mustard, wild	*Sinapis arvensis*
Mustard, yellowtop	*Sinapis* spp.
Nightshade, black	*Solanum nigrum*
Nightshade, cutleaf	*Solanum triflorum*
Pennycress, field	*Thlaspi arvense*
Pepperweed, Virginia	*Lepidium virginicum*
Pigweed, prostrate	*Amaranthus blitoides*
Pigweed, redroot (rough)	*Amaranthus retroflexus*
Pigweed, smooth	*Amaranthus hybridus*
Pigweed, tumble	*Amaranthus albus*
Pineappleweed	*Matricaria matricarioides*
Poorjoe	*Diodia teres*
Poppy, red horn	*Glaucium corniculatum*
Puncturevine	*Tribulus terrestris*
Purslane, common	*Portulaca oleracea*
Pusley, Florida	*Richardia scabra*

(continued)

Table 1. Weeds Controlled or Suppressed *(continued)*

Common Name	Scientific Name
Annuals *(continued)*	
Radish, wild	*Raphanus raphanistrum*
Ragweed, common	*Ambrosia artemisiifolia*
Ragweed, giant	*Ambrosia trifida*
Ragweed, lanceleaf	*Ambrosia bidentata*
Rocket, London	*Sisymbrium irio*
Rocket, yellow	*Barbarea vulgaris*
Rubberweed, bitter	*Hymenoxys odorata*
Salsify	*Tragopogon porrifolius*
Senna, coffee	*Senna occidentalis*
Sesbania, hemp	*Sesbania exaltata*
Shepherd's purse	*Capsella bursa-pastoris*
Sicklepod	*Cassia obtusifolia*
Sida, prickly (Teaweed)	*Sida spinosa*
Smartweed, green	*Polygonum scabrum*
Smartweed, Pennsylvania	*Polygonum pensylvanicum*
Sneezeweed, bitter	*Helenium amarum*
Sowthistle, annual	*Sonchus oleraceus*
Sowthistle, spiny	*Sonchus asper*
Spanish needles	*Bidens bipinnata*
Spikeweed, common	*Hemizonia pungens*
Spurge, prostrate	*Chamaesyce humistrata*
Spurry, corn	*Spergula arvensis*
Starbur, bristly	*Acanthospermum hispidum*
Starwort, little	*Stellaria graminea*
Sumpweed, rough	*Iva ciliata*
Sunflower, common (wild)	*Helianthus annuus*
Thistle, Russian	*Salsola iberica*
Velvetleaf	*Abutilon theophrasti*
Waterhemp	*Amaranthus tuberculatus*
Waterprimrose, winged	*Ludwigia decurrens*
Wormwood	*Artemisia annua*
Biennials	
Burdock, common	*Arctium minus*
Carrot, wild	*Daucus carota*
Cockle, white	*Melandrium album*
Eveningprimrose, common	*Oenothera biennis*
Geranium, Carolina	*Geranium carolinianum*
Gromwell	*Lithospermum* spp.

(continued)

Table 1. Weeds Controlled or Suppressed *(continued)*

Common Name	Scientific Name
Biennials *(continued)*	
Knapweed, diffuse	*Centaurea diffusa*
Knapweed, spotted	*Centaurea maculosa*
Mallow, dwarf	*Malva borealis*
Plantain, bracted	*Plantago aristata*
Ragwort, tansy	*Senecio jacobaea*
Starthistle, yellow	*Centaurea solstitialis*
Sweetclover	*Melilotus* spp.
Teasel	*Dipsacus sativus*
Thistle, bull	*Cirsium vulgare*
Thistle, musk	*Carduus nutans*
Thistle, plumeless	*Carduus acanthoides*
Thistle, variegated (milk)	*Silybum marianum*
Perennials[1]	
Alfalfa	*Medicago sativa*
Apple, tropical soda	*Solanum viarum*
Artichoke, Jerusalem	*Helianthus tuberosus*
Aster, spiny	*Aster spinosus*
Aster, whiteheath	*Aster pilosus*
Bedstraw, smooth	*Gallium mollugo*
Bindweed, field	*Convolvulus arvensis*
Bindweed, hedge	*Calystegia sepium*
Blueweed, Texas	*Helianthus ciliaris*
Bursage, woollyleaf	*Ambrosia grayi*
Buttercup, tall	*Ranunculus acris*
Campion, bladder	*Silene vulgaris*
Chickweed, field	*Cerastium arvense*
Chickweed, mouseear	*Cerastium vulgatum*
Chicory	*Cichorium intybus*
Clover, hop	*Trifolium aureum*
Dandelion, common	*Taraxacum officinale*
Dock, broadleaf (Bitterdock)	*Rumex obtusifolius*
Dock, curly	*Rumex crispus*
Dogbane, hemp	*Apocynum cannabinum*
Dogfennel (Cypressweed)	*Eupatorium capillifolium*
Fern, bracken	*Pteridium aquilinum*
Garlic, wild	*Allium vineale*
Goldenrod, Canada	*Solidago canadensis*
Goldenrod, Missouri	*Solidago missouriensis*

(continued)

Table 1. Weeds Controlled or Suppressed *(continued)*

Common Name	Scientific Name
Perennials[1] *(continued)*	
Goldenweed, common	*Isocoma coronopifolia*
Hawkweed	*Hieracium* spp.
Henbane, black	*Hyoscyamus niger*
Horsenettle, Carolina	*Solanum carolinense*
Ironweed	*Vernonia* spp.
Knapweed, black	*Centaurea nigra*
Knapweed, Russian	*Centaurea repens*
Lespedeza, sericea	*Lespedeza cuneata*
Milkweed, climbing	*Sarcostemma cyanchoides*
Milkweed, common	*Asclepias syriaca*
Milkweed, honeyvine	*Ampelamus albidus*
Milkweed, western whorled	*Asclepias subverticillata*
Nettle, stinging	*Urtica dioica*
Nightshade, silverleaf	*Solanum elaeagnifolium*
Onion, wild	*Allium canadense*
Plantain, broadleaf	*Plantago major*
Plantain, buckhorn	*Plantago lanceolata*
Pokeweed	*Phytolacca americana*
Ragweed, western	*Ambrosia psilostachya*
Redvine	*Brunnichia ovata*
Smartweed, swamp	*Polygonum coccineum*
Snakeweed, broom	*Gutierrezia sarothrae*
Sorrel, red (Sheep sorrel)	*Rumex acetosella*
Sowthistle, perennial	*Sonchus arvensis*
Spurge, leafy	*Euphorbia esula*
Sundrop	*Oenothera perennis*
Thistle, Canada	*Cirsium arvense*
Thistle, Scotch	*Onopordum acanthium*
Toadflax, Dalmatian	*Linaria genistifolia*
Trumpetcreeper	*Campsis radicans*
Vetch	*Vicia* spp.
Waterhemlock, spotted	*Cicuta maculata*
Waterprimrose, creeping	*Ludwigia peploides*
Woodsorrel, creeping	*Oxalis corniculata*
Woodsorrel, yellow	*Oxalis stricta*
Wormwood, Louisiana	*Artemisia ludoviciana*
Yankeeweed	*Eupatorium compositifolium*
Yarrow, common	*Achillea millefolium*

(continued)

Table 1. Weeds Controlled or Suppressed *(continued)*

Common Name	Scientific Name
Woody Brush and Vines[1, 2]	
Alder	*Alnus* spp.
Ash	*Fraxinus* spp.
Basswood	*Tilia americana*
Beech	*Fagus* spp.
Birch	*Betula* spp.
Cherry	*Prunus* spp.
Chinquapin	*Chrysolepis chrysophylla*
Cottonwood	*Populus deltoides*
Cucumbertree	*Magnolia acuminata*
Elm	*Ulmus* spp.
Grape	*Vitus* spp.
Hemlock	*Tsuga* spp.
Hickory	*Carya* spp.
Honeylocust	*Gleditsia triacanthos*
Honeysuckle	*Lonicera* spp.
Hornbeam	*Carpinus* spp.
Huckleberry	*Vaccinium arboreum*
Huisache	*Acacia farnesiana*
Ivy, poison	*Rhus radicans*
Kudzu	*Pueraria lobata*
Locust, black	*Robinia pseudoacacia*
Maple	*Acer* spp.
Mesquite	*Prosopis ruscifolia*
Oak	*Quercus* spp.
Oak, poison	*Rhus toxicodendron*
Olive, Russian	*Elaeagnus angustifolia*
Persimmon, eastern	*Diospyros virginiana*
Pine	*Pinus* spp.
Poplar	*Populus* spp.
Rabbitbrush	*Chrysothamnus pulchellus*
Rose, multiflora	*Rosa multiflorum*
Sassafras	*Sassafras albidum*
Serviceberry	*Amelanchier sanguinea*
Spicebush	*Lindera benzoin*
Spruce	*Picea* spp.
Sumac	*Rhus* spp.
Sycamore	*Platanus occidentalis*

(continued)

Table 1. Weeds Controlled or Suppressed *(continued)*

Common Name	Scientific Name
Woody Brush and Vines[1, 2] *(continued)*	
Tarbush	*Flourensia cernua*
Willow	*Salix* spp.
Witchhazel	*Hamamelis macrophylla*

[1] Suppression only.
[2] Not for use in California.
[3] Except dicamba resistant.

Product Stewardship Practices

- Apply **Engenia® herbicide** to weeds 4 inches or less in size for best performance.
- Apply **Engenia** at the labeled rate to minimize the likelihood of weed resistance occurring. **DO NOT** apply at less than the labeled rate. See **Crop-specific Information** for labeled rates by crop.
- Use **Engenia** as part of a herbicide program that includes the use of residual herbicides and herbicides with alternate sites of action to reduce resistance selection pressure.
- Select only EPA-approved nozzles that produce **extremely coarse to ultra-coarse** spray droplets. See **www.engeniatankmix.com** for the list of nozzles approved for use with this product.
- Maintain boom height 24 inches or less from target.
- Identify areas of sensitive nontarget crops/plants and maintain proper setback distance from these areas (see **Treatment Zone Awareness and Buffer Requirements (Sensitive Areas, Sensitive Crops and Residential Areas)** section for **Spray Buffer** requirements).
  Sensitive crops in agricultural and/or residential settings can include, but are not limited to:
  - non-DT soybeans
  - cucumber and melons (EPA **Crop Group 9**)
  - flowers
  - fruit trees
  - grapes
  - ornamentals including greenhouse-grown and shade house-grown broadleaf plants
  - peanuts
  - peas and beans (EPA **Crop Group 6**)
  - peppers, tomatoes, and other fruiting vegetables (EPA **Crop Group 8**)
  - potato
  - sweet potato
  - tobacco
- Thoroughly clean spray equipment before and after application.

Mode of Action

Dicamba, the active ingredient in **Engenia**, is a **Group 4** (WSSA) herbicide. Herbicides in this group mimic auxin (a plant hormone) resulting in a hormone imbalance in sensitive plants that interferes with normal plant growth (e.g. cell division, cell enlargement, and protein synthesis). **Engenia** is readily absorbed by leaves, roots, and shoots; translocates throughout the plant; and accumulates in areas of active growth to provide postemergence control of emerged weeds as well as moderate residual control of germinating weed seeds.

Any weed population may contain plants naturally resistant to **Group 4** herbicides. Weeds resistant to **Group 4** herbicides may be effectively managed using herbicide(s) from a different group and/or by using cultural or mechanical practices. Report any incidence of non-performance of this product against a particular weed species at **www.EngeniaQuestions.com**. Consult your local BASF representative, state cooperative extension service, professional consultants, or other qualified authority to determine appropriate actions if you suspect resistant weeds. Additional information about weeds which are known to be resistant to dicamba can be found at www.Resistance-Information.BASF.US.

Resistance Management

While weed resistance to **Group 4** herbicides is infrequent, populations of resistant biotypes are known to exist. Resistance management should be part of a diversified weed control strategy that integrates multiple options including chemical, cultural, and mechanical (tillage) control tactics. Cultural control tactics include crop rotation, proper fertilizer placement, optimum seeding rate/row spacing, and timely tillage.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Start clean with tillage or an effective burndown herbicide program.
- **DO NOT** rely on a single herbicide site of action for weed control during the growing season.
- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full labeled rates of **Engenia** for the most difficult-to-control weed in the field at the specified time (correct weed size) to minimize weed escapes. See **Crop-specific Information** for labeled rates by crop.
- Use of preemergence herbicides that provide soil residual control of broadleaf and grass weeds is recommended to reduce early season weed competition and allow for more timely in-crop postemergence herbicide applications.
- Avoid application of herbicides with the same site of action more than twice a season.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species.
- Report any incidence of non-performance of this product against a particular weed species to your BASF retailer, representative or online at **www.EngeniaQuestions.com**.

- If resistance is suspected, treat weed escapes with a herbicide having a mode of action other than **Group 4** and/or use non-chemical methods to remove escapes, as is practical, with the goal of preventing further seed production.
- For more information about weeds that are known to be resistant to dicamba go to www.Resistance-Information.BASF.US.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-**Group 4** herbicides.
- Avoid making more than two applications of **Engenia® herbicide** and any other **Group 4** herbicides within a single growing season unless mixed with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before and after leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields during and after harvest to reduce weed seed production.
- Contact the local agricultural extension service, BASF representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

Crop Tolerance

Crops growing under normal environmental conditions are tolerant to **Engenia** when applied according to label directions. Crop injury may occur under stressful growing conditions (e.g. low soil fertility, seedling disease, extreme hot or cold weather, excessive moisture, high soil pH, high soil salt concentration, drought).

Application Instructions

Apply **Engenia** by ground to actively growing weeds as a band, broadcast, or spot spray application for postemergence control of emerged weeds as well as moderate residual control of germinating weed seeds.

Make postemergence applications of **Engenia** when broadleaf weeds are small and actively growing. An adjuvant is recommended with **Engenia** for best postemergence activity; refer to **Tank Mixing Information** section and **Crop-specific Information** sections for details. Postemergence activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions, or when weeds are growing under drought or other stress conditions. When targeting dense weed populations and/or larger broadleaf weeds, use higher spray volumes and a higher application rate within an application rate range.

Cultivation should be delayed until 7 days after applying **Engenia** or a reduction in weed control may occur.

Use extreme care when applying **Engenia** to prevent injury to desirable plants. **Engenia** may cause injury to desirable sensitive plants when contacting their roots, stems, or foliage.

Application Rates

Always read and follow crop-specific use directions.

Table 2. Application Rate to Control or Suppress Target Weed by Weed Type and Growth Stage for Non-DT Use Sites

(See **Crop-specific Information** section for additional directions and exceptions)

Weed Type and Growth Stage	**Rate/Acre[2,5]** (fl ozs)
Annual	
Small, actively growing[1] (less than 4-inches tall)	3.2 to 12.8
Small, actively growing (less than 4-inches tall) plus moderate residual control	12.8
Biennial	
Rosette diameter 1 to 3 inches[1]	6.4 to 12.8
Rosette diameter more than 3 inches	12.8
Perennial[3]	
Top growth suppression	6.4 to 12.8
Top growth control and root suppression	12.8
Woody Brush and Vines[3,4]	
Top growth suppression	12.8

[1] Although rates below 12.8 fl ozs/A **(refer to crop-specific sections of the label for minimum use rates)** may provide adequate control of annual and biennial weeds, for optimum performance use the higher listed rates or apply the lower listed rate as a tank mix with other herbicides that are effective on the same species and biotype.
[2] Use the higher rate within listed ranges when treating weeds resistant to other sites of action, dense vegetative growth, or weeds with a well-established root system. The higher rates also provide moderate residual annual weed control.
[3] **Engenia** will suppress the top growth of herbaceous perennial and woody brush and vines and can be combined with other herbicides to improve control.
[4] Not for use in California.
[5] **DO NOT** broadcast-apply more than 12.8 fl ozs/A per application. Retreatment or tank mixes may be necessary for best control of some weeds. However, sequential applications must not exceed a maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per year.

Application Methods and Equipment

Apply **Engenia** by ground. Thorough spray coverage is important for best broadleaf weed control and can be improved with adjuvant, nozzle, and spray volume selection.

Calibrate application equipment for accurate target spray volume and application rate to ensure uniform distribution of spray and to avoid spray drift to nontarget areas. Adjust equipment to maintain continuous agitation during spraying

with good mechanical or bypass agitation. Avoid overlaps that will increase rates above the labeled use rates.

Engenia® herbicide may be applied using water; consult crop-specific information sections of this label for other spray carrier options.

Ground Application

Banding Applications

When applying **Engenia** by banding, use the following formula to calculate the amount of herbicide and water volume needed:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

Broadcast Applications

Unless noted in the crop-specific information section, use a spray volume of 15 gallons of water or more per treated acre. Thorough coverage of existing vegetation is essential for postemergence applications; higher spray volumes may be necessary for optimum performance.

Wiper Applications

Engenia may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush, and vines. Use a 50% solution containing 1 part **Engenia** to 1 part water.

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** [0.5 lb dicamba acid equivalent (ae) per acre] per application.
- **DO NOT** contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and noncropland areas described in this label.
  EXCEPTION: DO NOT use wiper application on non-dicamba-tolerant cotton or soybean.

Spray System Equipment Clean-out

As part of the Restricted Use Product requirements, applicators must document that they have complied with the **Spray System Equipment Clean-out** section of this label.

The applicator must ensure that the spray system used to apply **Engenia** is clean before application. Severe crop injury may occur if any **Engenia** remains in the spray equipment following application and is subsequently applied to sensitive crops. Additionally, small quantities of ammonium sulfate (AMS) can increase the volatility potential of **Engenia**. After using **Engenia**, clean all mixing and spray equipment (including tanks, pumps, lines, filters, screens, and nozzles) with a strong detergent based sprayer cleaner. Dispose of rinsate in compliance with local, state, and federal guidelines.

1. After spraying, drain the sprayer (including boom and lines). Avoid allowing the spray solution to remain in the spray boom lines overnight or for extended periods of time.
2. Flush tank, hoses, boom, and nozzles with clean water. Open boom ends and flush if so equipped.
3. Inspect and clean all strainers, screens, and filters.
4. Use commercial sprayer cleaner containing strong detergents according to the manufacturer's directions.
5. Wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines, and nozzles with the cleaning solution for at least 1 minute. Remove nozzles, screens, and strainers, and clean separately in the cleaning solution after completing the above procedure.
7. Drain pump, filter, and lines.
8. Rinse the complete spraying system with clean water.
9. Clean and rinse the exterior of the sprayer.
10. Appropriately dispose of all rinsate in compliance with local, state, and federal requirements.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The spray system and weather-related factors determine the potential for spray drift. The applicator is responsible for considering these factors when making application decisions to avoid spray drift onto nontarget areas.

Applicators must follow application requirements to avoid spray drift hazards, including those found in this labeling and applicable state and local regulations and ordinances. Where states have more stringent regulations, they must be observed.

All application equipment must be properly maintained and calibrated using appropriate carriers.

DO NOT allow herbicide solution to drip, physically drift, or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following physical spray drift management requirements must be followed.

Controlling Droplets

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the **Temperature Inversions** and the **Wind Speed and Direction Requirements** sections).

- **Nozzle Type** - Use only approved nozzles when applying **Engenia**. To find a list of approved nozzles visit **www.engeniatankmix.com** no more than seven days prior to applying **Engenia**.

- **Pressure** - **DO NOT** exceed the nozzle manufacturer's specified pressures or maximum pressures as listed for specific nozzles on **www.engeniatankmix.com**. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate (large orifice) nozzles instead of increasing pressure. Ensure sprayer rate controller hardware (if so equipped) does not allow pressure increases above the desired range.
- **Spray Volume** - Apply this product in a minimum of 15 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed** - Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but **DO NOT** exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area. It is recommended that ground speed be reduced to 5 miles per hour when making applications to the edge of the treatment area.
- **Spray Boom Height** - Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but **DO NOT** exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.
- **Hooded Spray Booms** - Hooded spray booms are another tool that can be used to minimize spray drift potential. **Engenia® herbicide** may be applied using a hooded spray boom in combination with approved nozzles; however, the applicator must ensure the configuration is compatible with equipment used.

Temperature Inversions

- **DO NOT** apply **Engenia** when temperature inversions exist at the field level.
- **Apply only during the following period: DO NOT** make applications at night. Applications are only permitted beginning one hour after sunrise, and ending two hours before sunset.

Temperature inversions increase drift potential by reducing atmospheric mixing and dispersion of any suspended spray mixture. Suspended spray residues can move in unpredictable directions because of the light, variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light-to-no wind.

Inversions begin to form as the sun sets and often continue into the morning before surface warming. Their presence can be indicated by ground fog, smoke not rising, dust hanging over a road, or presence of dew or frost. Smoke that layers and moves laterally (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Inversion conditions typically dissipate with increased winds (above 3 MPH) or when surface air begins to warm (3° F from morning low).

Treatment Zone Awareness and Buffer Requirements (Sensitive Areas, Sensitive Crops and Residential Areas)

Sensitive Areas

Engenia should only be applied when there is low potential for drift to sensitive areas (see **Definitions**). It is best to apply when the wind is blowing away from sensitive areas.

Spray Buffer Requirement: Applicator must always maintain a 110 foot buffer when applying this product from the downwind outer edges of the field.

To maintain the required buffer zone:

- No application swath containing **Engenia** can be initiated in, or into an area that is within the applicable buffer distance.
- **Nonsensitive Crops and Areas** (see **Definitions**) - May be included in the buffer distance calculation when within 110 feet of field edges.

Sensitive Crops and Residential Areas

- **DO NOT** apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.
- During application and sprayer clean-out, **DO NOT** allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants.
- **Downwind and Shifting Winds**
  - **DO NOT** apply when wind is blowing in the direction of neighboring sensitive crops or residential areas.
  - **The appropriate distance must be determined by the applicator** relative to where the application is being made, the environmental conditions, and the potential risk to downwind sensitive crops and residential areas.
  - The applicator also must be aware that **WIND DIRECTION** may vary during the application. If wind direction shifts such that the wind is blowing toward neighboring sensitive crops or residential areas, **STOP** the application.

Survey the area before spraying: Small amounts of spray drift that may not be visible may injure sensitive broadleaf plants. Before making an application, the applicator must survey the application site for neighboring sensitive crops and residential areas. The applicator must consult sensitive crop registries where available. Refer to **Sensitive Crops Awareness** section for record keeping requirements within the **RESTRICTED USE PESTICIDE RECORD KEEPING REQUIREMENTS** section.

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and

on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

Definitions

- **Sensitive Areas** - Bodies of water and nonresidential, uncultivated areas that may harbor sensitive plant species.
- **Sensitive Crops and Residential Areas** - Food, forage, or other plantings grown for sale, use or consumption. Sensitive crops/plants also can be present in nonagricultural settings, such as residential areas. Examples include, but are not limited to:
  - non-DT soybeans
  - cucumber and melons (EPA **Crop Group 9**)
  - flowers
  - fruit trees
  - grapes
  - ornamentals including greenhouse-grown and shade house-grown broadleaf plants
  - peanuts
  - peas and beans (EPA **Crop Group 6**)
  - peppers, tomatoes, and other fruiting vegetables (EPA **Crop Group 8**)
  - potato
  - sweet potato
  - tobacco

  Severe injury or destruction could occur if any contact between this product and these crops/plants occurs.
- **Nonsensitive Crops and Areas**
  1. Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field, such as roadside rights-of-way.
  2. Agricultural fields that have been prepared for planting.
  3. Planted agricultural fields containing asparagus, corn, DT cotton, DT soybeans, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
  4. Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and or roof.

Additional restrictions for the protection of specific sensitive areas may be required when making applications to DT cotton and DT soybeans. Use of this product may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult **http://www.epa.gov/espp/** or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product. Please Note: Additional endangered or threatened species obligations are listed under **Endangered Species** on this label. See **Crop-specific Information – Dicamba-tolerant (DT) Crops** section for more details regarding protection of endangered species.

Wind Speed and Direction Requirements

- **Wind Speed** - 3 to 10 mph
- **Wind Direction** - Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Tank Mixing Information

Engenia® herbicide may only be tank mixed with products that have been tested and found by the EPA not to have an unreasonable adverse effect on the spray drift properties of **Engenia**. A list of those EPA approved products may be found at **www.engeniatankmix.com**. **DO NOT** tank mix any product with **Engenia** unless:

1. You check the list of EPA approved products for use with **Engenia** at **www.engeniatankmix.com** no more than 7 days before applying **Engenia**; and
2. The intended product tank mix with **Engenia** is identified on that list of tested and approved products; and
3. The intended product to be tank mixed with **Engenia** is not prohibited on this label.
4. Additional Warnings and Restrictions:
   - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
   - **DO NOT** tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate (UAN).
   - **DO NOT** add adjuvants that will further decrease pH or acidify the spray solution.
   - Spray mixtures with lower pH levels (less than pH 5) can increase the potential volatility of dicamba. To mitigate this potential it is important to know the pH of your spray mixture and make appropriate adjustments. Talk with your local agricultural consultant, extension agent, or BASF representative for recommendations to prevent low pH spray mixtures.
   - Use of an approved neutral buffering agent may be warranted if the water source or tank mix components will create an acidic spray solution less than pH 5. One possible way to check the pH of the spray mixture is with a litmus paper test. If the pH needs to be increased then consider using an approved neutral buffering agent.
   - Hard water does not usually affect the activity of **Engenia**; however, other tank mix components may be adversely affected (e.g. glyphosate). Use of an approved conditioning agent should be considered when hard water (i.e. total calcium, magnesium, and iron content above 500 ppm) is used as a spray carrier.
   - Drift reduction agents listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

For an up to date and complete list of approved tank mix options with **Engenia® herbicide**, visit **www.engeniatankmix.com**.

Refer to the tank mix product labels to confirm that the respective tank mix products are registered for the specific crop use; follow required crop rotation restrictions. Read and follow the applicable restrictions and limitations and **Directions For Use** on all product labels involved in tank mixing. Always follow the most restrictive label use directions; refer to crop-specific information section for details.

Mixing **Engenia** with postemergence grass (graminicide) herbicides may reduce the effectiveness of those products. Follow graminicide label when mixing with **Engenia** to ensure optimum weed control. Physical incompatibility, reduced weed control, or crop injury may result from mixing **Engenia** with other pesticides, additives, nutritionals, etc.

Adjuvants. BASF recommends the use of quality adjuvants with **Engenia** such as **Astonish™**, **Class Act® Ridion®**, **Grounded®**, **Iconic®**, **Jackhammer™ Elite**, **R-11®**, **Strike Force®**, and **Verifact**.

Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

1. For 20 gallons per acre spray volume, use 3.3 cups (800 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
2. Add components in the sequence indicated in the following **Mixing Order** instructions using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.
3. Cap the jar and invert 10 cycles between component additions.
4. When the components have all been added to the jar, let the solution stand for 15 minutes.
5. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, **DO NOT** mix the ingredients in the same tank.

Mixing Order

Make sure each component is thoroughly mixed and suspended before adding tank mix partners. Except when mixing products in PVA bags, maintain constant agitation during mixing and application.

1. **Water** - Begin by agitating a thoroughly clean sprayer tank 1/2 to 3/4 full of clean water.
2. **Inductor** - If an inductor is used, rinse it thoroughly after each component has been added.
3. **Products in PVA bags** - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
4. **Water-soluble additives**
5. **Water-dispersible products** (such as dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
6. **Water-soluble products and additives (Engenia)**
7. **Emulsifiable concentrates** (including NIS and oil concentrate)
8. Remaining quantity of water

Maintain continuous and constant agitation throughout mixing and application until spraying is completed. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to resuspend the mixture before spraying is resumed. Continue agitation while spraying.

Use Precautions

- **Maximum Seasonal Use Rate** - Refer to crop-specific information sections for maximum seasonal application rates for each crop or use pattern.
- **Stress** - Application to crops under stress because of lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, or widely fluctuating temperatures may result in crop injury.
- **Rainfast Period** - **Engenia** is rainfast 4 hours after application. Postemergence activity may be reduced if rain or irrigation occurs within 4 hours of application.

Use Restrictions

Applicator MUST ALSO follow restrictions under Crop-specific Information section(s).

- **DO NOT** apply this product aerially.
- **DO NOT** apply **Engenia** with ammonium-containing additives, conditioners, or fertilizers (e.g. AMS, UAN). Small quantities of AMS can greatly increase the volatility potential of dicamba.
- **DO NOT** apply **Engenia** if expected rainfall amount may exceed soil field capacity and result in soil runoff in the next 24 hours.
- **DO NOT** apply **Engenia** if wind speed is less than 3 mph or greater than 10 mph.
- **DO NOT** apply **Engenia** at night. **DO NOT** apply earlier than one hour after sunrise or later than two hours before sunset.
- **DO NOT** contaminate irrigation ditches or water used for domestic purposes.
- **DO NOT** apply **Engenia** through any type of irrigation system (e.g. chemigation).
- **DO NOT** tank mix **Engenia** with **Lorsban® insecticide**.
- In DT cotton, **DO NOT** apply **Engenia** later than 60 days after planting or mid-bloom, whichever comes first.
- In DT soybeans, **DO NOT** apply **Engenia** later than 45 days after planting or R1, whichever comes first.

Crop Rotation Restrictions

Use the following information to determine the required interval between **Engenia® herbicide** application and rotational crop planting as well as replanting after crop failure because of environmental factors such as drought, frost, or hail. Determine the rotational crop interval for tank mix products and use the most restrictive interval of all products applied.

Table 3. Crop Rotation Restrictions by Application Rate

Crop	**Engenia** (fl ozs/A)		
	≤ 6.4	9.6	12.8
	Rotational Crop Interval[1] (days after application)		
Corn	0	0	0
Cotton, non-DT[2]	21[†]	28	42
Cotton, DT	0	0	0
Sorghum	14	21	28
Soybean, non-DT[2]	14	21	28
Soybean, DT	0	0	0
Grasses[3] 30 inches or more annual precipitation	14	21	28
Grasses[3] less than 30-inches annual precipitation	21	28	42
All other crops	120	120	120

[1] **DO NOT** include time when the soil is frozen and days before receiving any required rainfall or overhead irrigation.
[2] Following application of **Engenia** and a minimum accumulation of 1 inch of rainfall or overhead irrigation, observe the indicated waiting interval.
[3] Includes barley, oats, wheat, and other grass crops. Small grains may be planted with no waiting interval following **Engenia** applied at 3.2 fl ozs/A.
[†] **Missouri and Tennessee Only.** Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of **14 days** per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

Dicamba-tolerant (DT) Crops

Engenia® herbicide is EPA approved for use in DT crops in the following states:

Alabama, Arizona, Arkansas, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Within the above listed states, **Engenia** is subject to area-specific restrictions as required by **http://www.epa.gov/espp/** that must be consulted prior to making an **Engenia** application in DT cotton and DT soybeans. Prior to making an **Engenia** application in DT cotton or DT soybeans, an applicator must visit **http://www.epa.gov/espp/** to determine if there are any additional restrictions on **Engenia** use within the area to be sprayed. Within the defined areas, in combination with the 110 foot infield wind-directional spray drift buffer, a 57 foot omnidirectional infield buffer is required to protect federally listed threatened and endangered species. Non-sensitive areas defined below may be included as part of the buffer.

Nonsensitive areas - The following areas may be included in the buffer distance calculation when directly adjacent to the treated field edges:

1. Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field such as rights of way.
2. Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
3. Agricultural fields that have been prepared for planting.
4. Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and or roof.

The following directions are specific for Engenia use in DT cotton and DT soybeans.

Depending on specific crop application directions, **Engenia** may be applied for postemergence control of emerged broadleaf weeds and/or residual control of germinating broadleaf weed seeds before crop planting (preplant and/or preseed) and after planting (preemergence, postemergence). Refer to **Table 1** for list of weeds controlled or suppressed.

Engenia may be applied preplant, at-planting, pre-emergence, and postemergence (in-crop) for weed control in DT cotton and DT soybeans.

Dicamba-tolerant (DT) Cotton

Engenia may be applied preplant surface, preemergence, or postemergence (over the top) by ground only to control or suppress many annual, biennial, and perennial broadleaf weeds (see **Table 1**) in dicamba-tolerant (DT) cotton. If **Engenia** is applied to non-dicamba-tolerant cotton other than as directed, severe crop injury will result. For non-dicamba-tolerant cotton information, see **Cotton** section in **Crop-specific Information** section.

Cotton gin byproducts may be fed to livestock.

Application Rates and Timings

Maximum Application Rates in DT Cotton

Application Timing	Amount (fl ozs/A)
Single Preplant Preemergence Postemergence	12.8 (0.5 lb dicamba ae/A)
All Applications Combined Total per Season	51.2 (2 lbs dicamba ae/A)
Total Preplant and **Preemergence**	25.6 (1 lb dicamba ae/A)
Total Postemergence	25.6 (1 lb dicamba ae/A)

Application of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be made before and after cotton emergence. Separate sequential applications by 7 days or more. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Timely application will improve control and reduce weed competition. Apply preplant, preemergence, and postemergence to DT cotton only by ground. **DO NOT** apply more than 51.2 fl ozs/A of **Engenia** per year (single growing season).

Preplant and Preemergence Applications

Engenia can be applied at 12.8 fl ozs/A before, during, or after planting DT cotton. **Engenia** will provide burndown of emerged weeds. Apply as a sequential application with other preemergence herbicides to control emerged grass weeds and other broadleaf weeds, and with a pre-emergence residual herbicide to control germinating weed seeds. Early season weed control is critical for minimizing weed competition and protecting crop yield potential.

Postemergence Applications

Apply **Engenia® herbicide** postemergence at 12.8 fl ozs/A from cotton emergence through 60 days after planting or mid-bloom, whichever comes first. **DO NOT** apply more than 12.8 fl ozs/A in a single postemergence over-the-top application of **Engenia**. A total of two post-emergence applications can be made in cotton.

For best weed control, **Engenia** applications should be made early in the season to small (less than 4-inches tall), actively growing weeds. Sequential postemergence applications may be necessary to control new weed flushes. Allow at least 7 days between applications. **DO NOT** apply **Engenia** postemergence more than twice in a season. Apply **Engenia** in a herbicide program that includes sequential application of herbicides with a different mechanism of action to control new weed regrowth.

Postemergence applications of **Engenia** mixed with some adjuvants may cause injury to DT cotton (see **Tank Mixing Information** section for details). Injury symptoms usually appear as necrotic spots on leaves. Potential for injury may be reduced when applications are made with spray volumes of at least 15 GPA and lower adjuvant rates. Symptomology is temporary with cotton recovering quickly after application.

Use with Other Herbicides

Broad-spectrum control of grass weeds or additional broadleaf weeds may require a sequential herbicide application. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Outlook® herbicide**
- **Prowl® H2O herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

DT Cotton Restrictions

- **DO NOT** apply **Engenia** to non-dicamba-tolerant cotton varieties other than as directed or severe cotton injury will occur; refer to **Cotton** section in **Crop-specific Information** section.
- **DO NOT** make more than two applications preplant or preemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per preplant or preemergence application.
- **DO NOT** make more than two applications postemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per postemergence application.
- **DO NOT** apply **Engenia** later than 60 days after planting or mid-bloom, whichever comes first.
- **DO NOT** apply more than 51.2 fl ozs/A (2 lbs ae/A) per season.
- Use caution when tank mixing **Engenia** with approved emulsifiable concentrates (EC) or oil-based products that may increase the potential for crop injury.

Dicamba-tolerant (DT) Soybean

Engenia may be applied preplant surface, preemergence, or postemergence (over the top) by ground only to control or suppress many annual, biennial, and perennial broadleaf weeds (see **Table 1**) in dicamba-tolerant (DT) soybean. If **Engenia** is applied to non-dicamba-tolerant soybean other than as directed, severe crop injury will result. For non-dicamba-tolerant soybean information, see **Soybean** section in **Crop-specific Information** section.

Application Rates and Timings

Maximum Application Rates in DT Soybean

Application Timing	Amount (fl ozs/A)
Single Preplant Preemergence Postemergence	12.8 (0.5 lb dicamba ae/A)
All Applications Combined Total per Season	51.2 (2 lbs dicamba ae/A)
Total Preplant and **Preemergence**	25.6 (1 lb dicamba ae/A)
Total Postemergence	25.6 (1 lb dicamba ae/A)

Application of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be made before and after soybean emergence. Separate sequential applications by 7 days or more. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Timely application will improve control and reduce weed competition. Apply preplant, preemergence, and postemergence to DT soybean only by ground.

Preplant and Preemergence Applications

Engenia can be applied at 12.8 fl ozs/A before, during, or after planting dicamba-tolerant soybean. **Engenia** will provide burndown of emerged weeds and moderate residual activity. Apply as a sequential application with other labeled herbicides to control emerged grass weeds and other broadleaf weeds, and with a preemergence residual herbicide to control germinating weed seeds. Early season weed control is critical for minimizing weed competition and protecting crop yield potential.

Postemergence Applications

Up to two postemergence applications using 12.8 fl ozs/A of **Engenia® herbicide** per application may be made from soybean emergence through 45 days after planting or R1, whichever comes first. Allow at least 7 days between applications. **DO NOT** apply more than a maximum cumulative total of 25.6 fl ozs/A of **Engenia** postemergence.

Engenia applications should be made to small (less than 4-inches tall), actively growing weeds. Sequential postemergence applications may be necessary to control new weed flushes. For best results, apply **Engenia** in a herbicide program that includes sequential application of herbicides with a different mechanism of action to control new weed growth.

Postemergence applications of **Engenia** may cause dicamba-tolerant soybeans to wilt or droop shortly after application. Symptomology is transient, and soybeans recover quickly after application.

Use with Other Herbicides

Broad-spectrum control of grass weeds or additional broadleaf weeds may require a sequential herbicide application. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Optill® powered by Kixor® herbicide**
- **Outlook® herbicide**
- **Prowl® H2O herbicide**
- **Pursuit® herbicide**
- **Raptor® herbicide**
- **Sharpen® powered by Kixor® herbicide**
- **Varisto® herbicide**
- **Verdict® powered by Kixor® herbicide**
- **Zidua® herbicide**
- **Zidua® PRO powered by Kixor® herbicide**
- clethodim (e.g. **Select Max® herbicide**)
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

DT Soybean Restrictions

- **DO NOT** apply **Engenia** to non-dicamba-tolerant soybean varieties other than as directed or severe soybean injury will occur; refer to **Soybean** section in **Crop-specific Information** section.
- **DO NOT** make more than two applications preplant or preemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per preplant or preemergence application.
- **DO NOT** make more than two applications postemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per postemergence application.
- **DO NOT** apply **Engenia** later than 45 days after planting or R1, whichever comes first.
- **DO NOT** apply more than 51.2 fl ozs/A (2 lbs ae/A) per season.
- Use caution when tank mixing **Engenia** with approved emulsifiable concentrates (EC) or oil-based products that may increase the potential for crop injury.
- **Soybean Forage:** Allow at least 7 days between final application and harvest or feeding of soybean forage.
- **Soybean Hay:** Allow at least 14 days between final application and harvest or feeding of soybean hay.

This section provides use directions for **Engenia® herbicide** in conventional (non-DT) crops. Read product information, application instructions, weeds controlled, and additive instructions in preceding sections of the label.

Depending on specific crop application directions, **Engenia** may be applied for postemergence control of emerged broadleaf weeds and/or residual control of germinating broadleaf weed seeds before crop planting (preplant and/or preseed) and after planting (preemergence, postemergence). Refer to **Table 1** for list of weeds controlled or suppressed.

Asparagus

Engenia may be applied immediately after cutting asparagus but at least 24 hours before the next cutting. Apply 6.4 to 12.8 fl ozs/A of **Engenia** in 40 to 60 gallons of diluted spray to emerged and actively growing weeds. Apply 12.8 fl ozs/A of **Engenia** to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. To improve control of Canada thistle and field bindweed, apply **Engenia** in combination with glyphosate (e.g. **Roundup® herbicide**) or sequentially with 2,4-D.

If spray contacts emerged spears, crooking (twisting) of some spears may result. If crooking occurs, discard affected spears.

Asparagus Restrictions

- **DO NOT** apply more than a total of 12.8 fl ozs/A of **Engenia** (0.5 pound dicamba ae/A) per year in asparagus.
- **DO NOT** harvest for 24 hours after treatment.
- **DO NOT** use in the Coachella Valley of California.

Between Crop Application

Engenia may be used as a burndown treatment to control broadleaf weeds at any time of the year during the fallow period following crop harvest and before the following crop is planted. Apply **Engenia** as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost, or in fallow cropland or crop stubble the following spring or summer.

Application Rates and Timings

Apply **Engenia** as a broadcast or spot treatment at 3.2 to 12.8 fl ozs/A plus specified adjuvants; see **Tank Mixing Information** section for details. Refer to **Table 2** to determine use rates for specific targeted weed species. For best performance, apply **Engenia** when annual weeds are less than 4-inches tall, when biennial weeds are in the rosette stage, and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. For the most effective control of upright perennial broadleaf weeds such as Canada thistle and Jerusalem artichoke, apply **Engenia** when the majority of weeds have at least 4 inches of regrowth, or for weeds such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulblets, after the effective period for **Engenia**. For seedling control, a follow-up program or other cultural practices should be instituted. For small grain in-crop uses of **Engenia**, refer to **Small Grain** section for details.

Specific crop rotation intervals must be observed between an application of **Engenia** and planting the following crop; see **Crop Rotation Restrictions** in **Use Restrictions** section.

Use with Other Herbicides

Broad-spectrum burndown control of grass weeds and/or additional broadleaf weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Distinct® herbicide**
- **Facet® L herbicide**
- **Outlook® herbicide**
- **Sharpen® powered by Kixor® herbicide**
- **Verdict® powered by Kixor® herbicide**
- 2,4-D
- glyphosate (e.g. **Roundup**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Between Crop Application Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A (0.5 pound dicamba ae/A) in a single application of **Engenia** as a between crop application.
- **DO NOT** apply more than a maximum cumulative total of 2 pounds dicamba ae/A from all product sources per cropping season.

Conservation Reserve Program (CRP)

Engenia may be used on both newly seeded and established grasses grown in the Conservation Reserve or federal Set-Aside Programs. Treatment with **Engenia** will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Application Rates and Timings

Engenia® herbicide may be applied at 3.2 to 12.8 fl ozs/A; refer to **Table 2** for rates based on target weed type and growth stage.

Newly Seeded Areas

Engenia may be applied either preplant or postemergence to newly seeded grasses or small grain including barley, oats, rye, sudangrass, wheat, or other grain species grown as a cover crop. Postemergence application may be made after seedling grasses exceed the 3-leaf stage.

Preplant Intervals. Preplant applications at 12.8 fl ozs/A may injure new seedings if the interval between application and grass planting is less than:

- 20 days - 30 inches or more annual precipitation
- 45 days - less than 30-inches annual precipitation

Established Grass Stands

Established grass stands are perennial grasses planted one or more seasons before treatment. Certain species (bentgrass, buffalograss, carpetgrass, St. Augustinegrass, or smooth brome) may show a response when treated with **Engenia**.

Use with Other Herbicides

Broad-spectrum control of broadleaf and grass weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Facet® L herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)
- paraquat (e.g. **Gramoxone® SL herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

CRP Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** per application.
- **DO NOT** apply more than a maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per season.
- **Engenia** may injure newly seeded grasses and certain species, such as bentgrass, buffalograss, carpetgrass, St. Augustinegrass, or smooth brome.

Corn (field, seed, silage) and Popcorn

Engenia may be applied preplant surface, preemergence, or postemergence to corn. Corn in this label refers to conventional or herbicide-tolerant field corn (grown for grain, seed, or silage) and popcorn. Before applying **Engenia** to seed corn or popcorn, verify with your local seed company (supplier) the selectivity of **Engenia** on your inbred line or hybrid to help avoid potential injury to sensitive inbreds or hybrids.

Engenia is not registered for use on sweet corn.

Direct contact of **Engenia** with corn seed must be avoided. If corn seeds are less than 1.5 inches below the soil surface, delay application until corn has emerged.

Postemergence applications of **Engenia** to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. To avoid breakage, delay cultivation until after corn is growing normally.

Application Rate

Engenia application rates vary by soil texture, organic matter, and application timing. Refer to **Table 4** for **Engenia** application rates by application timing. Up to 2 applications of **Engenia** may be made during a growing season. Sequential applications must be separated by 2 weeks or more.

Table 4. Engenia® herbicide Application Rates for Corn

Soil Texture	Organic Matter	Application Rate (fl ozs/A)			
		Preplant/ Preemergence[2]	Preemergence	Postemergence	
		No Tillage	Conventional/ Reduced Tillage	Early[3]	Late[4]
Coarse[1]	All	6.4	NA	6.4	6.4
Medium/Fine	2.5% or less	6.4	NA	12.8	6.4
Medium/Fine	more than 2.5%	12.8	12.8	12.8	6.4

[1] Coarse soil types include sand, loamy sand, or sandy loam.
[2] Use only preemergence applications in conventional and reduced tillage systems.
[3] Apply between corn emergence and the 5-leaf stage or 8-inches tall, whichever comes first. Use crop oil concentrate only in dry conditions when corn is less than 5-inches tall and when applying **Engenia** alone or tank mixed with atrazine.
[4] Apply in corn that is 8-inches to 36-inches tall or up to 15 days before tassel emergence, whichever comes first.
NA - not applicable

Application Timing

Preplant (up to 14 days before planting) and Preemergence Applications in No Tillage Corn

Engenia can be applied to emerged weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g. alfalfa or clover), apply **Engenia** after 4 inches of regrowth. For application rates, refer to **Table 4**.

Preemergence Applications in Conventional or Reduced Tillage Corn

Engenia may be applied after planting and before corn emergence; refer to **Table 4** for application rates. Preemergence application of **Engenia** does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if the application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g. drags, harrows) that concentrates treated soil over seed furrow or seed damage could result.

Postemergence Applications (all tillage systems)

Apply early postemergence treatment between corn emergence and the 5-leaf stage or 8-inches tall, whichever comes first. Apply later applications when corn is 8-inches to 36-inches tall, or up to 15 days before tassel emergence, whichever comes first. Apply as a directed spray when corn leaves prevent proper spray coverage. Application rates vary by application timing; refer to **Table 4** for specific postemergence application rates.

Use with Other Herbicides

Engenia may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Armezon® herbicide**
- **Armezon® PRO herbicide**
- **Outlook® herbicide**
- **Prowl® H2O herbicide**
- **Sharpen® powered by Kixor® herbicide**
- **Verdict® powered by Kixor® herbicide**
- **Zidua® herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

NOTE: Refer to tank mix product labels to confirm the respective tank mix products are registered for use on specific corn types. Not all corn products are registered on popcorn and seed corn.

Corn and Popcorn Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A (0.5 pound dicamba ae/A) in a single application of **Engenia® herbicide**.
- **DO NOT** apply more than a maximum cumulative total of 1.5 pounds dicamba ae/A from all product sources per cropping season.
- Corn or popcorn forage and silage may be harvested, fed, or grazed when the crop has reached the ensilage (milk) stage or later in maturity.
- **Engenia is not registered for use on sweet corn.**

Cotton

Before planting cotton, **Engenia** may be used early preplant for burndown of actively growing broadleaf weeds; refer to **Table 1** for weeds controlled or suppressed.

Cotton gin byproducts may be fed to livestock.

Application Rates and Timings

Apply **Engenia** as a broadcast spray up to 6.4 fl ozs/A plus specified adjuvants; refer to **Tank Mixing Information** section for details. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across.

Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of 21 days per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

Missouri and Tennessee Only. Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of **14 days** per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

Use with Other Herbicides

Broad-spectrum postemergence control of grass weeds or additional broadleaf weeds requires another herbicide such as glyphosate. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Sharpen® powered by Kixor® herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Cotton Restrictions

- **DO NOT** apply more than 6.4 fl ozs/A (0.25 pound dicamba ae/A) of **Engenia** per year (single growing season).
- **DO NOT** apply preplant to cotton west of Interstate 25.
- **DO NOT** make **Engenia** preplant application to cotton in geographic areas with average annual rainfall less than 25 inches.
- **DO NOT** apply more than 2 pounds dicamba acid equivalent per acre for the combination of treatments if applying a spring preplant treatment following application of a fall preplant (postharvest) treatment.

Grass Grown for Seed

Engenia may be used to control annual and perennial broadleaf weeds after weed emergence. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Apply **Engenia** at 6.4 to 12.8 fl ozs/A plus specified adjuvants to seedling grasses after the crop reaches 3-leaf to 5-leaf stage; see **Tank Mixing Information** section for details. Apply up to 12.8 fl ozs/A of **Engenia** on well-established perennial grasses. Use the higher rate of the listed rate range when treating more mature weeds or dense vegetative growth.

Use with Other Herbicides

Engenia may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Facet® L herbicide**
- **Prowl® H2O herbicide**

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Grass Grown for Seed Restrictions

- **DO NOT** apply **Engenia® herbicide** after grass seed crop begins to joint.
- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** (0.5 lb dicamba ae/A) per application or a cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per season.
- Refer to **Table 5** for grazing restrictions.

Pasture, Hay, Rangeland, and Farmstead (noncropland)

Engenia may be used on pasture, hay, rangeland, and farmstead including fencerows and nonirrigation ditchbanks for control or suppression of broadleaf weed and woody brush and vine species listed in **Table 1. Engenia** uses described in this section also refer to small grain grown for forage pasture use (rye, sorghum, sudangrass, or wheat). Grazing and harvest intervals are shown in **Table 5**.

Engenia may also be applied to noncropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides, highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

Application Rates and Timings

Refer to **Table 2** for rate selection based on targeted weed or brush species. Some weed species will require a tank mix partner for adequate control. Retreatments may be applied as needed.

For approved tank mix options see **www.engeniatankmix.com**.

DO NOT apply more than 25.6 fl ozs/A of **Engenia** during a growing season.

DO NOT apply more than 12.8 fl ozs/A of **Engenia** during a growing season on small grain grown for pasture and newly seeded areas.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, buffalograss, carpetgrass, and St. Augustinegrass may show a response. Usually, colonial bentgrasses are more tolerant than creeping types. Velvetgrasses are most easily injured. Treatments will injure or kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Spray volume may range from 10 to 600 gallons per acre. The volume of spray applied depends on the height, density, and type of weeds or brush being treated and on the type of equipment used. **Engenia** may be applied as a spot treatment to individual clumps or small areas of undesirable vegetation using a handgun or similar type of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

Table 5. Grazing and Haying Restrictions for Lactating Dairy Animals after Engenia Treatment

Engenia Rate (fl ozs/A)	Days before Grazing	Days before Hay Harvest
Up to 12.8	7	37

Cut-surface Treatment

Engenia may be applied as a cut-surface treatment for control of unwanted trees and prevention of sprouts of cut trees. Mix 1 part **Engenia** with 1 to 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.

- **Frill or Girdle Treatment** - Using an axe to girdle tree trunk, make a continuous cut or a series of overlapping cuts. Spray or paint the cut surface with the solution.
- **Stump Treatment** - Spray or paint freshly cut surface with the water mix. Thoroughly wet the area adjacent to the bark.

Dormant Multiflora Rose Applications

Engenia can be applied as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-in-water emulsion solution when plants are dormant.

Spot Treatment Applications

Spot treatment application of **Engenia** should be applied directly to the soil as close as possible to the root crown within 6 inches to 8 inches of the crown. On sloping terrain, apply **Engenia** to the uphill side of the crown. **DO NOT** apply when snow or water prevents applying **Engenia** directly to the soil. The use rate of **Engenia** depends on the canopy diameter of the multiflora rose.

Example Engenia use rates:

- 0.25 fl oz per 5-feet canopy diameter
- 1.0 fl oz per 10-feet canopy diameter
- 2.35 fl ozs per 15-feet canopy diameter

Lo-Oil Basal Bark Treatment

For Lo-Oil basal bark treatments, apply **Engenia** to the basal stem region from the ground line to a height of 12 inches to 18 inches. Spray until runoff, with special emphasis on covering the root crown. For best results, apply **Engenia** when plants are dormant.

- **DO NOT** apply after bud break or when plants are showing signs of active growth.
- **DO NOT** apply when snow or water prevents applying **Engenia** to the ground line.

Lo-Oil Spray Solution Preparation

1. Combine 1.5 gallons of water, 1 oz of emulsifier, 12.8 fl ozs of **Engenia® herbicide**, and 2.5 pints of No. 2 diesel fuel.
2. Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

DO NOT apply more than 8 gallons/A of Lo-Oil spray solution mix per year.

Use with Other Herbicides

Broad-spectrum control of broadleaf and grass weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Frequency® herbicide**

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Pasture, Hay, Rangeland, and Farmstead (noncropland) Restrictions

- **DO NOT** apply more than a maximum cumulative total of 25.6 fl ozs/A of **Engenia** (1 lb dicamba ae/A) during a growing season.
- **DO NOT** apply more than a maximum cumulative total of 12.8 fl ozs/A of **Engenia** (0.5 lb dicamba ae/A) to small grain grown for pasture and to newly seeded areas.

Proso Millet

For use only within Colorado, Nebraska, North Dakota, South Dakota, and Wyoming

Apply **Engenia** and 2,4-D sequentially to provide control or suppression of annual broadleaf weeds; see **Table 1**.

Apply 3.2 fl ozs/A of **Engenia** sequentially with 0.375 lb acid equivalent of 2,4-D per acre. Apply as a broadcast or spot treatment to emerged and actively growing weeds and when proso millet is in the 2-leaf to 5-leaf stage. Use directions for 2,4-D products vary with manufacturers; refer to a 2,4-D product with labeling consistent with the crop-stage timing for **Engenia**. Some types of proso millet may be affected adversely by a sequential application of **Engenia** and 2,4-D.

Proso Millet Restrictions

- **DO NOT** apply unless possible proso millet crop injury will be acceptable.
- **DO NOT** apply more than 3.2 fl ozs/A of **Engenia** (0.125 lb dicamba ae/A) per season in proso millet.
- Refer to **Table 5** for grazing restrictions.

Small Grain (barley, oats, triticale, and wheat)

Engenia may be applied before, during, or after planting small grain (barley, oats, triticale, and wheat). Refer to **Application Rates and Timings** for specific small grain crop uses. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Applying **Engenia** to small grain during periods of rapid growth may result in crop leaning; this condition is temporary and will not reduce crop yield.

Restrictions for small grain areas grazed or cut for hay are indicated in **Table 5** in **Pasture, Hay, Rangeland, and Farmstead (noncropland)** section of this label.

Application Rates and Timings

Early Season Applications

Table 6. Early Season Application Rate and Growth Stage in Small Grain[1]

Crop	Fall-seeded		Spring-seeded	
	Rate (fl ozs/A)	**Growth Stage**	**Rate** (fl ozs/A)	**Growth Stage** (up to)
Barley[2, 3]	1.6 to 3.2	before joint	1.6 to 2.4	4-leaf
Oats[3]			1.6 to 3.2	5-leaf
Triticale			1.6 to 3.2	6-leaf
Wheat[4]			1.6 to 3.2	6-leaf

[1] An adjuvant system should be used with all **Engenia** applications; refer to **Tank Mixing Information** section for details. **DO NOT** use oil concentrates for postemergence in-crop application.
[2] For spring barley varieties seeded during winter months or later, follow the rate and timing given for spring-seeded barley.
[3] **DO NOT** tank mix **Engenia** with 2,4-D in oats or early season application on spring-seeded barley.
[4] Early developing wheat varieties must receive application between early tillering and the joint stage; ensure that the application occurs before the jointing stage.

Fall-seeded Wheat ONLY

Western Oregon. When applied in the spring, **Engenia** may be used at rates up to 4.8 fl ozs/A on fall-seeded wheat. Periods of extended stress such as cold and wet weather may enhance the possibility of crop injury.

Colorado, Kansas, New Mexico, Oklahoma, and Texas. For suppression of perennial weeds (such as field bindweed), up to 6.4 fl ozs/A of **Engenia® herbicide** may be applied on fall-seeded wheat after wheat exceeds the 3-leaf stage. Application may be made in the fall following a frost but before a killing freeze. **Engenia** at 6.4 fl ozs/A may be sequentially applied with MCPA after wheat begins to tiller. Periods of extended stress such as cold and wet weather may enhance the possibility of crop injury. For fall applications only, **DO NOT** apply **Engenia** if the potential for crop injury is unacceptable.

Preharvest Applications

To control broadleaf weeds that interfere with harvest, **Engenia** may be applied before harvest when barley or wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if the application can be made when weeds are actively growing but before weeds canopy.

Engenia applications may be made to fall-planted and spring-planted barley and wheat at 6.4 fl ozs/A as a broadcast application or spot treatment. A preharvest interval (PHI) of 7 days is required before crop harvest.

Use with Other Herbicides

Broad-spectrum control of broadleaf and grass weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Beyond® herbicide** (for **Clearfield®** wheat and **Clearfield® Plus** wheat only)
- **Clearmax® herbicide** (for **Clearfield** wheat and **Clearfield Plus** wheat only)
- **Sharpen® powered by Kixor® herbicide**
- **Zidua® herbicide**
- 2,4-D amine
- MCPA
- sulfonylurea-based herbicide (e.g. **Ally® herbicide**, **Express® herbicide**, **Finesse® herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Small Grain Restrictions

- **Maximum use rate per application**
  - 3.2 fl ozs/A: Oats and triticale
  - 6.4 fl ozs/A: Spring-seeded barley, fall-seeded barley, wheat
- **Maximum seasonal use rate**
  - 3.2 fl ozs/A: Oats and triticale
  - 8.8 fl ozs/A: Spring-seeded barley
  - 9.6 fl ozs/A: Fall-seeded barley
  - 12.8 fl ozs/A: Wheat
- **DO NOT** apply **Engenia** preharvest to oats or triticale.
- **DO NOT** use oil concentrate for postemergence in-crop application.
- **DO NOT** use preharvest-treated barley or wheat for seed unless a germination test with an acceptable result of 95% germination or more is performed on the seed.
- **DO NOT** graze small grain (barley, oats, triticale, wheat) within 7 days after treatment.
- **DO NOT** harvest for hay within 37 days after treatment.
- Barley and wheat may be harvested 7 days or more after a preharvest application.
- **DO NOT** make preharvest application in California.

Sorghum

Engenia may be used early preplant, postemergence, and preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds.

Application Rates and Timings

Preplant Applications

(at least 14 days before planting)

A preplant application of **Engenia** up to 6.4 fl ozs/A may be applied at least 14 days before sorghum planting.

Postemergence Applications

Up to 6.4 fl ozs/A of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15-inches tall. For best performance, apply **Engenia** when sorghum crop is in the 3-leaf to 5-leaf stage and weeds are small (less than 3-inches tall). Use drop nozzles if sorghum is taller than 8 inches. Keep spray off sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage.

Applying **Engenia** to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 to 14 days.

Preharvest Applications
Oklahoma and Texas ONLY
Up to 6.4 fl ozs/A of **Engenia® herbicide** may be applied for weed suppression any time after sorghum has reached the soft-dough stage. An agriculturally approved surfactant may be used to improve performance; see **Tank Mixing Information** section for details. Delay harvest until 30 days after a preharvest treatment.

Split Applications
Engenia may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. **DO NOT** apply more than 6.4 fl ozs/A of **Engenia** per application, or a maximum cumulative total of 12.8 fl ozs/A of **Engenia** per year.

Use with Other Herbicides

Engenia may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Basagran® 5L herbicide**
- **Facet® L herbicide**
- **Outlook® herbicide** - (Preplant only)
- **Sharpen® powered by Kixor® herbicide**
- **Verdict® powered by Kixor® herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Sorghum Restrictions

- **DO NOT** graze or feed treated sorghum forage or silage before mature grain stage. If sorghum is grown for pasture or hay, refer to **Pasture, Hay, Rangeland, and Farmstead (noncropland)** section for specific grazing and feeding restrictions.
- **DO NOT** apply **Engenia** to sorghum grown for seed production.
- **DO NOT** apply more than 6.4 fl ozs/A of **Engenia** (0.25 lb dicamba ae/A) per application.
- **DO NOT** apply more than a maximum cumulative total of 12.8 fl ozs/A of **Engenia** (0.5 lb dicamba ae/A) per season.
- **Oklahoma and Texas only** - Delay harvest until 30 days after a preharvest treatment.

Soybean

Engenia may be used preplant or preharvest in soybean to control many annual broadleaf weeds and to reduce competition from established biennial and perennial broadleaf weeds.

Application Rates and Timings

Preplant Applications
(at least 14 days before planting)
Apply **Engenia** as a broadcast spray at 3.2 to 12.8 fl ozs/A plus specified adjuvants; refer to **Tank Mixing Information** section for details.

Preplant Intervals. Following application of **Engenia** and a minimum accumulation of 1 inch of rainfall or overhead irrigation, preplant waiting intervals are required before planting soybeans or crop injury may occur:
- **14 days** for 3.2 to 6.4 fl ozs/A
- **28 days** for 6.5 to 12.8 fl ozs/A

Preharvest Applications
Apply **Engenia** as a broadcast spray or spot spray at 6.4 to 12.8 fl ozs/A plus specified adjuvants; refer to **Tank Mixing Information** section for details. Applications should be made to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Treatments may not kill weeds that later develop from seed or underground parts, such as rhizomes or bulblets, after the effective residual period for **Engenia**. For seedling control, a follow-up program or other cultural practices should be instituted.

Use with Other Herbicides

Engenia may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Optill® powered by Kixor® herbicide**
- **Outlook**
- **Prowl® H2O herbicide**
- **Pursuit® herbicide**
- **Raptor® herbicide**
- **Sharpen**
- **Verdict**
- **Zidua® herbicide**
- **Zidua® PRO powered by Kixor® herbicide**
- glyphosate (e.g. **Roundup**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Soybean Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia® herbicide** (0.5 lb dicamba ae/A) in a spring application before soybean planting.
- **DO NOT** make **Engenia** preplant application to soybeans in geographic areas with average annual rainfall less than 25 inches.
- **DO NOT** apply more than 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per year (single growing season).
- **DO NOT** use preharvest-treated soybean for seed unless a germination test with an acceptable result of 95% germination or better is performed on the seed.
- **DO NOT** harvest soybeans until 7 days after a preharvest application.
- **DO NOT** feed soybean fodder or hay following preharvest application of **Engenia**.
- **DO NOT** make preharvest applications in California.

Sugarcane

Engenia may be used any time after weed emergence but before the close-in stage of sugarcane to control many annual and perennial broadleaf weeds; see **Table 1** for weeds controlled or suppressed.

Apply 6.4 to 12.8 fl ozs/A of **Engenia** for control of annual weeds and 12.8 fl ozs/A for control or suppression of biennial and perennial weeds. Use the higher rate of the specified rate range when treating dense vegetative growth. Repeat treatment may be made as needed; however, **DO NOT** apply more than the annual maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A).

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

Use with Other Herbicides

Engenia may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Prowl® H2O herbicide**
- atrazine

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Sugarcane Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** (1 lb dicamba ae/A) in a single application.
- **DO NOT** apply more than a maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per growing season.
- **DO NOT** harvest sugarcane until 87 days after application.

Farmstead Turf (noncropland) and Sod Farms

Engenia may be used in farmstead turf (noncropland) and sod farms to control or suppress growth of many annual, biennial, and some perennial broadleaf weeds; see **Table 1** for weeds controlled or suppressed. **Engenia** will also suppress woody brush and vine species; refer to **Table 2** for application rates based on targeted weed or woody brush and vine species and growth stage. Some weed species will require tank mixes for optimum control.

Repeat treatment may be made as needed; however, **DO NOT** apply more than 25.6 fl ozs/A of **Engenia** (1 lb dicamba ae/A) per growing season.

Apply 30 to 200 gallons of diluted spray per acre (3 to 17 quarts of water per 1000 sq ft), depending on density or height of weeds treated and on type of equipment used.

To avoid injury to newly seeded grasses, delay application of **Engenia** until after the second mowing. Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, buffalograss, carpetgrass, and St. Augustinegrass may show a response.

Use with Other Herbicides

Engenia at 3.2 to 12.8 fl ozs/A may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Drive® XLR8 herbicide**
- **Pendulum® herbicide**
- **Tower® herbicide**
- 2,4-D
- MCPA
- MCPP

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Farmstead Turf and Sod Farm Restrictions

- **DO NOT** use on residential sites.
- **DO NOT** apply more than 25.6 fl ozs/A of **Engenia® herbicide** (1 lb dicamba ae/A) per growing season.
- **Areas where Roots of Sensitive Plants Extend**
  - **DO NOT** apply more than 3.2 fl ozs/A of **Engenia** (0.125 lb dicamba ae/A) on coarse-texture soils (sand, loamy sand, or sandy loam).
  - **DO NOT** apply more than 6.4 fl ozs/A of **Engenia** on fine-texture soils.
  - **DO NOT** make repeat applications in these areas for 30 days and until previous applications of **Engenia** have been activated in the soil by rainfall or irrigation.

Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

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TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF. 1108

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Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean

Approved by: _____

Jack E.Housenger, Director
Office of Pesticide Programs

Date: 11/9/16

Summary

This document announces that the U.S. Environmental Protection Agency (the EPA or the agency) has granted a conditional registration under Section 3(c)(7)(B) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) for the new uses of the herbicide dicamba for use on genetically-engineered (GE) cotton and GE soybean that have been engineered to be resistant to dicamba in the following states: Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and Wisconsin.

These new dicamba uses were originally proposed by the Monsanto Company to be added to the currently registered herbicide product M1691 (the EPA Registration Number 524-582). This is the specific formulation that was listed in the agency's Proposed Decision released for public comment earlier this year. Since the proposed decision was published, the agency also assessed a lower volatility dicamba formulation (M1768, with the brand name Xtendimax™ with VaporGrip™ Technology, the EPA Registration Number 524-617). the EPA expects the lower volatility formulation to further reduce the potential off site movement of generic dicamba formulations and is included in today's regulatory decision.

The M1768 product contains the same active ingredient as M1691, diglycolamine (DGA) salt of dicamba, and is to be used with equivalent application rates and the same application techniques. Because the two products contain the same active ingredient used at the same rates with the same methods, all of the environmental and human health assessments completed and made public in connection with the proposed registration decision for the M1691 apply to M1768. After assessing volatility studies conducted on the M1768 formulation (discussed later in this document), the EPA has determined that the new lower volatility formulation of M1768 offers the user a product with less potential to volatilize and move off the target area. The volatility analysis is included in the docket for this final decision. Therefore, the new uses were granted for the M1768 formulation.

This final decision document discusses several agency considerations of the new uses for dicamba on GE soybean and GE cotton, including discussions of human health and environmental risks associated with the new uses as well as the benefits associated with these uses. the EPA considered all relevant data associated with the active ingredient when assessing its risks. For example, the assessment for human health included the N, N-Bis-(3-aminopropyl) methylamine (BAPMA) salt of dicamba (M1768 contains the DGA salt of dicamba) because the data on the BAPMA salt was relevant to the analysis and presented the most conservative risk estimation to be used in each exposure scenario to be protective of all exposures of dicamba. But, when product specific considerations were necessary for the analysis, the EPA reviewed the effects of the DGA salt. For example, to determine appropriate spray drift buffers, the agency examined drift potential using studies conducted on the DGA salt formulation.

Under the Plant Protection Act, the United States Department of Agriculture (USDA) deregulated the GE cotton and GE soybean seeds tolerant to dicamba on January 15, 2015.

I. Chemical Information

Chemical Name: Dicamba (benzoic acid, 3,6-dichloro-2-methoxy-, aka 3,6-dichloro-*o*-anisic acid)

EPA PC Code: 128931

Chemical Abstract Service (CAS) Number: 104040-79-1

Mode of Action: Dicamba is in the Benzoic Acid family that is used post-emergence for selective control of broadleaf weeds. Like the phenoxy herbicides, dicamba mimics auxins, a type of plant hormone and causes abnormal cell growth by affecting cell division.

Registrant: Monsanto Company

Product: M1768 Herbicide (Xtendimax™ with VaporGrip™ Technology) EPA Registration Number 524-617

Background

On April 28, 2010 and July 30, 2012, respectively, the EPA received applications from the Monsanto Company (Monsanto) to register new uses of dicamba, as the DGA salt, on GE soybean and GE cotton. The application also requested the establishment of new tolerances for residues resulting from the new uses. The tolerances for these new uses have been established.

Dicamba is an active ingredient that is currently used through acid formulations and a variety of salt formulations, and is registered for a variety of food and feed uses. The new uses will expand the current timing of dicamba applications to post-emergence (over-the-top) applications to GE cotton and GE soybean crops. Until this registration, dicamba was only registered for use on preplant and pre-harvest soybeans and on preplant and postharvest cotton. It is important to note that using registered dicamba products on GE cotton or GE soybean crops that are not registered specifically for post-emergence use on GE cotton or GE soybean crops is inconsistent with the pesticide's labeling and a violation of FIFRA.

New Uses

Cotton

Dicamba products that are currently registered on conventional cotton are used for preplant, at-planting and/or pre-emergent treatments at application rates that range from 0.25 to 1.0 pounds acid equivalent (lb a.e.) dicamba per acre. The maximum annual application for all preplant, at planting and pre-emergence applications combined on conventional cotton is 1.0 lb a.e. dicamba per acre per season.

For the new use, for post-emergence (in-crop) application of dicamba for use on GE cotton, the maximum single in-crop application rate is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. This rate is also the minimum single application in order to reduce the selection for resistant weeds. The total of all in-crop applications for GE cotton is 88 fluid ounces (2.0 lb a.e. dicamba) per acre per season.

For preplant, at-planting, and pre-emergence treatments to GE cotton, applications must be made with a minimum application rate of 22 fluid ounces (0.5 lb a.e. dicamba) per acre. The total for all preplant, at-planting, and pre-emergence applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.

The combined total per year for all applications (preplant, at-planting, pre-emergence and post-emergence (in-crop) must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 44 fluid ounces (1.0 lb a.e. dicamba) per acre is made, then the combined total post-emergence (in-crop) annual applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre for GE cotton.

The minimum retreatment interval is 7 days; the pre-harvest interval for cottonseed including the livestock feeding of cotton gin by-products is 7 days.

Soybeans

Dicamba products that are currently registered on conventional soybeans are used for preplant, at-planting and/or pre-emergent treatments at application rates that range from 0.125 to 0.5 pounds acid equivalent (lb a.e.) dicamba per acre and for preharvest burndown treatments at 0.25 to 1.0 lb a.e. dicamba per acre. The maximum annual application for all preplant, at planting, pre-emergence, and preharvest burndown applications combined on conventional soybeans is 1.0 lb a.e. dicamba per acre per season.

For the new use for post-emergence (in-crop) application of this product to GE soybeans, the maximum single in-crop application rate is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. This rate is also the minimum single application in order to reduce the selection for resistant weeds. The total for all in-crop applications for GE soybeans is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.

For preplant, at-planting, pre-emergence, and preharvest burndown treatments to GE soybeans, applications must be made with a minimum application rate of 22 fluid ounces (0.5 lb a.e. dicamba) per acre. The total for all preplant, at-planting, pre-emergence, and preharvest applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season.

The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb a.e dicamba) per acre. The minimum retreatment interval is 7 days; the pre-harvest interval, including feeding of soybean hay, is 14 days (R1 Growth stage).

II. Human Health Risk

A summary of the human health risk assessment, *Dicamba and Dicamba BAPMA Salt: Human-Health Risk Assessment for Proposed Section 3 New Uses on Dicamba-tolerant Cotton and Soybean*, is provided below.

As stated earlier in this document, the data associated with the BAPMA salt were considered to be the most appropriate form to use for assessing the potential for risks to human health. In the human

health risk assessment for dicamba, risks were assessed in a manner that protects human health from exposure to all forms of the chemical. This is a complex analysis because (1) there are a variety of different forms of dicamba that must be considered (e.g., dicamba acid, dicamba BAPMA salt, other dicamba salts such as DGA), (2) the data show greater toxicity for a major metabolite in foods (DCSA) relative to the parent compound, and (3) the different types of toxicity and potency with different routes of exposure (specifically, portal of entry effects observed in inhalation toxicity studies for BAPMA vs. other forms of dicamba).

When determining the safety of a pesticide, the EPA evaluates the available toxicity data and considers its validity, completeness, and reliability, as well as the relationship of the results of the studies to human risk. the EPA also considers available information concerning the variability of the sensitivities of major identifiable sub-groups of consumers, including infants and children. Once a pesticide's toxicological profile is determined, the EPA identifies toxicological points of departure (POD) and levels of concern (LOC) to use in evaluating the risk posed by human exposure to the pesticide. For hazards that have a threshold below which there is no appreciable risk, the toxicological POD is used as the basis for derivation of reference values for risk assessment. PODs are developed based on a careful analysis of the doses in each toxicological study to determine the dose at which no adverse effects are observed (the NOAEL) and the lowest dose at which adverse effects of concern are identified (the LOAEL). Uncertainty/safety factors are used in conjunction with the POD to calculate a safe exposure level - generally referred to as a population-adjusted dose (PAD) or a reference dose (RfD) - and a safe margin of exposure (MOE). For non-threshold risks (e.g., cancer), the agency assumes that any amount of exposure will lead to some degree of risk. Thus, the agency estimates risk in terms of the probability of an occurrence of the adverse effect expected in a lifetime (dicamba has been determined to be "not likely" to be carcinogenic and therefore a non-threshold approach does not apply in this case). For more information on the general principles the EPA uses in risk characterization and a complete description of the risk assessment process, see *http://www.epa.gov/pesticides/factsheets/riskassess.htm*.

The following risk assessment endpoints were selected for dicamba to be protective to all forms of the chemical.

- For the acute dietary assessment, the most sensitive, single-day toxic effect seen across the entire dicamba database was chosen for quantifying risks, i.e., maternal neurotoxic effects seen in a developmental toxicity study in which animals were dosed with the BAPMA salt. Although dietary exposure could occur from agricultural use of other salts of dicamba resulting in lower risk estimates, the assessment quantified risks assuming everyone exposed to dicamba would be exposed to the more toxic BAPMA salt to assure protection from all forms of the chemical.
- For the chronic dietary assessment, the endpoint was selected from a reproduction study in which animals were dosed with the DCSA metabolite (a plant metabolite), a compound much more chronically toxic than any of the parent dicamba acid or salts pesticides. Although chronic dietary exposure could occur from exposure to various salts of dicamba rather than just this metabolite, risks were estimated assuming all residues in foods were the more toxic metabolite, thus assuring protection from all forms of the chemical.
- For the inhalation exposure assessment, risks were quantified separately for the BAPMA salt vs. other forms of dicamba since the BAPMA salt is (1) only used in agricultural settings and residential inhalation exposures would therefore not be expected, and (2)

more toxic than other forms of dicamba with regard to portal of entry inhalation toxicity.

- Finally, we assessed the toxicity specific to the counter-ion of the BAPMA salt, i.e., BAPMA itself. Since the BAPMA salt shows increased toxicity via inhalation, the BAPMA was included in the aggregate risk assessment. The potential for increased risk resulting from this chemical was assessed and determined to be low relative to the toxicity from the parent compounds and DCSA; therefore, protecting for exposures to the parent compounds and DCSA will also protect for exposures to BAPMA itself.

A. Summary of Toxicological Effects

The toxicology database for dicamba is complete and sufficient for assessing the toxicity and characterizing the hazard of dicamba. Toxicology studies for dicamba acid, its salts [isopropylamine (IPA), diglycolamine (DGA), and N, N-Bis-(3-aminopropyl) methylamine (BAPMA)], and the plant metabolites [DCSA (3, 6-dichlorosalicylic acid) and DCGA (3, 6-dichlorogentisic acid] were all considered for risk assessment for these new uses. In scenarios where co-exposure to the various forms could occur, the most protective point of departure (POD) was utilized.

Dicamba acid has been classified as having a low acute toxicity via oral, dermal and inhalation routes (Acute Toxicity Categories III or IV). It is both an eye and dermal irritant (Toxicity Category II), but it is not a skin sensitizer.

Dicamba is classified as "not likely to be carcinogenic to humans" based upon the lack of evidence of carcinogenicity in mice and rats in the acid form when tested at adequate dose levels. The agency determined, based on review of epidemiological data (see Elizabeth Evans and Shanna Recore, *Dicamba: Tier I (Scoping) Review of Human Incidents and* Epidemiology, 11/10/15), that the existing data did not support a conclusion that links human cancer to dicamba exposure.

B. Toxicological Endpoints and Doses Used in the Human Health Risk Assessment

Once a pesticide's toxicological profile is determined, the EPA identifies toxicological Points of Departure (POD) and Levels of Concern (LOC) to use in evaluating the risk posed by human exposure to the pesticide. For hazards that have a threshold below which there is no appreciable risk, the toxicological POD is used as the basis for derivation of reference values for risk assessment. PODs are developed based on a careful analysis of the doses in each toxicological study to determine the dose at which no adverse effects are observed (the No Observed Adverse Effect Level (NOAEL)) and the lowest dose at which adverse effects of concern are identified (the Lowest Observed Adverse Effect Level (LOAEL)). Uncertainty factors (UF)/safety factors (SF) are used in conjunction with the POD to calculate a safe exposure level – generally referred to as a Population-adjusted Dose (PAD) or a Reference Dose (RfD) – and a safe Margin of Exposure (MOE). For non-threshold risks, the EPA assumes that any amount of exposure will lead to some degree of risk. Thus, the EPA estimates risk in terms of the probability of an occurrence of the adverse effect expected in a lifetime.

1. Acute Dietary

The acute dietary endpoint was selected from the dicamba BAPMA salt rat developmental toxicity

study, which represents the most sensitive endpoint in the dicamba toxicology database resulting from a single-dose dietary exposure. The NOAEL is 29 mg/kg/day, and the LOAEL is 86 mg/kg/day based on ataxia, unsteady gait, and convulsions in female rats. This NOAEL POD is protective of acute effects of dicamba via the oral route of exposure to the general population, including infants and children. A separate acute dietary endpoint for reproductive females ages 13-49 is not required since no acute developmental toxicity effects were observed in the dicamba database. An uncertainly factor of 100X was applied with 10X for interspecies extrapolation from animal to human, and 10X for intraspecies variation in sensitivity amongst the human population. As discussed in Section C below, the Food Quality and Protection Act (FQPA) safety factor was reduced to 1X, resulting in an aRfD/aPAD of 0.29 mg/kg/day.

2. Chronic Dietary

The chronic dietary endpoint was selected from the DCSA plant metabolite reproduction toxicity study, which represents the most sensitive endpoint in the toxicology database resulting from repeated-dose dietary exposure. The NOAEL is 4 mg/kg/day, and the LOAEL is 37 mg/kg/day based on decreased pup weights. The NOAEL POD is protective of chronic effects of dicamba via the oral route of exposure to the general population, including infants and children. A 100X UF was applied (10X interspecies and 10X intraspecies), and as discussed in Section C below, the FQPA SF was reduced to 1X resulting in a cRfD/cPAD of 0.04 mg/kg/day.

3. Incidental Oral (Short- and Intermediate-Term)

The incidental oral endpoint was selected from the dicamba acid rat multi-generation reproductive toxicity study, which represents the most appropriate endpoint in the toxicology database for assessing short- (1 to 30 days) and intermediate-term (1 to 6 months) incidental oral (hand-to-mouth) exposure. The NOAEL is 136 mg/kg/day, with a LOAEL of 450 mg/kg/day based on impaired pup growth. A 100X UF was applied (10X interspecies and 10X intraspecies), and as discussed in Section C below, the FQPA SF was reduced to 1X resulting in a level of concern of 100.

4. Inhalation (All Durations)

For dicamba acid and the DGA salt inhalation risk assessment for short and intermediate term durations, the POD was based on the route-specific dicamba acid inhalation toxicity study in Wistar rats with a LOAEL of 0.050 mg/L based on local effects of hyperplasia in the lungs and lymph nodes (NOAEL = 0.005 mg/L, non-systemic, pulmonary regional deposited dose ratio (RDDR) = 0.590).

The standard interspecies extrapolation UF can be reduced from 10X to 3X for dicamba acid due to the calculation of human equivalent concentrations (HECs) accounting for pharmacokinetic (not pharmacodynamic) interspecies differences. Therefore, the LOC for dicamba acid inhalation exposures is for MOEs less than 30 (3X for interspecies extrapolation, 10X for intraspecies variation, and as discussed in Section C below, 1X for FQPA SF when applicable). The inhalation HEC results are listed in Appendix A.5.

5. Dermal (All Durations)

No dermal endpoint was selected since no adverse effects were observed in the subchronic dermal studies for dicamba acid, IPA salt, and DGA salt up to the limit dose.

6. Cancer

Dicamba is classified as "Not Likely to be Carcinogenic to Humans." This decision was based on the lack of findings in the cancer studies in rats and mice, which were tested at adequate dose levels to assess the carcinogenicity of dicamba. Mutagenicity studies generally did not demonstrate evidence of mutagenic potential for dicamba and the concern for genotoxicity in the acid form is low. Epidemiology studies were also examined, and no links were found to dicamba exposure and cancer. Additionally, the DCSA metabolite lacked findings of carcinogenicity in a chronic/carcinogenicity study in rats.

C. FQPA Safety Factor

The EPA has determined that the 10X FQPA Safety Factor for protection of infants and children, mentioned above, can be reduced to 1X for the acute and chronic dietary risk assessment for the following reasons and discussed in more detail below: (1) The toxicity database for dicamba is complete with respect to the required 870 guideline studies. (2) There is no evidence of increased susceptibility following *in utero* exposures to rats and rabbits and following pre and/or post-natal exposure to rats in a two-generation reproduction study. For the dicamba acid and BAPMA salt, no developmental toxicity was seen at the highest doses tested in the prenatal developmental studies with rats. (3) Consistent neurotoxic signs (e.g., ataxia, decreased motor activity, impaired righting reflex and gait) were observed in multiple studies in rats and rabbits. However, after considering the available toxicity data, the EPA determined that there is no need for a developmental neurotoxicity study or additional UFs to account for neurotoxicity due to the following: (i) although clinical signs of neurotoxicity were seen in pregnant animals, no evidence of developmental anomalies of the fetal nervous system were observed in the prenatal developmental toxicity studies, in either rats or rabbits, at maternally toxic doses up to 300 or 400 mg/kg/day, respectively; (ii) there was no evidence of behavioral or neurological effects on the offspring in the two-generation reproduction study in rats; (iii) the ventricular dilation of the brain in the combined chronic toxicity and carcinogenicity study in rats was only observed in females at the high dose after two years of exposure at doses of 127 mg/kg/day, but the significance of this observation is questionable, since no similar histopathological findings were seen in two sub-chronic neurotoxicity studies at the limit dose or other chronic studies.

There are no residual uncertainties identified in the exposure databases. The acute dietary food exposure assessment was performed using tolerance level residues and 100% crop treated assumptions. The chronic dietary food exposure assessment used average residues for crops, tolerances levels for livestock commodities, and percent crop treated assumptions for several registered uses. Conservative ground and surface water estimates calculated using the latest models were used. Similarly, conservative residential Standard Operating Procedure (SOPs) were used to assess post-application exposure of children as well as incidental oral exposure of toddlers. These assessments will not underestimate the exposure and risks posed by dicamba.

1. Completeness of the Toxicology Database

The toxicity database for dicamba is adequate to characterize the potential for prenatal or postnatal risk to infants and children. Acceptable rat and rabbit developmental toxicity studies, two rat 2-generation reproduction studies, and acute/subchronic neurotoxicity studies in rats are available.

2. Evidence of Neurotoxicity

There is evidence of neurotoxicity resulting from exposure to dicamba throughout the toxicology database (i.e., impaired gait, impaired righting reflex, ataxia, decreased motor activity, rigidity upon handling, etc). These signs of neurotoxicity were observed in multiple studies in rats and rabbits. However, after considering the available toxicity data, the agency determined that a developmental neurotoxicity study (DNT) is not required for the following reasons: (1) although clinical signs of neurotoxicity were seen in pregnant animals, no evidence of developmental anomalies of the fetal nervous system were observed in the prenatal developmental toxicity studies, in either rats or rabbits, at maternally toxic doses up to 300 or 400 mg/kg/day, respectively; (2) there was no evidence of behavioral or neurological effects on the offspring in the two-generation reproduction study in rats; (3) the ventricular dilation of the brain in the combined chronic toxicity and carcinogenicity study in rats was only observed in females at the high dose after two years of exposure at doses of 127 mg/kg/day, but the significance of this observation is questionable, since no similar histopathological finding was seen in two sub- chronic neurotoxicity study at the limit dose or other chronic studies.

3. Evidence of Sensitivity/Susceptibility in the Developing or Young Animal

There is no evidence of susceptibility to the young following *in utero* exposure to dicamba acid, dicamba BAPMA or DCSA. Quantitative offspring susceptibility was observed in the 2- generation reproduction study for the DCSA metabolite based on decreased pup weights, which occurred at a dose at which no parental effects were observed. However, the degree of concern for the susceptibility is low, because there is a well-established NOAEL for offspring toxicity in that study and DCSA has rapid clearance. Additionally, the current points of departure are health protective and therefore address the concern for offspring toxicity observed in the reproduction studies.

4. Residual Uncertainty in the Exposure Database

The residential exposure assessment assumes maximum label use rate as well as other conservative assumptions. The acute dietary exposure assessment is based on an exaggerated exposure scenario which assumes that all commodities being consumed retain tolerance level residues, and the chronic dietary exposure assessment assumes field trial residues in which the crops were treated using the use patterns likely to lead to maximum residues. Additionally, the drinking water estimates utilized conservative models (e.g., models using screening level assumptions). Therefore, the agency does not believe that exposure to dicamba will be underestimated.

D. Cumulative effects

The EPA has not made a common mechanism of toxicity finding for dicamba and any other substance, and dicamba does not appear to produce a toxic metabolite produced by other

substances. Therefore, the EPA finds for this decision that dicamba does not have a common mechanism of toxicity with other substances. For information regarding the EPA's efforts to determine which chemicals have a common mechanism of toxicity and to evaluate the cumulative effects of such chemicals, see the policy statements released by the EPA's Office of Pesticide Programs concerning common mechanism determinations and procedures for cumulating effects from substances found to have a common mechanism on the EPA's website at https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/cumulative-assessment-risk-pesticides.

E. Dietary (Food + Drinking Water) Risk

Dicamba is a selective systemic herbicide used to control a variety of broadleaf weeds and registered for a variety of food/feed uses. Permanent tolerances for dicamba are established under 40 CFR § 180.227 for a wide variety of crops and livestock commodities. Acute and chronic aggregate dietary food and drinking water exposure and risk assessments were conducted using the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM-FCID) Version 3.16. This software uses 2003-2008 food consumption data from the U.S. Department of Agriculture's (USDA's) National Health and Nutrition Examination Survey, What We Eat in America, (NHANES/WWEIA).

1. Acute Dietary Risk

For acute exposure assessments, individual one-day food consumption data are used on an individual-by-individual basis. The reported consumption amounts of each food item are multiplied by a residue point estimate and summed to obtain a total daily pesticide exposure for a deterministic exposure assessment, or "matched" in multiple random pairings with residue values and then summed in a probabilistic assessment. The resulting distribution of exposures is expressed as a percentage of the aPAD on both a user basis (i.e., only those who reported eating relevant commodities/food forms) and a per-capita basis (i.e., those who reported eating the relevant commodities as well as those who did not). In accordance with the EPA policy, per capita exposure and risk are reported for analyses.

Risks are considered to be of no concern when they are less than 100% of the aPAD or cPAD, a value determined by dividing the POD for the most sensitive and pertinent toxicological effect for each exposure scenario by required uncertainty factors. The acute analysis was an unrefined determination which used tolerance level residues and assumed 100 percent crop treated (%CT) for all existing and new uses. The dietary exposure analyses that were performed result in acute dietary risk estimates that are below the agency's LOC for both food and water. For the U.S. population, the exposure was 0.042760 mg/kg/day, which utilized 15% of the acute population adjusted dose (aPAD) at the 95th percentile. The highest exposure and risk estimates were for all infants (<1 year old). At the 95th percentile, the exposure for all infants (<1 year old) was 0.089 mg/kg/day, which utilized 31% of the aPAD.

2. Chronic Dietary Risk

For chronic dietary exposure assessment, an estimate of the residue level in each food or food form (e.g., orange or orange juice) on the food commodity residue list is multiplied by the average daily consumption estimate for that food/food form to produce a residue intake estimate. The resulting

residue intake estimate for each food/food form is summed with the residue intake estimates for all other food/food forms on the commodity residue list to arrive at the total average estimated exposure. Exposure is expressed in mg/kg body weight/day and as a percent of the cPAD. This procedure is performed for each population subgroup.

The chronic analysis was a partially refined determination which used average residues based on field trial studies for crops, tolerance levels for livestock commodities, and relevant % crop treated (CT) data for several existing uses. The chronic risk estimates for dicamba are below the agency's LOC for the general U.S. population and all population subgroups. The highest exposure and risk estimates were for the population subgroup of children ages 1-2 with a risk estimate for dicamba for food and water of 42% of the cPAD.

F. Residential (Non-Occupational) Exposure/Risk Characterization

There are no residential uses being established for dicamba with this current registration; however, there are existing residential uses of dicamba that have been reassessed in this document to reflect updates to the agency's 2012 Residential SOPs along with policy changes for body weight assumptions. The revision of residential exposures will impact the human health aggregate risk assessment for dicamba. Registered uses of dicamba include solid and liquid products in concentrates or ready-to-use sprays for use as spot and broadcast treatments on turf.

1. Residential Handler Exposure

Based on the currently registered uses, residential handlers may receive exposure to dicamba when mixing, loading and applying the pesticide to lawns and turf. Since there was no dermal hazard identified for dicamba, only inhalation risk estimates were quantitatively assessed. The inhalation risk estimates were based on the following application scenarios:

- Mix/Load/Apply Liquid with Hand-held Equipment
- Apply Ready-To-Use Sprays with Hand-held Equipment
- Load/Apply Granules with Hand-held Equipment

The MOEs for the exposure scenarios assessed range from 190 to 220,000. Since there is potential risk concern only when inhalation MOEs are less than a LOC of 30, residential handler exposures are not a concern.

2. Post-application Exposure

There is the potential for post-application exposure for individuals exposed as a result of being in an environment that has been previously treated with dicamba. Since no dermal hazard was identified for dicamba, the quantitative exposure/risk assessment for residential post-application exposures is based on the following scenarios:

- Children (1 to < 2 years old) incidental oral exposure to treated turf.
- Children (1 to < 2 years old) episodic granular ingestion exposure.

Since dicamba products registered for use on residential turf come in both liquid and granular

formulations, both are accounted for in this assessment. The assessment of post-application exposure to liquid formulations is protective of exposure to solid formulations, except for the episodic granular ingestion scenario which was quantitatively assessed. The life stages selected for assessment are health protective for the exposures and risk estimates for any other potentially exposed life stages.

The post-application assessment for turf includes only the incidental oral routes of exposure. The series of assumptions and exposure factors that served as the basis for completing the residential post-application risk assessment are detailed in the 2012 Residential SOPs (https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/standard-operating-procedures-residential-pesticide). In addition, chemical-specific residue data were used in the assessment. The residential post-application risk estimates are not of concern for dicamba since all MOEs are greater than the LOC of 100 (the lowest MOE = 6600 for use of liquids on lawns).

3. Residential Bystander Post-application Inhalation Exposure

The potential exposure to bystanders from vapor phase dicamba residues emitted from treated fields has been evaluated for the new uses of dicamba on GE corn and GE soybean. Bystander exposure to dicamba emitted from treated fields depends on two main factors: 1) the rate at which these chemicals volatilize from a treated field (described as the off-gassing, emission or flux), and 2) how those vapors are dispersed in the air over and around the treated field. In general, volatilization can occur during the application process or thereafter. It can result from aerosols evaporating during application, while deposited sprays are still drying (possibly via co-distillation), or after as dried deposited residues volatilize.

Volatilization modeling for a single day was completed using the Probabilistic Exposure and Risk model for Fumigants (PERFUM). There are a variety of factors that potentially affect the emission rates of dicamba and subsequent offsite transport including: field condition (bare soil, growing or mature crop canopy), field parameters (soil type, moisture, etc.), formulation type, meteorological conditions, and application scenario (rate, method).

A chemical-specific flux study was used to estimate a flux rate of 0.0004 ug/m^2/s for dicamba. This flux rate, along with an assumption of a single 40-acre field, and using Bradenton, FL meteorological data from Bradenton, FL were used with PERFUM to estimate risk.

The field volatility study suggests that volatilization of dicamba from treated crops does occur, which could result in bystander exposure. Although a more recent volatility study conducted using the M1768 formulation was submitted and reviewed, which demonstrated comparable potential for volatility as described in greater detail in the document entitled *Review of EFED Actions and Recent Data Submissions Associated with Spray and Vapor Drift of the Proposed Section 3 New Uses on Dicamba-Tolerant Soybean and Cotton* available in the docket for this action, that study was not available at the time this Human Health assessment was developed. Results of PERFUM modeling using the Bradenton, FL study however, indicate that airborne concentrations are negligible, and even at the edge of the treated fields risk estimates for potential human bystander exposure are not of concern.

4. Spray Drift

Without considering mitigation measures, it is reasonable to assume that spray drift may be a potential source of exposure to residents nearby to spraying operations. Off-target movement of pesticides can occur via many types of pathways and it is governed by a variety of factors. Sprays that are released and do not deposit in the application area end up off-target and can lead to exposures to those it may directly contact. They can also deposit on surfaces where contact with residues can eventually lead to indirect exposures (*e.g.*, children playing on lawns where residues have deposited next to treated fields). The potential risk estimates from these residues are calculated using drift modeling coupled with methods employed for residential risk assessments for turf products.

The approach to be used for quantitatively incorporating spray drift into risk assessments is based on a premise of compliant applications which, by definition, should not result in direct exposures to individuals because of existing label language and other regulatory requirements intended to prevent them. Direct exposures would include inhalation of the spray plume or being sprayed directly. Rather, the exposures addressed here occur indirectly through contact with impacted areas, such as residential lawns, when compliant applications are conducted. Given this premise, exposures for children (1 to 2 years old) and adults who have contact with turf where residues are assumed to have deposited via spray drift thus resulting in an indirect exposure are the focus of this analysis, analogous to how exposures to turf products are considered in risk assessment.

Several dicamba products have existing labels for use on turf, thus it was considered whether the risk assessment for that use would be considered protective of any type of exposure that would be associated with spray drift. Because the registered residential uses on turf result in exposure greater than potential exposure from spray drift, no new residential assessment needs to be completed. If the maximum application rate on crops adjusted by the amount of drift expected is less than or equal to existing turf application rates, the existing turf assessment is considered protective of spray drift exposure. The maximum single application rate of dicamba for this new use is 1 lb a.e./A. The highest degree of spray drift noted for any application method immediately adjacent to a treated field (Tier 1 output from the aerial application using fine to medium spray quality) results in a deposition fraction of 0.26 of the application rate. This spray drift fraction estimation differs from that used for environmental exposures because, unlike environmental risk assessment that uses estimations to determine exposures at the edge of the treated field, estimations for human health risk assessment are used to assess the average deposition over a wide area of lawn. For the purposes of the new uses on dicamba, this is considered a screening level assumption since the new use is for groundboom applications only. A quantitative spray drift assessment for dicamba is not required because the maximum application rate to a crop/target site multiplied by the adjustment factor for drift of 0.26 is less than the maximum direct spray residential turf application rate of 1 lb a.e./A for any dicamba products. The turf post-application MOEs have been previously assessed, are based on the revised SOPs for Residential Exposure Assessment, and were not found to be of concern, as noted above.

5. Aggregate Risk Assessment

In accordance with the Federal Food, Drug, and Cosmetic Act (FFDCA), the EPA must consider and aggregate (add) pesticide exposures and risks from three major sources: food, drinking water, and residential exposures. In an aggregate assessment, exposures from relevant sources are added together and compared to quantitative estimates of hazard, or the risks themselves can be

aggregated. When aggregating exposures and risks from various sources, the EPA considers both the route and duration of exposure. Since residential exposure is expected, aggregate exposure consists of exposure from residential, food and drinking water sources.

Acute and chronic aggregate risks include only dietary exposure from food and drinking water sources. Since there are residential uses, short-term aggregate risks were assessed which include contributions from food, drinking water, and residential exposure. Intermediate-term aggregate risks were not considered as residential exposure is not expected to occur for more than 30 days. Cancer aggregate risk was not quantified since dicamba is not a carcinogen. A common oxicological endpoint of concern was not identified for short-, intermediate- or long-term durations via the oral, dermal, or inhalation routes. Therefore, the aggregate exposure risk assessment should include exposure across the oral routes only, as appropriate for the populations of concern (i.e., food and water for adults; and food, water and incidental oral for children).

a. Acute Aggregate Risk

The acute aggregate risk assessment includes only food and water exposure; therefore, the acute dietary (food and drinking water) assessment represents acute aggregate risk. The acute dietary exposure assessment was conducted using tolerance-level residues, DEEM default processing factors and 100% crop-treated information for all registered and new use sites. Drinking water values were incorporated directly into the assessment. The most highly exposed population subgroup is all infants (<1 year old; 31% of the aPAD). The acute dietary exposure estimates are not of concern for the general U.S. population or any population subgroup.

b. Short-term Aggregate Risk

The short-term aggregate risk assessment includes food, water and residential exposure. The resulting short-term aggregate risks are not of concern for children (MOEs > LOC 100). For adults, since there was no dermal hazard identified in the route-specific dermal studies and the inhalation effects were not systemic, the chronic dietary assessment is protective for short-term aggregate risks.

c. Long-term Aggregate Risk

The chronic (long-term) aggregate risk assessment includes only food and water exposure. The chronic dietary analysis was a partially refined determination which used average residues based on field trial studies for crops, tolerance levels for livestock commodities, and relevant percent crop treated (CT) data for several existing uses. The chronic risk estimates for dicamba are below the agency's LOC for the general U.S. population and all population subgroups. The highest exposure and risk estimates were for the population subgroup of children ages 1-2 with a risk estimate for dicamba for food and water of 42% of the cPAD.

6. Occupational Risk Assessment

a. Short- and Intermediate-term Handler Risk

The EPA uses the term occupational handler to describe people who mix, load and/or apply pesticides professionally (e.g., farmers, professional pesticide applicators). Based on the anticipated use patterns and current labeling, types of equipment and techniques that can potentially be used (e.g., mixing/loading liquids for ground boom application, and applying sprays by ground boom equipment), occupational handler exposure is expected from the new uses.

The occupational handler risk estimates are not of concern (i.e., MOEs > LOC of 30) for all of the scenarios for the use of dicamba on GE cotton and GE soybean. At baseline personal protective equipment (PPE) (i.e., no respirator), the occupational handler inhalation MOEs are 380 for mixer/loaders and 250 for applicators using ground boom equipment.

b. Short- and Intermediate-term Post-application Risk

The EPA uses the term post-application to describe exposures that occur when individuals are present in an environment that has been previously treated with a pesticide (also referred to as reentry exposure). Such exposures may occur when workers enter previously treated areas to perform job functions, including activities related to crop production, such as scouting for pests or harvesting. Post-application exposure levels vary over time and depend on such things as the type of activity, the nature of the crop or target that was treated, the type of pesticide application, and the chemical's degradation properties. In addition, the timing of pesticide applications, relative to harvest activities, can greatly reduce the potential for post-application exposure.

i. Dermal Post-application Risk

There is no potential hazard via the dermal route for dicamba; therefore, a quantitative occupational post-application dermal risk assessment was not completed.

ii. Inhalation Post Application Risk

There are multiple potential sources of post-application inhalation exposure to individuals performing post-application activities in previously treated fields. These potential sources include volatilization of pesticides and resuspension of dusts and/or particulates that contain pesticides. The agency sought expert advice and input on issues related to volatilization of pesticides from its Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel (SAP) in December 2009, and received the SAP's final report on March 2, 2010 (http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPP-2009-0687-0037. The agency has evaluated the SAP report and has developed a Volatilization Screening Tool and a subsequent Volatilization Screening Analysis (https://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPP-2014-0219-0002). During Registration Review, the agency will utilize this analysis to determine if additional data (i.e., flux studies, route-specific inhalation toxicological studies) or further analysis is required for the active ingredient dicamba, generically.

In addition, the agency is continuing to evaluate the available post-application inhalation exposure data generated by the Agricultural Reentry Task Force. Given these two efforts, the agency will continue to identify the need for and, subsequently, the way to incorporate occupational post-application inhalation exposure into the agency's risk assessments.

III. Environmental Risk

A summary of the environmental fate and ecological effects, and potential environmental risks from the use of dicamba on GE soybean and GE cotton is provided below. More detailed discussions can be found in the agency documents titled:

- *Ecological Risk Assessment for Dicamba and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed New Use on Dicamba-Tolerant Soybean (MON87708)* and
- *Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 87701),* and its addendums entitled,
- *Addendum to the Environmental Fate and Ecological Risk Assessment for the Section 3 New Use of Dicamba on Dicamba-Tolerant Soybean* and
- *Dicamba DGA; Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean* and
- *M-1691 Herbicide, EPA Reg. No. 524-582 (Active Ingredient: Dicamba Diglycolamine Salt) and M-1768 herbicide, EPA Reg. No. 524-617 (AI: Diglycolamine Salt with VaporGrip™) – Review of EFED Actions and Recent Data Submissions Associated with Spray and Vapor Drift of the Proposed Section 3 New Uses on Dicamba-Tolerant Soybean and Cotton*.

These documents are in docket number EPA-HQ-OPP-2016-0187, available at regulation.gov. A fuller description of how these potential risks are assessed can be found at: https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/ecological-risk-assessment-pesticides-technical.

A. Environmental Fate

1. Degradation

Dicamba is generally stable to abiotic processes, and is more persistent under anaerobic conditions. It is stable to abiotic hydrolysis at all pH levels and photodegrades slowly in water and soil. Under anaerobic soil conditions, the dicamba parent molecule has a half-life of 141 days. It is not persistent under aerobic conditions; aerobic soil metabolism is the main degradative process for dicamba, with a half-life of 6 days. Dicamba was found in two acceptable field dissipation studies in soil segments deeper than 10 cm with half-lives ranging from 4.4 to 19.8 days. In aquatic systems, dicamba degrades more rapidly when sediment is present and has an aerobic soil metabolism half-life in sediment-water system of ~24 days.

The major degradate of dicamba is 3,6-dichlorosalicylic acid (DCSA). It is persistent when formed under anaerobic conditions, comprising more than 60% of the applied dose after 365 days of anaerobic incubation in sediment-pond water system. DCSA is not persistent when formed under aerobic conditions and degrades roughly at the same rate as the parent dicamba with a half-life of 8.2 days. Like the parent molecule, DCSA is mobile and was also found in the two acceptable field studies in soil segments deeper than 10 cm. If it were to reach anaerobic groundwater, it would

likely persist; however, the EPA does not expect DCSA to reach groundwater at levels that would be of concern. DCSA is formed in aerobic soil under laboratory conditions at the maximum of 17.4 % of the applied parent dose. Other minor dicamba degradates of concern are DCGA and 5-OH-dicamba, and both are less toxic than the parent molecule and DCSA. The formation of DCGA in the laboratory studies did not exceed 3.64%, and the formation of 5-OH dicamba did not exceed 1.9 % in soil-water system during anaerobic aquatic degradation of dicamba under laboratory conditions. DCSA was also a major metabolite in plant metabolism and magnitude of residue studies for GE soybean and cotton, comprising approximately 80% and 20%, respectively, of dicamba-related residues in plant tissues for these crops.

2. Mobility

Dicamba is very soluble and mobile. Without considering mitigation measures on the product label, possible pathways for reaching surface water include field/site runoff, spray drift during application, and vapor drift from volatilization. It is not expected to bioaccumulate in aquatic organisms as it is an anion at environmental pHs. Since dicamba is not persistent under aerobic conditions, very little dicamba is expected to reach groundwater. The major degradate of dicamba, DCSA, is persistent under anaerobic conditions; however, the EPA does not expect DCSA to reach groundwater at levels that would be of concern. Without considering mitigation measures, the major route of exposure to non-target organisms is likely spray drift and runoff. While multiple literature studies show that there is potential for high vapor drift for certain dicamba salts and formulations from soybean fields resulting in non-target plant injury, the available dicamba M1768 formulation volatility research the agency has reviewed indicates that non-target plant biomass and yield will not be affected by use of the M1768 formulation. The assessments, which can be found in the docket for this action, related to these routes of exposure are described in the sections below.

3. Runoff

The agency considered the potential effects due to runoff and developed mitigation to limit off-site runoff that is reflected in the approved labeling for these new uses (e.g., Do not make application of this product if rain is expected in the next 24 hours.). A component of the model used to assess terrestrial risk assumes that the mass of pesticide running off the treated field is directly related to the pesticide's solubility in water. In the case of dicamba DGA salt, the dissociated salt yields highly soluble dicamba acid. The model assumes that the high solubility of the acid results in a runoff mass of 5 percent of the field-applied mass, which is considered to be a highly conservative estimate because the model does not account for loss of chemical from degradation, partitioning, or the temporal aspects of runoff (e.g., a rain event following application that exceeds soil's field capacity).

4. Spray Drift

Without consideration of mitigation measures on the approved label, the agency considers spray drift exposure to be the principal risk issue to be considered with these new uses, owing to a variety of lines of evidence, including past experience with other dicamba formulations. In addition, visual observations of off-field plant damage have been reported following applications of currently registered dicamba products (not containing the same labeling restrictions), likely the result of subsequent spray drift and/or volatilization of dicamba residues.

The agency used a weight of evidence approach incorporating spray drift modeling, a spray drift droplet deposition study, and raw data from field trials to determine an appropriate in-field buffer to avoid dicamba exposure to non-target organisms (e.g., endangered plants). The EPA determined that the label must specify that nozzles must be used that produce extra-course and ultra-course droplet spectra for application to reduce the potential for spray drift. The approved labeling for this action contains these restrictions. Based on the weight of evidence approach, the EPA also determined that labels must include language to maintain an in-field buffer (downwind at the time of application) of 110 feet when applying at the 0.5 lb a.e./A application rate and 220 feet when applying at the 1.0 lb a.e./A application rate in order to restrict the movement of residues to the field. Using these buffers, expected residues at the field's edge from spray drift would be below apical endpoints for the most sensitive tested species (i.e., NOAEC for soybean plant height). The approved labeling for this action includes these restrictions.

5. Volatilization

After reviewing submitted data relating to the volatility of dicamba, and at the time the EPA proposed these new uses, the agency had concerns regarding the volatility of dicamba and possible post-application, vapor-phase off-site transport that might damage non-target plants. Monsanto responded to these concerns with an additional submission post-proposal that acknowledged the long-recognized volatility of dicamba acid and described measurements of the volatilization in the different formulations.

Based on field volatility (flux) studies (conducted in accordance with the label conditions such as nozzle and ground speed limitations) and laboratory vapor-phase toxicity and exposure (humidome) studies, the 110-foot omnidirectional buffer for volatilization is no longer warranted for the dicamba DGA plus VaporGrip™ (M1768) formulation, because the expected exposure at field's edge is less than the NOAEC for plant risk.

The EPA's buffer is determined by evaluation of plant toxicity data required under FIFRA and conducted under GLP conditions where apical endpoints (plant height and yield) are used as measures of plant growth and reproduction. Once the no observed adverse effect concentration (NOAEC) was determined for the most sensitive endpoint (i.e., plant height) for the most sensitive plant species tested (i.e., soybeans), the EPA uses field studies and modeling to determine the distance from site of application to where the NOAEC is not expected to be exceeded. It is further noted that the labels for the new uses will specify a spray nozzle and pressure combination that is expected to reduce drift of the herbicide, which are drift reduction measures not on the previously registered dicamba formulations and could also influence the size of a protective buffer.

B. Ecological Risk

Ecological risk characterization integrates the results of the exposure and ecotoxicity data to evaluate the likelihood of adverse ecological effects. The process of integrating the results of exposure with the ecotoxicity data is called the risk quotient method. For this method, risk quotients (RQs) are calculated by dividing exposure estimates by ecotoxicity values, both acute and

chronic (RQ = Exposure/Toxicity). RQs are then compared to the EPA's levels of concern (LOCs). The LOCs are criteria used by the agency to indicate potential risk to non-target organisms. The criteria indicate whether a pesticide, when used as directed, has the potential to cause adverse effects to non-target organisms.

For terrestrial animals, the agency's acute risk LOCs are set at 0.5 for non-listed species and 0.1 for listed species. For aquatic animals, acute risk LOCs are also set at 0.5 for non-listed species but for listed species, they are set at 0.05. The chronic risk LOC is set at 1.0 for both terrestrial and aquatic animals. For plants, acute risk LOCs are set at 1 for both non-listed and listed species. The potential difference in sensitivity for listed plant species compared to non-listed plant species is addressed through the use of different toxicity endpoints in the RQ equation [the concentration causing effects to 25% of the test population (EC25) for non-listed plants vs the NOAEC or concentration causing effects to 5% of the test population (EC05) for listed species]. Chronic risk is not assessed for plants.

Dicamba is currently registered for use on several food and non-food use sites, including conventional cotton and soybean. The new uses on GE soybeans and GE cotton expand the timing of applications from only pre-emergence and pre-harvest for soybeans and only pre-emergence and post-harvest for cotton to allowing post-emergence over-the-top applications on these GE crops. The maximum yearly application rates would remain 2.0 lb a.e./A for both cotton and soybeans. However, as detailed in section I of this document, the applicator could now split the 2.0 lb a.e./A between pre-emergence and post-emergence applications.

The EPA has a specific process based on sound science that it follows when assessing risks to listed species for pesticides like dicamba that will be used on seeds that have been genetically modified to be tolerant to the pesticide. The agency begins with a screening-level assessment that includes a basic ecological risk assessment based on its 2004 Overview of the Ecological Risk Assessment Process document. [USEPA, 2004, available at http://www.epa.gov/oppfead1/endanger/litstatus/riskasses.htm]. That assessment uses broad default assumptions to establish estimated environmental concentrations of particular pesticides. If the screening - level assessment results in a determination that no levels of concern are exceeded, the EPA concludes its analysis. On the other hand, where the screening-level assessment does not rule out potential effects (exceedances of the level of concern) based on the broad default assumptions, the EPA then uses increasingly specific methods and exposure models to refine its estimated environmental concentrations at the species-specific level.

The results of the screening-level risk assessments indicate that the RQs do not exceed the agency's LOC for terrestrial invertebrates (including pollinators), freshwater fish, aquatic-phase amphibians, estuarine/marine fish, freshwater invertebrates, or estuarine/marine invertebrates for either acute or chronic exposures. Acute RQs for aquatic plants and mammals, and chronic RQs for birds, reptiles, and terrestrial-phase amphibians also do not exceed the agency's LOC. The screening-level assessment uses broad default assumptions to establish estimated environmental concentrations of particular pesticides. It does not make effects determinations related to any particular listed species. Instead, species-specific assessments are conducted for effects determinations. A more detailed description can be found in Section IV below.

For both GE cotton and GE soybeans, based on the new maximum application rates, the screening-

level analysis indicates that risks for acute exposure to listed and non-listed birds, and listed and non-listed terrestrial dicot plant species, result in RQs that exceed the agency's LOCs. For soybeans, there is also a potential for direct adverse effects to birds and mammals from chronic exposure to the dicamba degradate DCSA. Though the rates are similar to those in currently registered dicamba pesticide products, the potential for ecological concerns is related to the potential increase in acres treated with dicamba products, resulting in additional acres with residues of DCSA in GE soybeans. Before considering mitigation measures, the EPA also found a potential for increased susceptibility of direct adverse effects to late season plants from spray drift.

While concern levels are exceeded in the screening-level assessment, further refinement, as discussed below, suggest that risks are lower and confined to the treated field under the mitigations imposed on the registration. Risks above the level of concern remain for terrestrial plants and animals on the treated field; comparison of the risk to benefits associated with the new use are described in Section VIII.

1. Risk to Birds

For birds, the screening-level assessment (which assumed that 100% of diet is from the treated field) indicated that the RQs exceeded the agency's LOCs on an acute basis for both GE soybean and GE cotton. More specifically, the screening-level assessment found that the acute LOCs are exceeded for listed and non-listed birds, with a maximum acute dose-based RQ of 2.21 for small birds consuming short grass. Chronic LOCs were also exceeded for birds feeding on DCSA residues in GE soybeans, with a maximum chronic dietary RQ of 1.7 for small birds consuming GE soybean forage/hay.

The agency's screening-level assessment employed residue estimates based on reasonable upper bound modeling assumptions for dicamba DGA residues on food items consumed by birds. These residue estimates have been developed for a variety of wildlife food items, and are based on measured residues from a large number of field trials on many pesticides. The agency's assessment also used the maximum labeled rate of the pesticide and the empirical maximum measured concentrations for DCSA residues in GE soybeans and cotton plants to determine the RQ values. To represent a maximum, or "worst-case" estimate of risk, these high-end exposure estimates for a variety of food items were compared, across a variety of body weights and sizes, to the most sensitive oral dose toxicity endpoint in order to generate RQs. Some of these RQs exceeded the LOC. While the LOCs were exceeded, further consideration of all lines of evidence shows that risks under more realistic use scenarios are expected to be lower. For example, high-end dicamba residues compared to endpoints from toxicity studies using chemicals incorporated in the animal's diet do not trigger concerns. This suggests that dicamba consumed in the diet may be less available than assumed using dose-based exposures. Expected field exposure is more likely to be accounted for by the dietary studies that did not indicate risk exceeding levels of concern rather than the acute oral dose studies where risk exceeding thresholds of concern was indicated. As mentioned above, the screening-level analysis assumes that 100% of the diet comes from the treated field which may overestimate total dicamba ingestion.

Further, more frequently expected residues levels, such as mean or median estimates of exposure, would be lower by a factor of two or more, suggesting that residues are often not likely to trigger

concerns for many food items. In addition, estimates of exposure in screening-level assessments are the maximum levels expected, and represent residues at the actual point of application, right on the field. The exposure analysis in this screening-level risk assessment indicates that the transport of dicamba off-field by spray drift decreases with distance, suggesting that exposures to dicamba, and therefore associated risks, can be substantially lower for organisms that are off the treated field. With this last line of evidence in mind, the pesticide label requires an in-field 110 to 220-foot downwind buffer to eliminate off-site exposure above threshold levels that would trigger risk concern for birds (buffer is discussed in more detail in the "Risk to Plants" section, below). Exposures to DCSA residues are only expected for birds feeding on GE plants on the field, and are not expected off the field (since DCSA formation is only a result of dicamba tolerant-plant metabolism).

2.Risk to Mammals

For parent dicamba, none of the RQs for mammals exceed any of the agency's LOCs. Acute RQs range from <0.01 to 0.04 and chronic RQs range from 0.01 to 0.84. However, the screening-level assessment using the maximum exposure values from empirical datasets for DCSA residues in GE soybean resulted in exceedances of the chronic LOC for all size classes of mammals consuming soybean forage and hay, or consuming insects that had consumed soybean tissues with DCSA residues. These RQs range from 1.1 to 3.3. The screening-level assessment using the maximum exposure values from empirical data for DCSA residues in GE cotton did not result in exceedances of the chronic LOC for any mammal (chronic RQs ranged from <0.01 to 0.34).

The agency's screening-level assessment employed residue estimates based on reasonable upper bound modeling assumptions for dicamba residues, the maximum labeled rate of the pesticide, and the empirical maximum measured concentrations for DCSA residues in GE soybeans and GE cotton plants to determine the RQ values. the EPA further considered more realistic residue estimates and other lines of evidence, such as food preferences and foraging ranges relative to distance from the site of application. This analysis showed reduced concerns for adverse effects because larger mammals have more varied diets and larger home ranges where feeding is more likely to occur well away from treatment areas. As described in the section for risk to birds, the screening-level assessment assumes that 100% of the diet comes from the treated field.

Consideration of these lines of evidence also produces reduced risk estimates for small herbivorous mammals, due to reduced exposure, but does not reduce risk estimates for these organisms to the point that concern levels are not exceeded. As in the case for birds, the pesticide label requires an in-field 110 to 220-foot downwind buffer eliminate off-site exposure above threshold levels that would trigger risk concern for mammals (buffer is discussed in more detail in the "Risk to Plants" section, below). Exposures to DCSA residues are only expected for mammals feeding on GE plants on the field, and are not expected off the field.

3. Risk to Plants

For aquatic plants, the only RQ that would exceed an agency LOC of 1.0 is for any listed non-vascular aquatic plants for the parent dicamba, with an RQ of 8.5. However, there are currently no listed non-vascular aquatic plants.

Dicamba exposure to terrestrial and semi-aquatic plants was estimated through modeling for plants residing near a use area that may be exposed via runoff and/or spray drift. Only a single application at the maximum rate for a particular use and compound-specific solubility information is considered, because it is assumed that for plants, toxic effects are likely to manifest shortly after the initial exposure, and that subsequent exposures do not contribute to the response. Hence, estimates are based on application rate, the solubility factor, and default assumptions of drift.

For a single application of dicamba at the maximum label rate for the new uses, the RQs exceeded the LOC (1.0) for terrestrial dicots due to spray drift (without mitigation measures), and for dicots in semi-aquatic areas due to runoff and spray drift (without mitigation measures). The RQs for dicots in semi-aquatic areas were 4.15 for non-listed species and 7.58 for listed species. The RQs for spray drift were 19.49 for non-listed species of dicots and 38.31 for listed species of dicots. The RQs for dicots in dry areas were 0.49 for non-listed species and 0.89 for listed species which are both less than the LOC for plants of 1.0.

Although the RQ analysis indicated there may be risks to plants from runoff and spray drift, studies conducted on the dicamba DGA formulation demonstrates that the approved labeling restrictions will keep the product on the field, thereby reducing spray drift off field. These determinations were made after reviewing additional registrant submitted studies for a refined spray drift analysis using the specific Tee Jet® TT11004 nozzles and a change in the formulation to be registered. The analysis indicates that the dicamba product applied through the specific Tee Jet® TT11004 nozzle is protective of plants from exposures of the M1768 Herbicide when an in-field 110 to 220-foot downwind buffer is incorporated between the application equipment and the edges of the treated field. Therefore, potential risks to plants from spray drift is mitigated by requiring a 110-220 foot (depending on application rate) buffer downwind at the time of application.

4. Synergism

The agency views synergism to be a rare event and intends to follow the National Research Council's recommendation for government agencies to proceed with estimating effects of pesticide mixtures with the assumption that the components have additive effects[1] in the absence of any data to support the hypothesis of a synergistic interaction between pesticide active ingredients. However, data is being cited in connection with patent claims submitted to the U.S. Patent and Trademark Office (USPTO) for claims of synergism for specific combinations of dicamba with other herbicides.

The EPA is aware that a common agricultural practice involves tank mixing of pesticides, resulting in the co-occurrence of chemical stressors to non-target plants including endangered species. This phenomenon has been described in academic research as well as patent application filings with the USPTO where the combined mixture is sometimes claimed to have enhanced activity or synergistic effects. The endpoints in these patent application studies were based on visual observations of weed control and injury, and so were not directly applicable to the EPA's quantitative risk assessment process for plants, in which measures of sub-lethal effects (plant height and weight) serve as sensitive effects thresholds for risk estimation purposes. The EPA believes this quantitative

[1] The phrase 'additive effects' is used when the effect of the combination of chemicals can be estimated directly from the sum of the scaled exposure levels (dose addition) or of the responses (response addition) of the individual components.

approach is very reliable for the purpose of potential toxicity to plants.

The agency is continuing its work with that information in order to better understand the scope of these uncertainties for these specific combinations and to develop an approach that best manages the potential risks while still maintaining the important benefits derived from tank mixing. While evaluation of these data are still in progress, the agency is requiring that the end-use product label allow only tank mixing with other herbicides in combinations that have not been granted patents for synergistic behavior at the time of this registration. For prohibited combinations, if the EPA determines that sufficient data do not exist to support synergistic effects with a particular active ingredient, or if the agency has evaluated data that is more directly applicable to the agency's quantitative risk assessment process for plants that demonstrates that no increased toxicity to plants exists and are therefore not of concern, that ingredient may then be allowed in tank mix combinations. A list of acceptable tank mixes will be maintained by Monsanto on their already established website, www.xtendimaxapplicationrequirements.com

IV. Endangered Species for Dicamba Diglycolamine Salt (DGA)

Below is a summary of the endangered species assessments for dicamba (DGA). More detailed discussions can be found in the EPA documents titled, *Addendum to Dicamba Diglycolamine Salt (DGA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 16 states (Arkansas, Illinois, Iowa, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin); Addendum to Dicamba Diglycolamine (DGA) Salt Section 3 Risk Assessment: Endangered Species Effects Determinations for Dicamba DGA on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States: AL, GA, KY, MI, NC, SC, and TX;* and *Addendum to Dicamba Diglycolamine (DGA) Salt Section 3 Risk Assessment: Endangered Species Effects Determinations for Dicamba DGA on Herbicide-Tolerant Cotton and Soy in 11 U.S. States: AZ, CO, DE, FL, MD, NM, NJ, NY, PA, VA and WV.* These documents are in the docket for this final decision.

In the screening-level risk assessment performed for the new application timing of dicamba (DGA) on GE cotton and GE soybean to be resistant to dicamba, the EPA determined that levels of concern were not exceeded for mammals (acute) and (chronic- for cotton use only), birds, reptiles, and terrestrial-phase amphibians (chronic from parent dicamba or DCSA degradate from use on cotton), terrestrial insects, freshwater fish, aquatic-phase amphibians (acute and chronic), estuarine/marine fish (acute and chronic), freshwater invertebrates (acute and chronic), estuarine/marine invertebrates (acute and chronic), and aquatic plants (vascular and non-vascular). However, potential indirect effect risk concerns were identified for any species that have dependencies (e.g., food, shelter, and habitat) on mammals, birds, reptiles, terrestrial-phase amphibians, or terrestrial plants that are directly affected.

The EPA has a specific process based on sound science that it follows when assessing risks to listed species for pesticides like dicamba that will be used on GE seeds to be resistant to the pesticide. The agency begins with a screening-level assessment that includes a basic ecological risk assessment consistent with its 2004 Overview of the Ecological Risk Assessment Process document. [USEPA, 2004, available at species/ecological-risk-assessment-process-under-endangered-species-act]. That assessment uses broad default assumptions to establish estimated

environmental concentrations of particular pesticides. If the screening-level assessment results in a determination that no levels of concern are exceeded, the EPA concludes its analysis. On the other hand, where the screening-level assessment does not rule out potential effects (exceedances of the level of concern) based on the broad default assumptions, the EPA then uses increasingly specific methods and exposure models to refine its estimated environmental exposures. At each step, the EPA compares the more refined exposures to the toxicity of the pesticide active ingredient to determine whether the pesticide exceeds levels of concern established for listed aquatic and terrestrial species. The EPA determines that there is "no effect" on listed species if, at any step in the screening-level assessment, no levels of concern are exceeded. If, after performing all of the steps in the screening-level assessment, a pesticide still exceeds the agency's levels of concern for listed species, the EPA then conducts a species-specific refined assessment to make effects determinations for individual listed species. The refined assessment, unlike the screening-level assessment, takes account of species' habitats and behaviors to determine whether any listed species may be affected by use of the pesticide.

The screening-level risk assessment generates a series of taxonomic (e.g., mammals, birds, fish, etc.) risk quotients (RQs) that are the ratio of estimated exposures to acute and chronic effects endpoints. These RQs are then compared to the EPA established levels of concern (LOCs) to determine if risks to any taxonomic group are of concern. The LOCs address risks for both acute and chronic effects. Acute effects LOCs range from 0.05 for aquatic animals that are federally-listed threatened or endangered species (listed species) to 0.5 for aquatic non-listed animal species and 0.1 to 0.5 for terrestrial animals for listed and non-listed species. The LOC for chronic effects for all animal taxa (listed and non-listed) is 1. Plant risks are handled in a similar manner, but with different toxicity thresholds (NOAEC/EC_{05} and EC_{25}, respectively) used in RQ calculation for listed and non-listed species and an LOC of 1 used to interpret the RQ. As described above, if the screening-level assessment shows that an RQ exceeds either the acute or chronic LOC, a concern for direct toxic effects is identified for that particular taxon and a species-specific assessment is necessary to make an effects determination. On the other hand, if RQs fall below the LOC, a No Effect determination is identified for the corresponding taxon.

This registration for dicamba has been finalized for registration for use in the states of Alabama, Arkansas, Arizona, Colorado, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and Wisconsin. Additional states may be added to the labeling once an acceptable assessment of listed species is completed for any such state.

Based on the EPA's LOCATES v.2.4.0 database and information from the U.S. Fish and Wildlife Service (USFWS), the EPA identified the listed species that are inside the "action area" (area of concern where use of pesticide may result in exposure to endangered species) associated with the new cotton and soybean uses within a total of 34 states.

The following criteria are used to make a species-specific effects determination:

- For listed individuals inside the action area but not part of an affected taxa nor relying on the affected taxa for services involving food, shelter, biological mediated resources necessary for survival and reproduction, use of a pesticide would be determined to have NO EFFECT.
- For listed individuals outside the action area, use of a pesticide would be determined to have NO EFFECT.
- Listed individuals inside the action area may either fall into the NO EFFECT or MAY EFFECT categories depending upon their specific biological needs and circumstances of exposure.
- Those that fall under the MAY EFFECT category are found to be either LIKELY or NOT LIKELY TO ADVERSELY AFFECT the listed species.
  A NOT LIKELY TO ADVERSELY AFFECT determination is made using criteria that categorizes the effect as insignificant, highly uncertain, or wholly beneficial
- A NOT LIKELY TO ADVERSELY AFFECT determination is made using criteria that categorizes the effect as insignificant, highly uncertain, or wholly beneficial.

Spray drift label mitigation language including an in-field spray drift buffer of 110 feet (for the 0.5 lb/A rate) and 220 feet (for the 1.0 lb/A rate) downwind at the time of application is expected to limit off site transport of dicamba DGA through spray drift. Therefore, the EPA expects that exposure will remain confined to the dicamba (DGA) treated field. Consequently, the EPA concluded a NO EFFECT determination for all but 24 species originally identified as potentially at-risk (in the screening-level assessment) because they are not expected to occur on cotton and soybean fields.

The 24 remaining listed species that were not ruled out because their range contains areas that include treated fields were considered in more depth in the EPA's refined endangered species assessments. Species-specific biological information along with dicamba (DGA) use patterns were also considered. After utilizing processes such as refined modeling incorporating species-specific information and migration habits, the EPA made a determination that exposure occurring on the field would have "may affects" (either "unlikely to adversely affect" or "likely to adversely affect" on 3 species (the Eskimo Curlew, the Spring Creek Bladderpod in Wilson county, TN, and the Audubon Crested Caracara in Palm Beach county, FL) within the States covered by this final decision. The EPA initiated informal consultation with the U.S. Fish and Wildlife Service (FWS) for the Eskimo curlew. The FWS concurred with the "unlikely to adversely affect" determination and no further action need be taken relative to this species. Furthermore, to address the remaining effects, the registrant submitted revised labeling and the EPA approved the labeling that prohibits application in both Wilson county, TN and Palm Beach county, FL. Therefore, the EPA makes no effect determinations for all listed species that are expected to be on the treated fields.

Additionally, the agency considered the potential effects attributed to runoff. As refined modeling predictions indicate that expected exposures from runoff (sheet flow) are below the most sensitive toxicological endpoint thresholds, the EPA's analysis also supports a no effects determination for runoff exposure for off-field listed plants for the new labeled use of dicamba DGA. To further protect species off the treated field against runoff, rainfast mitigation is required on the label ("Do not irrigate treated fields for at least 24 hours after application of this product. Do not make application of this product if rain is expected in the next 24 hours.").

V. Resistance Management

The emergence of herbicide resistant weeds is an increasing problem that has become a significant issue to growers. This has led to a concern that the use of dicamba on GE crops may result in over-reliance on dicamba and result in a larger number of resistant weeds. Currently, in certain areas of the United States there are populations of Kochia and prickly lettuce known to be resistant to dicamba. Kochia infests millions of acres of soybean and cotton and, in addition, glyphosate-resistant biotypes have been identified in Kansas and Nebraska.

In an effort to address these issues, the EPA is requiring, as a term of registration, that Monsanto develop an Herbicide Resistance Management (HRM) plan that will promote herbicide resistance management efforts by growers, the registrant, and others. The plan mandates that Monsanto must investigate any reports of lack of performance. Dicamba users who experience a lack of performance can obtain direct support from Monsanto through a toll free telephone number that is identified on the label to get advice on how to resolve any uncontrolled weeds.

"Lack of performance" refers to inadequate weed control with various possible causes, including, but not limited to: application rate, stage of weed growth, environmental conditions, herbicide resistance, plugged nozzle, boom shut off, tank dilution, post-application weed flush, unexpected rainfall event, weed misidentification, etc. It can be challenging to distinguish emerging weed resistance from other causes at an early stage. Therefore, the EPA has identified criteria that should be used to evaluate instances of "lack of performance" to determine if they do in fact constitute "likely herbicide resistance." These "likely herbicide resistance" criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species (Norsworthy, et al., 2012). The identification of any of these criteria in the field indicates that "likely herbicide resistance" is present. The responsibilities of the registrant if "likely herbicide resistance" is found are discussed below.

Researchers, extension specialists, growers, USDA, and other leaders involved with pest management all acknowledge the importance of scouting (e.g., monitoring the fields) in herbicide resistance management. For the new uses, the labeling states that fields should be scouted before application of dicamba to identify the weed species present as well as their stage of growth. Fields also should be scouted after each application to identify lack of performance that may be the early signs of resistance. Additionally, the labeling states that in the event that a user encounters lack of performance they should report this to Monsanto or its representative using the toll-free number identified on the label.

When a lack of performance is identified and reported to the registrant, Monsanto or its representative must investigate and conduct a site visit if needed to evaluate the lack of performance using decision criteria identified by leading weed science experts in order to determine if "likely herbicide resistance" is present (also termed "possible resistance" by Norsworthy et al., 2012). A report of lack of herbicide performance to Monsanto will be the trigger to start this investigation.

When Monsanto or its representative applies the Norsworthy, et al., criteria cited above, and likely herbicide resistance is identified, Monsanto must proactively engage with the grower to control and

contain likely resistant weeds in the infested area. This may be accomplished by re-treating with an herbicide or using mechanical control methods. After implementing these measures, Monsanto must follow-up with the growers, with the growers' permission, to determine if the likely resistant weeds have been controlled. Monsanto must also annually report to the EPA findings of likely herbicide resistance. In addition, prior to implementing control measures, Monsanto must make best efforts to obtain samples of the likely herbicide resistant weeds and/or seeds, and as soon as practicable, laboratory or greenhouse testing must be initiated in order to confirm whether resistance is the reason for the lack of herbicide efficacy.

Beginning January 15, 2018, on or before January 15th of each year thereafter, Monsanto must submit annual summary reports to the EPA. These reports must include a summary of the number of instances of likely and confirmed resistance by weed species, crop, and state. These reports will also summarize the status of laboratory or greenhouse testing for resistance. The annual reports will also address the disposition of incidents of likely or confirmed resistance reported in previous years.

Monsanto must report annually any inability to control likely resistant weeds to relevant stakeholders. To accomplish this, Monsanto must establish a website to facilitate delivery of resistance information to users.
Several best management practices that are designed to help users avoid initial occurrences of weed resistance appear on the final dicamba product label listed under the Herbicide Resistance Management heading of the label. These practices are discussed in Section VIII.B.3 of this document.

Refer to Section VIII.C below for the EPA's terms of registration to address the issue of weed resistance.

VI. Response to Comments

The agency received 21,710 comments in response to the public participation process (Docket ID: the EPA-HQ-OPP-2016-0187) regarding the EPA's proposed decision for the application to register the use of dicamba on GE cotton and GE soybeans. Comments received were both in favor of and opposed to the decision to register the new uses which will provide growers with additional tools to control broadleaf weeds. The EPA welcomes input from the public during the decision process when registering significant new uses, and is committed to reviewing the comments received and determining whether changes or further mitigation are necessary to meet the applicable statutory standards. the EPA reviewed and evaluated the comments received during the comment period before issuing this final regulatory decision. Since many of the comments covered similar concerns, the comments were grouped into major topic areas. Please see *Response to Public Comments Received Regarding the New Use of Dicamba on Dicamba-Tolerant Cotton and Soybeans* dated November 7, 2016 for the agency's response to these comments.

VII. Benefits

Growers throughout the United States have experienced yield and economic losses due to weeds developing resistance to the herbicide glyphosate and other heavily used herbicides. The need for additional tools to manage these resistant weeds has become important as resistance to both glyphosate and other herbicides has become a significant financial, production and pest

management issue for many cotton and soybean growers. Weeds such as marestail, giant ragweed, common waterhemp, and Palmer amaranth can be difficult to control during the crop growing season. Previously registered uses of dicamba only allow for pre-plant application and post-harvest application in cotton for conventional or conservation tillage systems. Similarly, the previously registered uses of dicamba on soybeans only allows for preplant application along with a pre-harvest broadcast or spot treatment application. New postemergence uses of dicamba will expand weed management options on GE cotton and GE soybeans by providing an additional mechanism of action during the growing season. Dicamba used during the season will target new flushes of weeds, thereby reducing populations of these weeds and particularly will help reduce seed banks. Postemergence use of dicamba will expand options for weed control in cotton and soybeans and enable control of broadleaf weeds, including glyphosate-resistant biotypes.

VIII. Registration Decision

In accordance with FIFRA, the EPA only registers a pesticide when it finds that the use will not cause unreasonable adverse effects on man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of the pesticide. Under FIFRA, the EPA is charged with balancing the uncertainties and risks posed by a pesticide against the benefits associated with the use of the pesticide. The EPA must determine if the benefits in light of its use outweigh the risks in order for the agency to register a pesticide.

In the case for the new uses of dicamba on GE soybeans and GE cotton, and in consideration of all best available data and assessment methods, the EPA determines that its decision to register these uses meets the requirements of FIFRA. The database submitted to support the assessment of human health risk is sufficient for a full hazard evaluation and is considered complete and adequate to evaluate risks to infants and children. The agency has not identified any risks of concern in regards to human health, including all population subgroups, or for occupational handlers.

In terms of ecological risk, some LOCs were exceeded for certain birds, reptiles, amphibians, and mammals that may be in the treated fields. These assessments included conservative risk estimates using screening-level (worst case) assumptions that are unlikely to apply to the majority of the birds, reptiles, amphibians, and mammals that are outside of the treatment area. For example, it is assumed that animals would forage for food exclusively in the treated area consuming only the treated crop, neither of which is likely to be true. Additionally, the protections afforded by the labeling, such as the requirement of infield buffers, would reduce the likelihood of spray drift and volatilization that could affect organisms located beyond the treated field. Because of these additional restrictions, the EPA expects these uses to have less environmental impact than other currently registered products that do not require the same buffers. It is also noted that, if further refinements that included more realistic exposure scenarios were conducted, these risks would likely fall below the agency's levels of concern.

On the benefits side of the analysis, use of dicamba on GE soybeans and GE cotton is expected to become an important part of a resistance management strategy for these crops. Soybeans and cotton are extremely important agricultural commodities in the United States and the world. According to the USDA's National Agricultural Statistics Service, soybeans are grown on approximately 85 million acres and cotton is grown on approximately 9 million acres. USDA's Economic Research Service describes soybeans as the world's largest source of animal protein feed

and the second largest source of vegetable oil, and describes cotton as one of the most important textile fibers in the world, accounting for around 35 percent of total world fiber use. The United States is the world's leading soybean producer and exporter, and together with China and India provide two-thirds of the world's cotton. USDA estimates the gross value of soybean production at approximately 48 billion dollars in the United States, and soybean is grown throughout the United States with more than 80 percent of the United States soybean acreage concentrated in the upper Midwest. The gross cotton production is estimated by USDA at over 6 billion dollars in the United States, and is grown in 17 states in the United States. However, resistance to glyphosate, the current market leader in soybeans and cotton, is having severe economic consequences in soybean and cotton production. The Weed Science Society of America and other weed control experts warn that the problem of glyphosate resistance is increasing, and that significant economic consequences will continue to increase without effective alternatives for weed control.

Consequentially, use of dicamba on GE soybeans and GE cotton is beneficial as it provides an effective tool to treat especially noxious weeds, such as marestail, giant ragweed, common waterhemp, and Palmer amaranth, including glyphosate-resistant biotypes that threaten soybean and cotton production today. By adding an effective tool to combat glyphosate-resistant weeds, dicamba can help reduce this difficult weed pressure and aid significantly in production, reducing economic losses to GE soybean and GE cotton growers. In addition, effective treatment of glyphosate-resistant weeds can help control the spread of resistance. And, as stated previously, using dicamba for these uses according to the approved labeling restrictions will include further beneficial protections such as in-field buffers, best practice requirements for drift management and application techniques, and active resistance management stewardship of weed populations.

The EPA finds these benefits important. Furthermore, this regulatory decision includes a number of requirements that are expected to effectively limit concerns for off field risk. This registration action is only for a product confirmed by data to be a lower volatility formulation. In addition, the label requires very specific and rigorous drift mitigation measures, including in-field buffers, aerial application prohibitions, boom height requirements, specific nozzle and spray pressure requirements, and wind and tractor speed limitations. These mitigations are known to profoundly impact any drift potential from pesticide application. In aggregate, these formulations and labeling requirements are expected to eliminate any offsite exposures and effectively prevent risk potential to people and non-target species.

After weighing all the risks of concern against the benefits of the new uses, the EPA finds that when the mitigation measures for these uses are applied, the benefits of the use of the pesticide outweighs any remaining minimal risks, if they exist at all. Therefore, registering these new uses will not generally cause unreasonable adverse effects on human health or the environment. the EPA believes that the available data and scientific assessments as well as the overall considerations for benefits for weed management in these important crops support a FIFRA Section 3(c)(7)(B) registration finding for the new uses. Although the EPA proposed registering dicamba under FIFRA section 3(c)(5), new data requirements have been identified through registration review that will be applicable to all dicamba products (and all uses), therefore the agency is registering these new uses under FIFRA section 3(c)(7)(B).

A. Data Requirements

Although there are currently no outstanding data require to support the final registration of this action, the EPA has identified data that will be required in connection with Registration Review activities for dicamba. Those requirements will be applicable to dicamba uses and products in general and would be handled in accordance with the registration review process.

B. Labeling Requirements

The following labeling is included in the final supplemental labels unless otherwise noted below.

1. Worker Protection

(Although the following Worker Protection labeling applies to the new uses, it is not included in the new supplemental labeling. This labeling can be found in the previously accepted master labeling that was accepted by the agency on May 1, 2014 for this product.)

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

PPE required for mixers, loaders, applicators and other handlers is:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls worn over short sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

2. Environmental Hazards

(Although the following Environmental Hazards labeling applies to the new uses, it is not included in the new supplemental labeling. This labeling can be found in the previously accepted master labeling that was accepted by the agency on September 18, 2013 for this product.)

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

3. Resistance Management

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of M1768 Herbicide for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call 1-844-RRXTEND.
- If resistance is suspected, treat weed escapes with an herbicide having a mode of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as practicable:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Avoid using more than two applications of dicamba and any other Group 4 herbicides within a single growing season,
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

4. Spray Drift Management

Nozzle type:

Use only Tee Jet® TTI11004 nozzle with a maximum operating pressure of 63 psi when applying XtendiMax™ With VaporGrip™ Technology or any other approved nozzle found at www.xtendimaxapplicationrequirements.com. Do not use any other nozzle and pressure combination not specifically listed on this website. www.xtendimaxapplicationrequirements.com

Spray Volume:

Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation.

Equipment Ground Speed:

Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.

Spray boom Height:

Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height.

Temperature and Humidity:

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions:

Do not apply this product during a temperature inversion. Off-target movement potential can be high during a temperature inversion. During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They can begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. The inversion will often dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed:

Drift potential is lowest between wind speeds of 3 to 10 miles per hour. Do not apply at wind speeds greater than 15 mph. A chart is included in the product label that lists the appropriate wind speeds and application conditions and restrictions.

5. Protection of Sensitive Areas:

Buffer

Maintain a 110 foot downwind buffer (when applying 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying 44 fluid ounces of this product per acre) between the last treated row and the closest downwind edge (in the direction in which the wind is blowing). If any of the following areas below are directly adjacent to the treated field, the areas listed below can be considered part of the buffer distance.

To maintain this required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.

The following areas may be included in the buffer distance calculation when adjacent to field edges:

- Roads, paved or gravel surfaces.
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant and not conventional cotton and/or soybeans.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

Susceptible Plants:

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption. Do not allow contact of herbicide with foliage, green stems, exposed non- woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants, because severe injury or destruction may result, including plants in a greenhouse. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants.

Applicators are required to ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of M1768 Herbicide. Before making an application, the applicator must survey the application site for neighboring sensitive areas prior to application. The applicator should also consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba. In order to prevent unintended damage from any drift of this product, do not apply this product when the wind is blowing towards adjacent commercially grown sensitive crops.

6. Application Restrictions:

- Do not apply this product aerially.
- Do not tank mix any other herbicides with M1768 Herbicide.
- Do not make an application of the product if rain is expected in the next 24 hours.
- The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season for both cotton and soybeans.
- The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre for both cotton and soybeans.
- The combined total application rate from crop emergence up to R1 must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre for soybeans per year.
- The combined total application rate from crop emergence up to 7 days' pre-harvest must not exceed 88 fluid ounce (2.0lb a.e dicamba) per acre for cotton per year.
- All applications for both cotton and soybeans must not exceed 88 fluid ounces (2.0 lb a.e dicamba) per acre per year.

C. Registration Terms

The EPA has determined that certain registration terms are needed to ensure that likely weed resistance as discussed in section V will be adequately addressed. The EPA believes that it is important to address likely weed resistance and not wait until confirmation that resistance has been found. The EPA is basing the final registration terms on a list of criteria, presented in the peer-reviewed publication, Norsworthy, et al., "Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations," *Weed Science* 2012 Special Issue: 31–62 (Norsworthy criteria).

1. Herbicide Resistance Management (HRM) Plan

The EPA is issuing this registration with a term that requires Monsanto to have an Herbicide Resistance Management (HRM) Plan for M1768 Herbicide. The HRM Plan will focus on educating growers on the appropriate use of the M1768 Herbicide and the associated dicamba-tolerant seeds. The EPA is requiring that the HRM plan include the following measures that will reduce the potential for the development of weed resistance.

a. Investigation

The EPA is requiring that Monsanto or its representative investigate reports of lack of herbicide efficacy as reported by users following "scouting." When investigating any reports of lack of herbicide efficacy, Monsanto or its representative must make an effort to evaluate the field for

"likely resistance" by applying the "Norsworthy criteria."

b. Remediation

If "likely resistance" is found, Monsanto must engage with the grower to control and prevent the spread of likely resistant weeds in the affected area. Monsanto must provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other nonchemical controls, as appropriate, and if requested by the grower, Monsanto will assist the grower in implementing those additional weed control measures. Additionally, Monsanto must routinely collect plant material for further testing.

c. Annual Reporting of Herbicide Resistance to the EPA

Monsanto must submit annual summary reports to the EPA that include a summary of the number of instances of likely and confirmed weed resistance by weed species, crop, and state. The annual reports must include summaries of the status of laboratory or greenhouse testing for resistance. The annual reports will also address the disposition of incidents of likely or confirmed resistance reported in previous years. These reports will not replace or supplement adverse effects reporting required under FIFRA § 6(a)(2).

d. Reporting of Likely Resistance to other Interested Parties

Monsanto must inform growers and other stakeholders of cases of likely resistance that are not resolved by the application of additional weed control measures.

e. Education

Monsanto must develop an education program that will provide growers with the best available information on herbicide resistance management.

D. Registration Expiration

The issue of weed resistance is an extremely important issue to keep under control and can be very fast moving. Also, the EPA is aware of reports of off-site incidents potentially due to the illegal use of dicamba products that do not employ the lower volatility formulation of dicamba DGA plus VaporGrip™ (M-1768) on GE cotton and GE soybean. Although the EPA finds that herbicide resistance is adequately addressed by the required herbicide resistance plan and does not expect off-site incidents to occur due to the specific measures required (described above) to this registration, the agency is requiring expiration dates that will ensure that the EPA retains the ability to easily modify the registration or allow the registration to terminate if necessary.

Specifically, this registration automatically expires on November 9, 2018, unless the EPA determines before that date that off-site incidents are not occurring at unacceptable frequencies or levels. If this automatic expiration date is amended (in whatever way the EPA determines is appropriate at the time), it shall not be amended to a date later than November 9, 2021, by which date this registration will automatically expire unless the EPA determines before that date that

herbicide resistance to dicamba is not occurring at unacceptable frequencies or levels, and that off-site incidents are not occurring at unacceptable frequencies or levels.

E. Geographic Limitation on Use of Dicamba M1768 Herbicide

The EPA is issuing these new uses only to be sold and used in Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and Wisconsin.

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[i] Norsworthy, J. K., Ward, S. M., Shaw, D. R., Llewellyn, R. S., Nichols, R. L., Webster, T. M., Bradley, K. W., Frisvold, G., Powles, S. B., Burgos, N. R., Witt, W. W., Barrett, M. 2012. Reducing the risks of herbicide resistance: Best Management Practices and Recommendations. Weed Science Special Issue: 31-62. http://wssajournals.org/doi/pdf/10.1614/WS-D-11-00155.1

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using XtendiMax™ With VaporGrip™ Technology as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the container label and booklet provided with the product container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on 11/09/2018 and must not be used or distributed after this date.

XtendiMax™ With VaporGrip™ Technology

EPA Reg. No. 524-617

GROUP	4	HERBICIDE

FOR PREEMERGENCE AND POSTEMERGENCE USE ON ROUNDUP READY 2 XTEND® SOYBEANS

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

ROUNDUP READY 2 XTEND® SOYBEANS CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT.

THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO SOYBEANS THAT ARE NOT DICAMBA TOLERANT, INCLUDING SOYBEANS WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Roundup Ready 2 Xtend® Soybeans can be obtained from your seed supplier or Monsanto representative. Roundup Ready 2 Xtend® Soybeans must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of XtendiMax™ With VaporGrip™ Technology that may be made to Roundup Ready 2 Xtend® Soybeans during the cropping season. DO NOT combine these instructions with other instructions in the "SOYBEAN" Section of any other XtendiMax™ With VaporGrip™ Technology label for use over crops that do not contain the dicamba tolerance trait.

Note: Roundup Ready 2 Xtend® Soybeans and methods of controlling weeds and applying dicamba in a Roundup Ready 2 Xtend® Soybean crop are protected under U.S. patent law. No license to use Roundup Ready 2 Xtend® Soybeans are granted or implied with the purchase of this herbicide product. Roundup Ready 2 Xtend® Soybeans are owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Roundup Ready 2 Xtend® Soybeans.

See the "PRODUCT INFORMATION" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the XtendiMax™ With VaporGrip™ Technology product label for important use information. In the event that there are any inconsistencies with the directions for use between this supplemental label and any other labeling for this product, follow the directions for use on this supplemental label.

Training and education on proper pesticide application is encouraged. Applicators should visit www.xtendimaxapplicationrequirements.com for training information and opportunities relative to this product.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

XtendiMax™ With VaporGrip™ Technology is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions

- Do not apply this product aerially.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS

Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend® Soybeans.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all In-crop applications from emergence up to and including beginning bloom (R1 stage soybeans)	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the XtendiMax™ With VaporGrip™ Technology label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend® Soybeans. Refer to the "WEEDS CONTROLLED" section of the label booklet for XtendiMax™ With VaporGrip™ Technology for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre. Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend® Soybeans. In-crop applications of this product can be made from emergence (cracking) up to and including beginning bloom (R1 growth stage of soybeans). Do not make in-crop applications of this product after beginning bloom (R1 growth stage of soybeans). The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height.

A second application of this product up to the R1 crop growth stage may be necessary to control new flushes of weeds. Allow at least 7 days between applications. For best results, apply XtendiMax™ With VaporGrip™ Technology after some weed re-growth has occurred.

Application of this product postemergence and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in Roundup Ready 2 Xtend® Soybeans. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS:

- The combined total application rate from crop emergence up to R1 must not exceed 44 fluid ounces (1.0 lb. a.e. dicamba) per acre.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb. a.e. dicamba) per acre.
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb. a.e. dicamba) per acre.
- Allow at least 7 days between final application and harvest or feeding of soybean forage.
- Allow at least 14 days between final application and harvest or feeding of soybean hay.

TANK-MIXING INSTRUCTIONS

XtendiMax™ With VaporGrip™ Technology may only be tank-mixed with products that have been tested and found not to adversely affect the offsite movement potential of XtendiMax™ With VaporGrip™ Technology. A list of those products may be found at www.xtendimaxapplicationrequirements.com. DO NOT tank mix any product with XtendiMax™ With VaporGrip™ Technology unless:

1. You check the list of tested products found not to adversely affect the offsite movement potential of XtendiMax™ With VaporGrip™ Technology at www.xtendimaxapplicationrequirements.com no more than 7 days before applying XtendiMax™ With VaporGrip™ Technology; and
2. The intended tank-mix product is identified on the list of tested products; and
3. The intended products are not prohibited on either this supplemental label or the label of the tank mix product.
4. Additional Warnings and Restrictions:

    - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
    - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
    - Drift reduction agents (DRAs) can minimize the percentage of driftable fines. However, the applicator must check www.xtendimaxapplicationrequirements.com to determine if the DRA is listed and check with the DRA manufacturer to determine if the DRAs will work effectively with the approved spray nozzle, spray pressure, and the desired spray solution.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same sites of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than 22 fluid ounces per acre (0.5 lb a.e./A) of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of XtendiMax™ With VaporGrip™ Technology for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call 1-844-RRXTEND.
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Avoid making more than two applications of dicamba and any other Group 4 herbicides within a single growing season unless mixed with another mechanism of action with an overlapping spectrum for the difficult to control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT TO ROUNDUP READY 2 XTEND® SOYBEANS USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

SPRAY DRIFT MANAGEMENT

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed.

Controlling Droplet Size

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the **"Wind Speed and Direction", "Temperature and Humidity"** and **"Temperature Inversions"** sections of this label).

- **Nozzle type.** Use only Tee Jet® TTI11004 nozzle with a maximum operating pressure of 63 psi when applying XtendiMax™ With VaporGrip™ Technology or any other approved nozzle found at www.xtendimaxapplicationrequirements.com. Do not use any other nozzle and pressure combination not specifically listed on this website.

- **Hooded Sprayers.** Using a hooded sprayer in combination with approved nozzles may further reduce drift potential.

- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.

- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.

- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the drift potential.

Temperature and Humidity

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Do not apply this product during a temperature inversion. Drift potential can be high during a temperature inversion.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will often dissipate with increased winds (above 3 mph) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For XtendiMax™ With VaporGrip™ Technology wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.
3-10 mph	Optimum application conditions for XtendiMax™ With VaporGrip™ Technology provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward non-target sensitive crops.
> 15 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

PROTECTION OF SENSITIVE AREAS

Maintain a 110 foot downwind buffer (when applying 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying 44 fluid ounces of this product per acre) between the last treated row and the closest downwind edge (in the direction in which the wind is blowing). If any of the following areas below are directly adjacent to the treated field, the areas listed below can be considered part of the buffer distance.

To maintain this required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.

The following areas may be included in the buffer distance calculation when adjacent to field edges:

- Roads, paved or gravel surfaces,
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant and not conventional cotton and/or soybeans.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

Non-target Susceptible Crops

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

- Do not apply under circumstances where drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.

- Do not allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants because severe injury or destruction may result, including plants in a greenhouse.

- Small amounts of dicamba that may not be visible may injure susceptible broadleaf plants.

- Applicators are required to ensure that they are aware of the proximity to non-target susceptible crops, and to avoid potential adverse effects from drift of XtendiMax™ with VaporGrip™ Technology.

Before making an application, the applicator must survey the application site for neighboring non-target susceptible crops. The applicator must also consult sensitive crop registries to identify any commercial specialty or certified organic crops that may be located near the application site.

DO NOT APPLY this product when the wind is blowing toward adjacent commercially grown dicamba sensitive crops, including but not limited to, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local pesticide drift regulations.

Proper spray system equipment cleanout
Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the “Non-target Susceptible Crops” section of this label for more information).
Clean equipment immediately after using this product using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer’s directions.

5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend® Soybeans or Bollgard II® XtendFlex® Cotton. For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for XtendiMax™ With VaporGrip™ Technology applications of 33 fluid ounces per acre or less
For corn, cotton (except Bollgard II® XtendFlex® Cotton), sorghum, and soybean (except Roundup Ready 2 Xtend® Soybeans), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 33 fluid ounces and up to 44 fluid ounces of XtendiMax™ With VaporGrip™ Technology per acre
Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® XtendFlex® Cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend® Soybeans) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company (“Company”) warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label (“Directions”) when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the

conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCTS THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, tort, or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on crops within the Roundup Ready® Xtend™ Crop System, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[*INSERT DATE*]

[*INSERT PRINT PLATE NUMBER*]

[*INSERT SUPPLEMENTAL LABEL EXPIRATION DATE*]

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using XtendiMax™ With VaporGrip™ Technology as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the container label and booklet provided with the product container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on 11/09/2018 and must not be used or distributed after this date.

XtendiMax™ With VaporGrip™ Technology

EPA Reg. No. 524-617

GROUP	4	HERBICIDE

FOR PREEMERGENCE AND POSTEMERGENCE USE ON BOLLGARD II® XTENDFLEX® COTTON

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

BOLLGARD II® XTENDFLEX® COTTON CONTAINS A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO COTTON THAT IS NOT DICAMBA TOLERANT, INCLUDING COTTON WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Bollgard II® XtendFlex® Cotton can be obtained from your seed supplier or Monsanto representative. Bollgard II® XtendFlex® Cotton must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of XtendiMax™ With VaporGrip™ Technology that may be made to Bollgard II® XtendFlex® Cotton during the cropping season. DO NOT combine these instructions with other instructions in the "COTTON" Section of any other XtendiMax™ With VaporGrip™ Technology label for use over crops that do not contain the dicamba tolerance trait.

Note: Bollgard II® XtendFlex® Cotton and methods of controlling weeds and applying dicamba in a Bollgard II® XtendFlex® Cotton crop are protected under U.S. patent law. A license to use Bollgard II® XtendFlex® Cotton seed must be obtained prior to use. No license to use Bollgard II® XtendFlex® Cotton is granted or implied with the purchase of this herbicide product. Bollgard II® XtendFlex® Cotton is owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Bollgard II® XtendFlex® Cotton.

See the "PRODUCT INFORMATION" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the XtendiMax™ With VaporGrip™ Technology product label for important use information. In the event that there are any inconsistencies with the directions for use between this supplemental label and any other labeling for this product, follow the directions for use on this supplemental label.

Training and education on proper pesticide application is encouraged. Applicators should visit www.xtendimaxapplicationrequirements.com for training information and opportunities relevant to this product.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

XtendiMax™ With VaporGrip™ Technology is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions

- Do not apply this product aerially.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS
Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Bollgard II® XtendFlex® Cotton.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all In-crop applications from emergence up to 7 days pre-harvest	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the XtendiMax™ With VaporGrip™ Technology label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence
USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Bollgard II® XtendFlex® Cotton. Refer to the "WEEDS CONTROLLED" section of the label booklet for XtendiMax™ With VaporGrip™ Technology for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre. Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)
USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Bollgard II® XtendFlex® Cotton. In-crop applications of this product can be made from emergence up to 7 days prior to harvest. The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to

labeled weeds greater than 4 inches in height. Sequential applications of this product may be necessary to control new flushes of weeds or on tough-to-control weeds. Allow at least 7 days between applications. A pre-harvest application of this product may be made up to 7 days before harvest.

Postemergence applications of this product mixed with adjuvants may cause a leaf response to Bollgard II® XtendFlex® Cotton. The symptoms usually appear as necrotic spots on fully expanded leaves. To reduce the incidence and severity of the necrosis, consider increasing the spray volume to 15 GPA or greater and lower adjuvant rates. EC-based products that are tank mixed with products containing dicamba may increase the severity of the leaf damage.

RESTRICTIONS:

- The combined total applied from crop emergence up to 7 days prior to harvest must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb a.e. dicamba).
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 44 fluid ounces (1.0 lb a.e. dicamba) per acre was made, then the combined total in-crop applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Allow at least 7 days between applications and allow at least 7 days between final application and harvest or feeding of cottonseed and cotton gin by-products.

TANK-MIXING INSTRUCTIONS

XtendiMax™ With VaporGrip™ Technology may only be tank-mixed with products that have been tested and found not to adversely affect the offsite movement potential of XtendiMax™ With VaporGrip™ Technology. A list of those products may be found at www.xtendimaxapplicationrequirements.com. DO NOT tank mix any product with XtendiMax™ With VaporGrip™ Technology unless:

1. You check the list of tested products found not to adversely affect the offsite movement potential of XtendiMax™ With VaporGrip™ Technology at www.xtendimaxapplicationrequirements.com no more than 7 days before applying XtendiMax™ With VaporGrip™ Technology; and
2. The intended tank-mix product is identified on the list of tested products; and
3. The intended products are not prohibited on either this supplemental label or the label of the tank mix product.

4. Additional Warnings and Restrictions:

- Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
- Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
- Drift reduction agents (DRAs) can minimize the percentage of driftable fines. However, the applicator must check www.xtendimaxapplicationrequirements.com to determine if the DRA is listed and check with the DRA manufacturer to determine if the DRAs will work effectively with the approved spray nozzle, spray pressure, and the desired spray solution.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same sites of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than 22 fluid ounces per acre (0.5 lb a.e./A) of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of XtendiMax™ With VaporGrip™ Technology for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call 1-844-RRXTEND.
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Avoid making more than two applications of dicamba and any other Group 4 herbicides within a single growing season unless mixed with another mechanism of action with an overlapping spectrum for the difficult to control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT TO BOLLGARD II® XTENDFLEX® COTTON USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

SPRAY DRIFT MANAGEMENT

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed.

Controlling Droplet Size

Off-target movement potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent off-target movement if the application is made improperly, or under unfavorable environmental conditions (see the **"Wind Speed and Direction", "Temperature and Humidity"** and **"Temperature Inversions"** sections of this label).

- **Nozzle type.** Use only Tee Jet® TTI11004 nozzle with a maximum operating pressure of 63 psi when applying XtendiMax™ With VaporGrip™ Technology or any other approved nozzle found at www.xtendimaxapplicationrequirements.com. Do not use any other nozzle and pressure combination not specifically listed on this website.

- **Hooded Sprayers.** Using a hooded sprayer in combination with approved nozzles may further reduce drift potential.

- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.

- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.

- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for drift.

Temperature and Humidity

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Do not apply this product during a temperature inversion. Drift potential can be high during a temperature inversion.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will often dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For XtendiMax™ With VaporGrip™ Technology wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.
3-10 mph	Optimum application conditions for XtendiMax™ With VaporGrip™ Technology provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward non-target sensitive crops.
> 15 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

PROTECTION OF SENSITIVE AREAS

Maintain a 110 foot downwind buffer (when applying 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying 44 fluid ounces of this product per acre) between the last treated row and the closest downwind edge (in the direction in which the wind is blowing). If any of the following areas below are directly adjacent to the treated field, the areas listed below can be considered part of the buffer distance.

To maintain this required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.

The following areas may be included in the buffer distance calculation when adjacent to field edges:

- Roads, paved or gravel surfaces,
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant and not conventional cotton and/or soybeans.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

Non-target Susceptible Crops

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

- Do not apply under circumstances where off-target movement may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.

- Do not allow contact of herbicide with foliage, green stems, exposed non-woody

roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants because severe injury or destruction may result, including plants in a greenhouse.

- Small amounts of dicamba that may not be visible may injure susceptible broadleaf plants.

- Applicators are required to ensure that they are aware of the proximity to non-target susceptible crops, and to avoid potential adverse effects from drift of XtendiMax™ With VaporGrip™ Technology.

Before making an application, the applicator must survey the application site for neighboring non-target susceptible crops. The applicator must also consult sensitive crop registries to identify any commercial specialty or certified organic crops that may be located near the application site.

DO NOT APPLY this product when the wind is blowing toward adjacent commercially grown dicamba sensitive crops, including but not limited to, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local pesticide drift regulations.

Proper spray system equipment cleanout
Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the “Non-target Susceptible Crops” section of this label for more information).
Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer’s directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.

9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS
No rotational cropping restrictions apply when rotating to Roundup Ready® 2 Xtend™ Soybeans or Bollgard II® XtendFlex® Cotton. For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for XtendiMax™ With VaporGrip™ Technology applications of 33 fluid ounces per acre or less
For corn, cotton (except Bollgard II® XtendFlex® Cotton), sorghum, and soybean (except Roundup Ready® 2 Xtend™ Soybean), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 33 fluid ounces and up to 44 fluid ounces of XtendiMax™ With VaporGrip™ Technology per acre
Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® XtendFlex® Cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready® 2 Xtend™ Soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company (“Company”) warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label (“Directions”) when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCTS THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, tort, or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on crops within the Roundup Ready Xtend® Crop System, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.
Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[*INSERT DATE*]

[*INSERT PRINT PLATE NUMBER*]

[*INSERT SUPPLEMENTAL LABEL EXPIRATION DATE*]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

November 9, 2016

Dr. James Nyangulu
U.S. Agency Regulatory Affairs Manager
Monsanto Company
1300 I St., NW
Washington, DC 20005

Subject: PRIA Label Amendment – Adding new uses on dicamba-resistant cotton and soybeans
Product Name: M1768 Herbicide
Alternate Brand Name: Xtendimax™ with VaporGrip™ Technology
EPA Registration Number: 524-617
Application Dates: 10/21/2016, 4/12/2016, and 11/19/2015, respectively
Decision Number: 522837, 516207, and 511766

Dear Dr. Nyangulu:

1. The application referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable under FIFRA Section 3(c)(7)(B) subject to the following conditions:

2. You must submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

3. Be aware that proposed data requirements have been identified in a Preliminary Work Plan under Docket ID EPA-HQ-OPP-2016-0223-0010 at www.regulations.gov . For more information on these proposed data requirements, you may contact the Chemical Review Manager in the Pesticide Re-Evaluation Division.

4. This registration will automatically expire on 11/09/2018.

5. You must maintain a website at http://Xtendimaxapplicationrequirements.com. That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Xtendimax™ with VaporGrip™ Technology. . The website will state that any person seeking to have a product added to the list must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular

purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology, to EPA. EPA will notify you when the Agency determines that a product has been certified to be appropriately added to the list, and you will add appropriately certified products to the list no more than 90 days after you receive such notice from EPA. Testing of Tank-Mix Products must be conducted in compliance with procedures as stated forth in Appendix A.

6. All test data relating to the impact of tank-mixing any product with Xtendimax™ with VaporGrip™ Technology on drift properties of Xtendimax™ with VaporGrip™ Technology generated by you or somebody working for you must be submitted to EPA, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology, at the following address: Chief of Environmental Risk Branch 1, Environmental Fate and Effects Division, Office of Pesticide Programs. If the certification states that the study was performed either pursuant to the testing protocol identified on the website or pursuant to another protocol approved by EPA, and the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Xtendimax™ with VaporGrip™, you may add the product to the list.

7. The prohibition of using products in a tank-mix with Xtendimax™ with VaporGrip™ Technology unless the product used is contained on the list at Xtendimaxapplicationrequirements.com, and the identification of the website address, shall be included in educational and information materials developed for Xtendimax™ with VaporGrip™ Technology, including the materials identified in Appendix D, Section B(l).

8. You must develop and follow an Herbicide Resistance Management Plan (HRM) as laid out in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one (1) copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. “To distribute or sell” is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

Your release for shipment of the product constitutes acceptance of these conditions. If you fail to satisfy these data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). If you have any questions, please contact Grant Rowland by phone at 703-347-0254, or via email at Rowland.grant@epa.gov.

Sincerely,

Daniel Kenny, Chief
Herbicide Branch
Registration Division (7505P)
Office of Pesticide Programs

Enclosure

APPENDIX A

Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology:

Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray
Drift Reduction Technologies for Row and Field Crops (September 2013)

Testing Media:	Xtendimax™ with VaporGrip™ Technology + Xtendimax™ with VaporGrip™ Technology Proposed Tank Mix Product
Test Nozzle:	Tee Jet® TTI 11004 at 63 psi
Number of Replicates:	3 for each tested medium

Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test (p=Q.l) to determine if proposed tank-mix product is above Xtendimax™ with VaporGrip™ Technology 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition

Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is not.statistically greater than mean 110 foot deposition for Xtendimax™ with VaporGrip™ Technology , proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology contained on the web site. If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for Xtendimax™ with VaporGrip™ Technology, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Xtendimax™ with VaporGrip™ Technology provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

APPENDIX B

Validation Criteria

a. Detailed information of instrument setting and measurements
- The distance from the nozzle.tips to the laser settings
- Measurements of airspeed and flow rate of liquid

b. Detailed information of test substances
- Volume composition and density of Xtendimax™ with VaporGrip™ Technology formulation and tank mixes

c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis ofreplicates.

d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum

Report of DvO.l (SD), DvO.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

APPENDIX C
AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of "nozzle type"
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Xtendimax™with VaporGrip™ Technology for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of "crops" cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	M 1768 at 1.72% v/v	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below[1]

[1]The tested mixture was 1.72% (v/v) M-1768. M-1768 has a density of 10.2 lb/gal and contains 42.8% (w/v) dicamba DGA salt (2.9 lb acid equivalent/gal).
For example, a 10-gallon batch would contain the following:
M-1768 1.71% * 10 gal = 0.172 gal ; 0.172 gal * 10.2 lb/gal = 1.753 lb
Water 10 gal (1280 fl oz) – 22 fl oz = 1258 fl oz = 82.0157 lb
Total weight 1.753 lb + 82.016 lb = 83.769 lb
Active ingredient fraction: 1.753 lb * 42.8% a.i. = 0.75 lb; 0.75 lb/83.769 lb = 0.00896 (dimensionless)
Non-volatile fraction: 0.00896/0.428 = 0.021 (dimensionless)

APPENDIX D

HERBICIDE RESISTANCE MANAGEMENT PLAN

Monsanto (MON) must:

A. Field Detection and Remediation Components:

1. Develop and implement an education program for growers, as set forth under the "Educational / Informational Component," below, that identifies appropriate best management practices (BMPs), as set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and that conveys to growers the importance of complying with BMPs. Such BMPs shall include that fields must be scouted after application to confirm herbicide effectiveness, and that users should report any incidence of lack of efficacy of this product against a particular weed species to Monsanto or a Monsanto representative.

2. If any grower informs you of a lack of herbicide efficacy, then you or your representative must make an effort to evaluate the field for "likely resistance" to M1768 herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al*., "Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations," Weed Science 2012 Special Issue:31–62 (*hereinafter* "Norsworthy criteria")[1] in each specific state until resistance to dicamba is confirmed for a specific weed species in that state using acceptable scientific methods. However, for each grower, you must continue to provide stewardship about resistance management throughout their use of this product. If resistance to dicamba is confirmed in a specific state for a specific weed species, then MON must immediately report such confirmation to EPA and need no longer investigate reports of lack of herbicide efficacy regarding that specific species in that specific state, but MON must continue to make an effort to help address of lack of herbicide efficacy regarding any other weed species in any such state;
3. Keep records of all field evaluations for "likely resistance" for a period of 3 years, and make such copies available to EPA upon request; and
4. If one or more of the Norsworthy criteria are met, then for a weed species not already confirmed to be resistant to dicamba in that specific state, Monsanto will:
    a. Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls,

[1] The Norsworthy "likely herbicide resistance" criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that "likely herbicide resistance" is present.

as appropriate. If requested by the grower, MON or their agent will become actively involved in implementation of weed control measures;

b. Request, at the time of the initial determination that one or more of the Norsworthy criteria are met and prior to any application of alternative control practices, that the grower provide you with access to the relevant field(s) to collect specimens of the likely resistant weeds (potted specimens or seeds) for further evaluation in the greenhouse or laboratory, and so collect such specimens if possible (or, alternatively, request that the grower provide such specimens to you, at your expense);

c. Commence greenhouse or laboratory studies to confirm resistance as soon as practicable following sample collection;

d. To the extent possible, contact or visit the grower in an appropriate timeframe after implementation of the additional weed control measures in order to evaluate success of such measures; and

e. If the additional weed control measures were not successful in controlling the likely resistant weeds, then:

i. Work with the grower to determine the reason(s) why the additional control measures were not successful;

ii. Report annually the inability to control the likely resistant weeds to relevant stakeholders; and

iii. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.

B. Educational / Informational Component:

1. Develop and implement an education program for growers that includes the following elements:

a. The education program shall identify appropriate best management practices (BMPs), set forth under the "Best Management Practices (BMPs) Component," below, to avoid and control weed resistance, and shall convey to growers the importance of complying with BMPs;

b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of M1768 herbicide for use over-the-top on dicamba tolerant soybean or cotton; and

c. You must make the education program available to MON sales representatives for distribution to growers.

2. Provide to EPA the original education program within three months of the issuance of this registration.

C. Evaluation Component:

1. Monsanto will annually conduct a survey directed to users of M1768 herbicide for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. This survey shall evaluate, at a minimum, the following:

   a. Growers' adherence to the terms of the M1768 Use Directions and Label Restrictions, and

   b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of M1768 herbicide and, if so, how growers have responded.

2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following:

   a. Efforts aimed at achieving adoption of BMP's;

   b. Responses to incidents of likely resistance and confirmed resistance; and

   c. The education program. At the initiative of either EPA or MON, EPA and MON shall consult about possible modifications of the education program.

D. Reporting Component:

1. Submit annual reports to EPA by January 15 of each year, beginning on January 15, 2018. Such reports shall include:

   a. Annual sales of M1768 herbicide by state;

   b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report;

   c. Summary of your efforts aimed at achieving implementation of BMP's;

   d. Summary of your determinations as to whether any reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, MON will list the cases of likely resistance by county and state.

   e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including whether growers are implementing herbicide resistance

BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and

f. Summary of the status of any laboratory and greenhouse testing performed by, or at the direction of, Monsanto following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing need not be included in the annual reports, but such data must be made available to EPA upon request.

1. Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.
2.

E. Best Management Practices (BMPs) Component:

1. Best management practices (BMPs) must be identified in your education program. Growers will be advised of BMP's in product literature, educational materials and training. The following are examples of BMPs:

a. Regarding crop selection and cultural practices:

i. Understand the biology of the weeds present.

ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.

iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.

iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.

v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.

vi. Do not allow weed escapes to produce seeds, roots or tubers.

vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.

viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.

ix. Thoroughly clean plant residues from equipment before leaving fields.

x. Prevent an influx of weeds into the field by managing field borders.

xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.

xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.

xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.

b. Regarding herbicide selection:

i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.

ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.

iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.

iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.

v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.

vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.

vii. Report any incidence of lack of efficacy of this product against a particular weed species to Monsanto or a Monsanto representative.

This list may be updated or revised as new information becomes available.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

October 12, 2017

Thomas Marvin
Director, Federal Regulatory Affairs
Monsanto Company
1300 I (Eye) Street, NW – Suite 450 East
Washington, DC 20005

Subject: Registration Amendment – Label Amendment to Change Directions for Use and additional Terms and Conditions to the Registration as Registered on November 9, 2016 for Use on Dicamba-tolerant Cotton and Dicamba-tolerant Soybeans
Product Name: M1768 HERBICIDE (Xtendimax with Vaporgrip Technology)
EPA Registration Number: 524-617
Application Date: October 4th, 2017
Decision Number: 534662

Dear Mr. Marvin,

In response to the high number of crop damage incidents reported to EPA since June 2017, Monsanto submitted a label amendment to change the directions for use on its product as well as a request to amend its registration to include additional terms and conditions. EPA approves the labeling proposed by Monsanto as well as the additional terms and conditions of registration. EPA has determined that the M1768 Herbicide (EPA reg. no. 524-617, Xtendimax with Vaporgrip Technology) labeling and registration continue to meet the standard of registration with the requested amendment as it did on November 9, 2016 when EPA registered these new uses. The amendment approved through this letter includes additional restrictions further minimizing off-field movement of the active ingredient dicamba and do not affect the conclusions in the supporting assessment of risk. EPA accordingly continues to rely on all the assessments that supported the new uses, and therefore does not require a revised endangered species effects determination, nor any other new risk assessment. This approval contains registration terms and conditions that are in addition to the conditions set forth in the new use approval granted on November 9, 2016. These terms and conditions do not supersede any conditions that were previously imposed on this registration and supported by risk assessments found in the following docket EPA-HQ-OPP-2016-0187. Therefore, Monsanto continues to be subject to existing conditions on its registration and any deadlines connected with them, including but not limited to the automatic expiration date of November 9, 2018. The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable under FIFRA Section 3(c)(7)(B) subject to the following additional terms and conditions to ensure that the new labeling is provided at the point of sale for the 2018 use season:

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling including all supplemental labels.

1. Immediately, for product currently in retail inventories, in the distribution chain (packaged and released for shipment), and product that will be manufactured before new glossy label booklets are available will be relabeled with a Sticker and a New Label.

    - Sticker will contain the following information:
        - "Restricted Use Pesticide";
        - "Product cannot be used if user does not possess new label(ing) that can be found at www.xtendimaxapplicationrequirements.com; and
        - "User must comply in all respects with new label(ing), regardless of any contrary language on existing label."
    - New label will be provided to accompany each stickered product as well as publication to Monsanto's website www.xtendimaxapplicationrequirements.com.

2. The next label printing of this product, which should occur as soon as practicable, must use this approved labeling unless subsequent changes have been approved. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. After the next printing, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3. In order to assure the new labeling is implemented for use in the 2018 application season, the appended terms and conditions (listed here) have been added to the existing terms and conditions of this registration. Monsanto, the registrant, will:

    - As soon as new labeling (glossy booklets) become available, affix the new label to XtendiMax products at the time of manufacture in registered facilities.
    - Notify EPA, within one week of the booklet becoming available, of the date the booklet became available. All product manufactured after the booklet is available must contain the new glossy label.
    - For other XtendiMax products – whether in retail inventories, in the distribution chain, or for which manufacturing will occur before new glossy label booklets become available – produce and distribute sufficient quantities of stickers and new paper labels to update product (recognizing that stickering must occur in a registered establishment).
    - Inform retailers of the need to sticker and supply new labels for products currently in inventory and products received with the former label as well as provide specific instructions to the retailers that are registered establishments on how to affix the sticker on the label and provide the new paper label at time of purchase.
    - Inform retailers that are not yet EPA registered establishments about the importance of stickering the products currently in their inventory and products received with the former label and that stickering and providing the new labels can only occur in an EPA registered establishment; inform retailers of the process for establishment registration and reporting; and communicate that retailers should not sell product until stickering is appropriately conducted.

- Inform retailers who do not intend to become registered establishments the importance of the new labeling and to contact Monsanto immediately, so that Monsanto can reclaim the retailer inventory and provide replacement product with labeling updated in a registered establishment. Communicate that retailers should not sell product until stickering is appropriately conducted.
- Provide a copy to EPA of the communications used to inform retailers and others as described above.
- Provide access to new label through an internet webpage located at www.xtendimaxapplicationrequirements.com.

Please be aware that by adding/retaining a reference to the company's website on your label, the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling including all supplemental labels. The new labeling and terms and conditions of registration are hereby granted. As with the November 9, 2016 new use approvals for use of Xtendimax with VaporGrip™ Technology on dicamba-tolerant cotton and dicamba-tolerant soybeans, if these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

If you have any questions, please contact me by phone at 703-305-1243, or via email at montague.kathryn@epa.gov.

Sincerely,

Kathryn V. Montague

Kathryn Montague, Product Manager 23
Herbicide Branch
Registration Division (7505P)
Office of Pesticide Programs

Enclosure(s)