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 III of IX

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INDEX TO PETITIONERS' EXCERPTS OF RECORD

[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.

VOLUME III			
Date	**Admin. R. Doc. No.**	**Document Description**	**ER Page No.**
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
9/2018	P.1293	E-mail from Pesticide Action Network to Rick Keigwin re: EPA: Pull Monsanto's crop-killing dicamba now	ER 0597
8/29/2018	P.213	Attachment letter to 00076811	ER 0612
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
8/10/2018	P.1365	Center for Biological Diversity, et al. comments re: dicamba decision sent to then-Acting Administrator Wheeler	ER 0657
8/10/2018	P.1277**	E-mail from T. Bennett to Multiple EPA recipients re: Ag Retailers Discuss Dicamba	ER 0662
8/10/2018	Q.65	Steckel, Dicamba drift problems not an aberration	ER 0667
8/8/2018	P.1003	Illinois Fertilizer & Chemical Association 2018 survey results	ER 0670
8/2/2018	P.75	E-mail from D. Scott to S. Smith re: reflections on the dicamba situation	ER 0709
7/27/2018	O.293	Letter from L.S.Beck, Becks Superior Hybrids, to Rick Keigwin EPA/OPP	ER 0711
7/26/2018	P.299	E-mail from D. Scott to J. Ikley re: June Spray Hours	ER 0713

7/26/2018	P.293	E-mail from J. Ikley to S. Purdue re: June Spray Hours	ER 0175
7/25/2018	P.1286	E-mail from H. Subramanian to T. Bennett re: DTN dicamba report	ER 0717
7/23/2018	P.351	E-mail from A. Thostenson to R. Baris re: Contemplating 2019 Without Dicamba – Yes, by all means	ER 0724
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
7/2/2018	P.371	E-mail from S. O'Neill to D. Simon re: AAPCO and EPA Recurring Call	ER 0734
6/27/2018	P.503**	Google Alerts for R. Baris, with attachment	ER 0737
2018	O.159	Presentation: Bish, M., and Bradley, K., Analysis of Weather and Environmental Conditions Associated with Off-Target Dicamba Movement	ER 0745
6/25/2018	P.362	E-mail from A. Thostenson to R. Baris re: Dicamba issues	ER 0747
6/25/2018	O.15	Baldwin, F. Undated. Open Letter to the WSSA Board of Directors and Other Interested Parties	ER 0748
6/22/2018	P.181	E-mail from R. Keigwin to L. Van Wychen re: Effects of the herbicide dicamba on non-target plants	ER 0750
6/14/2018	P.481	E-mail from C. Hawkins to Multiple EPA recipients re: Dicamba Injury Mostly Confined to Specialty Crops	ER 0751
5/4/2018	P.554**	Google Alerts for R. Baris, with attachment	ER 0753
4/10/2018	P.437	E-mail from D. McKnight to R. Keigwin & Stanley re: ARA Dicamba Webinars	ER 0758
2/22/2018	P.675**	Google Alerts for R. Baris with attachment	ER 0762

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
10/5/2017	K.16	E-mail from R. Baris to T. Marvin re: dicamba proposed registration conditions	ER 0955
9/27/2017	K.41**	E-mail from J. Green to R. Baris re: article on Dicamba from Delta Farm Press	ER 0958
9/27/2017	K.11	E-mail from J. Green to A. Overstreet re: correspondence received from seed company owner regarding Dicamba Control	ER 0964
9/21/2017	K.80**	E-mail from C. Hawkins to J. Becker and others at EPA forwarding Reuters article on dicamba	ER 0969
9/21/2017	K.19	E-mail from Pesticide Action Network to R. Keigwin re: EPA: Pull Monsanto's crop-killing dicamba now	ER 0974
9/18/2017	O.14	State FIFRA Issues Research & Evaluation Group (SFIREG) Joint Meeting Minutes of the Pesticide Operations and Management (POM) & Environmental Quality Issues (EQI) Committees	ER 0976
9/13/2017	K.39**	E-mail from J. Green to D. Kenny re: FW: Record number of pesticide misuse claims by Iowa farmers due to dicamba drift problems	ER 0992
9/11/2017	K.63	E-mail from K. Bradley to R. Baris re: slides from several university weed scientists on volatility testing on new dicamba formulations	ER 0998

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9/7/2017	K.42	E-mail from J. Green to R. Baris re: article on Dicamba from Delta Farm Press	ER 1051
9/5/2017	K.91	E-mail from N. Sorokin to EPA recipients of Office of Public Affairs media clips re: Reuters: Exclusive: EPA eyes limits for agricultural chemical linked to crop damage.	ER 1057
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
8/21/2017	K.92	Email from N. 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 1103
8/20/2017	K.27	Email from J. Green (EPA) to D. Kenny (EPA) re: FW: Dicamba update	ER 1106

8/18/2017	K.88	Email from K. Bradley (University of Missouri) to R. Baris (EPA) regarding WSSA committee	ER 1114
8/10/2017	K.21	Email from Jamie Green (EPA) to Reuben Baris (EPA) re: FW Article from Arkansas times	ER 1116
8/7/2017	Q.58	Pates, Farmers deal with dicamba drift	ER 1127
8/2/2017	K.20	Email-calender invite from E. Ryan to R. Baris re: follow-up on Dicamba with AAPCO/SFIREG and agenda for 8/2/17	ER 1131
8/2/2017	K.100	Notes from 8/2/17 EPA meeting with various state officials described in Document 20 of the Supplemental Material	ER 1134
8/1/2017	K.14	Email from S. Adeeb to D. Kenny re: Dicamba Notes from July 28 meeting with states on dicamba incidents	ER 1142
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
11/8/2016	O.110	DER for MRID 49925703: Gavlick, W.K. 2016. Determination of Plant Response as a Function of Dicamba Vapor Concentration in a Closed Dome System.	ER 1163
11/3/2016	A.170	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	ER 1212
6/20/2016	A.863	Comment submitted by National Family Farm Coalition	ER 1226
6/15/2016	A.57	Attachment to a comment submitted by S. Wu, Center for Food Safety	ER 1227
6/15/2016	A.473	Comment submitted by Center for Food Safety	ER 1238
6/10/2016	A.581	Comment submitted by S. Smith for Save Our Crops Coalition,	ER 1307
6/10/2016	A.526	Anonymous public comment	ER 1321
6/10/2016	A.304	Comment submitted by J. R. Paarlberg	ER 1323

5/31/2016	A.703	Comment submitted by M. Ishii-Eiteman, for Pesticide Action Network North America	ER 1325

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5/31/2016	A.528	Comment submitted by N. Donley and S. M. Parent for Center for Biological Diversity	ER 1329
5/27/2016	A.34	Comment submitted by P. D. Williams and D.R. Berdahl, for Kalsec, Inc.	ER 1356
5/25/2016	A.840	Anonymous public comment	ER 1363
5/25/2016	A.538	Anonymous public comment	ER 1364
5/25/2016	A.159	Anonymous public comment	ER 1367
5/23/2016	A.668	Comment submitted by D. Dixon, Field Representative, Hartung Brothers Incorporated	ER 1369
5/19/2016	A.743	Anonymous public comment	ER 1371
5/19/2016	A.555	Comment submitted by T. Kreuger	ER 1373
5/10/2016	A.255	Anonymous public comment	ER 1374
5/9/2016	A.617	Comment submitted by S. Rice, Rice Farms Tomatoes, LLC	ER 1375
5/9/2016	A.405	Comment submitted by C. Utterback, Secretary, Utterback Farms, Inc.	ER 1378
4/28/2016	A.838	Comment submitted by D. Dolliver	ER 1379
4/21/2016	A.696	Comment submitted by R. Woolsey, Woolsey Bros. Farm Supply	ER 1380
3/31/2016	A.565	Proposed Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean.	ER 1381

3/30/2016	A.734	Review of Benefits as Described by the Registrant of Dicamba Herbicide for Postemergence Applications to Soybean and Cotton and Addendum Review of the Resistance Management Plan as Described by the Registrant of Dicamba Herbicide for Use on Genetically Modified Soybean and Cotton	ER 1385
3/24/2016	A.640	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate Phase DP Barcode: 422305	ER 1401
3/24/2016	A.611	Ecological Risk Assessment for Dicamba DGA Salt and its Oegradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770I)	ER 1565

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3/24/2016	A.45	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	ER 1568
3/24/2016	A.285	Addendum to Dicamba Diglycolamine Salt (DOA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 11 U.S. States. Phases 3 and 4	ER 1578

1/30/2015	J.70	EPA document - Dicamba Issues EFED drift volatility	ER 1708
1/7/2013	J.150	Monsanto Document re: Educating Key Stakeholders for Commercialization of the Roundup Ready Xtend Crop System	ER 1710
3/8/2011	A.91	Ecological Risk Assessment for Dicamba and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed New Use on Dicamba-Tolerant Soybean (MON 87708).	ER 1712
9/17/2010	B.12	Comment submitted by Bill Freese, The Center for Food Safety	ER 1746
6/4/2010	B.0024	Scott Kilman, *Superweed Outbreak Triggers Arms Race*, Wall St. J. (submitted as an attachment to the comment submitted by Ryan Crumley, The Center for Food Safety)	ER 1754
8/31/2005	C.7	EFED Reregistration Chapter For Dicamba/Dicamba Salts	ER 1760
1/23/2004	I.1	U.S. Environmental Protection Agency. 2004. Overview of the Ecological Risk Assessment Process in the Office of Pesticide Programs, U.S. Environmental Protection Agency. Listed and Threatened Species Effects Determinations.	ER 1776

VOLUME VIII (UNDER SEAL)			
Date	**Admin. R. Doc. No.**	**Document Description**	**ER Page No.**
9/22/2017	K.15	Email from T. Marvin to R. Baris re: Confidential working Draft Master Label	ER 1785
6/7/2016	J.240	Monsanto Confidential Document re: Expected Monsanto Submissions to support M1691, Xtendimax & Roundup Xtend Herbicides	ER 1789

3/24/2016	F.6	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States	ER 1794

VOLUME IX (UNDER SEAL)			
Date	**Admin. R. Doc. No.**	**Document Description**	**ER Page No.**
3/24/2016	F.5	Addendum to Dicamba Diglycolamine Salt (DGA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 16 states	ER 1958
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

Office of Indiana State Chemist

Dicamba Discussion 2017-2019

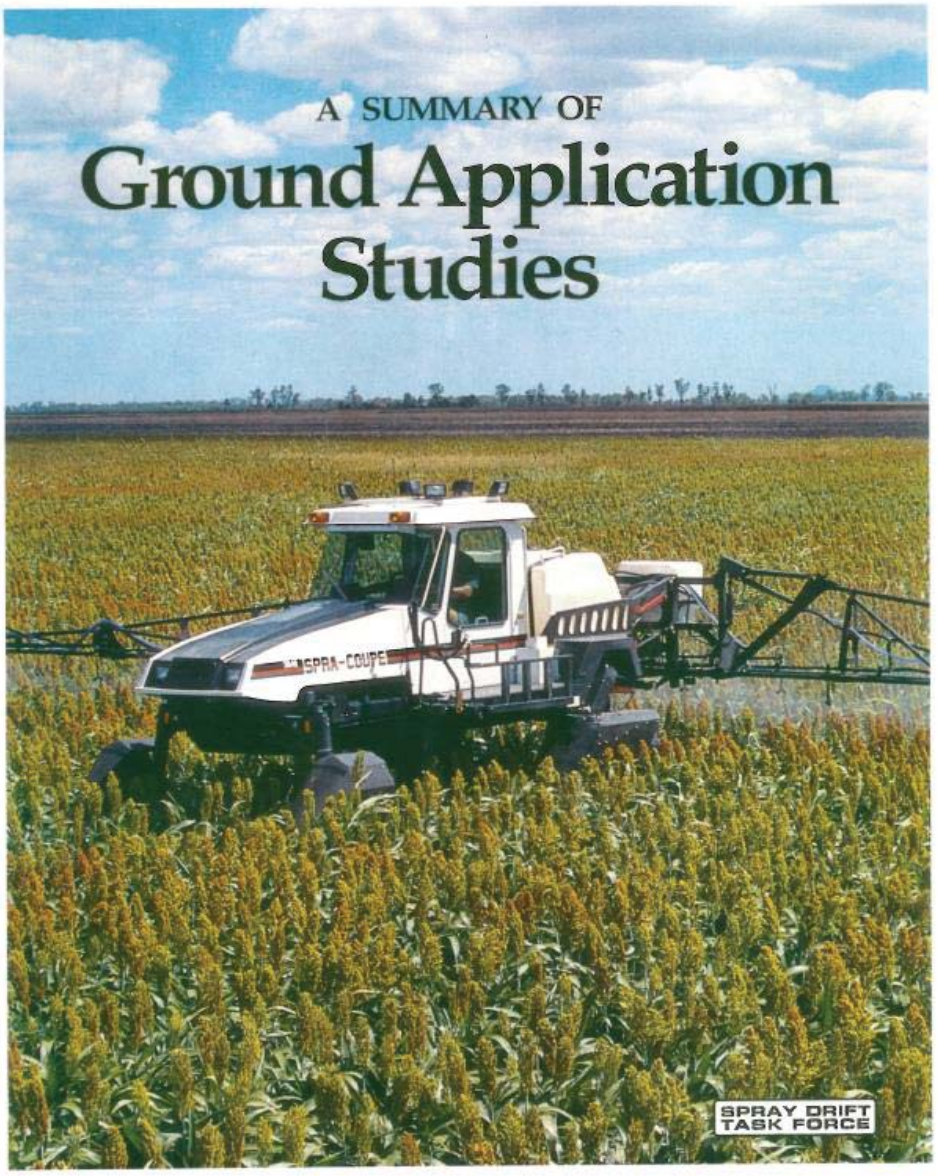
Indiana Pesticide Review Board Meeting
September 26, 2018

Scope of Dicamba Discussion

- Off-target movement primer/review
- What happened in 2017 ?
- What has happened in 2018 ?
- What may happen in 2019?

Pesticide Off-Target Movement Review/Primer

- Spray Drift Task Force Report
- EPA PRN 2001-X
- Indiana Drift Rule



Spray Drift Task Force

- Established in 1990
- Consortium of 38 ag chemical companies
- Generate EPA-required spray drift data for product registration
- Studies designed by university, research, & EPA scientists
- Quantify primary spray drift to:
  - Validate computer drift models
  - Facilitate environmental risk assessments, primarily by EPA

Studies (ground, air, chemigation) confirmed:

- Droplet size is important & primary drift occurs downwind
- Primary drift *(movement of spray droplets before deposition)* is:
  - A generic physical phenomenon, not a function of different active ingredients
- 20 in. nozzle height & 10 mph crosswind…>99.9% a.i. stays on target
- All drift can not be totally eliminated with current technology
- Studies did not measure volatility or application into an inversion

PRN 2001-X Draft: Spray and Dust Drift Label Statements for Pesticide Products

Related Information

View information about EPA's drift reduction program

DRAFT PESTICIDE REGISTRATION (PR) NOTICE 2001-X

Notice To: Manufacturers, Producers, Formulators, and Registrants of Pesticide Products

Attention: Persons Responsible for the Registration of Pesticide Products

Subject: Spray and Dust Drift Label Statements for Pesticide Products

This Notice sets forth the U.S. Environmental Protection Agency's (EPA or Agency) guidance for labeling statements for controlling spray drift and dust drift from application sites and for implementing these statements for risk mitigation. The purpose of this new labeling guidance is to provide pesticide registrants, applicators, and other individuals responsible for pesticide applications with improved and more consistent product label statements for controlling pesticide drift in order to be protective of human health and the environment. This Notice also includes EPA's position on drift, a rationale for the label statements, and an implementation plan.

On This Page

I. Scope And Purpose

PR Notice 2001-X

- Draft notice with guidance for drift mitigation label improvement
- Focus on drift within short distance (~1 mile) of application
- Based on the “science of drift” developed by SDTF
- Recognized “de-minimus drift”
- No guidance for movement from application into inversion or volatilization
- Legal use should not cause unreasonable adverse effects on human health and the environment
- Recognition that labels should be clear & enforceable
- Never finalized due to insufficient stakeholder consensus

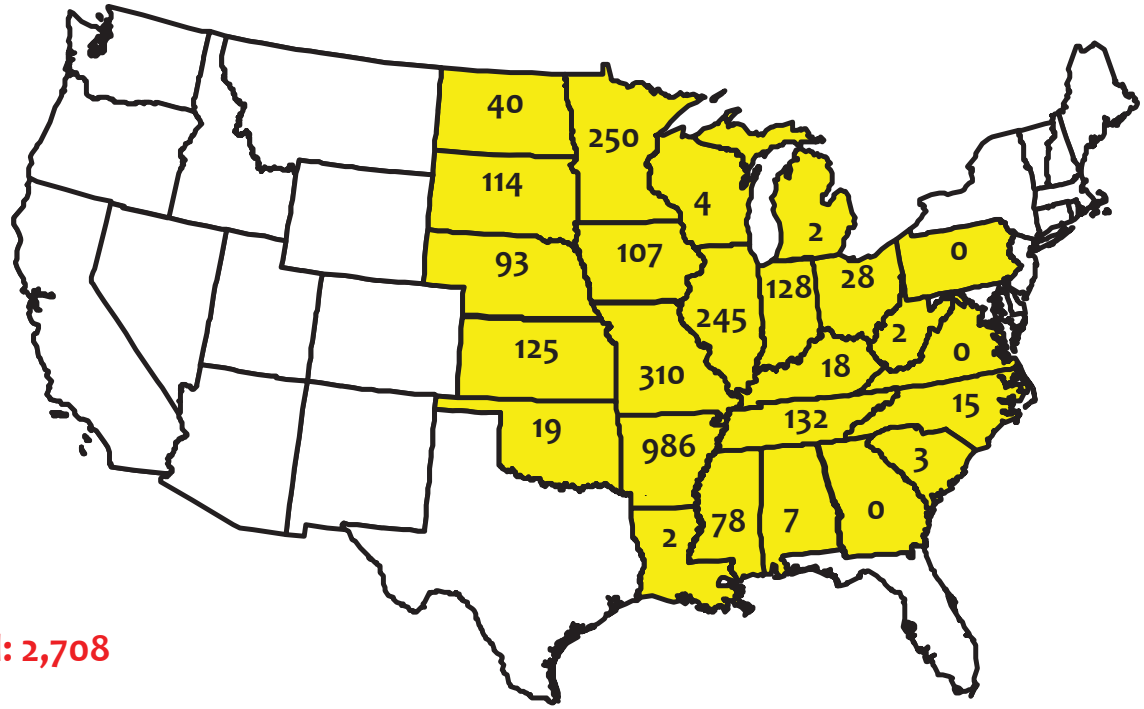
Indiana Drift Rule

- 357 IAC 1-12…adopted in 2006, after EPA stalled on PRN 2001-X
- May not allow drift from target site in sufficient quantities to cause harm to non-target site…performance standard
- "Drift" does not include volatility after application
- Harm includes documented death, illness, stunting, deformation, discoloration & other detrimental effects…crinkled leaves vs. yield loss

Dicamba
What Happened in 2017?

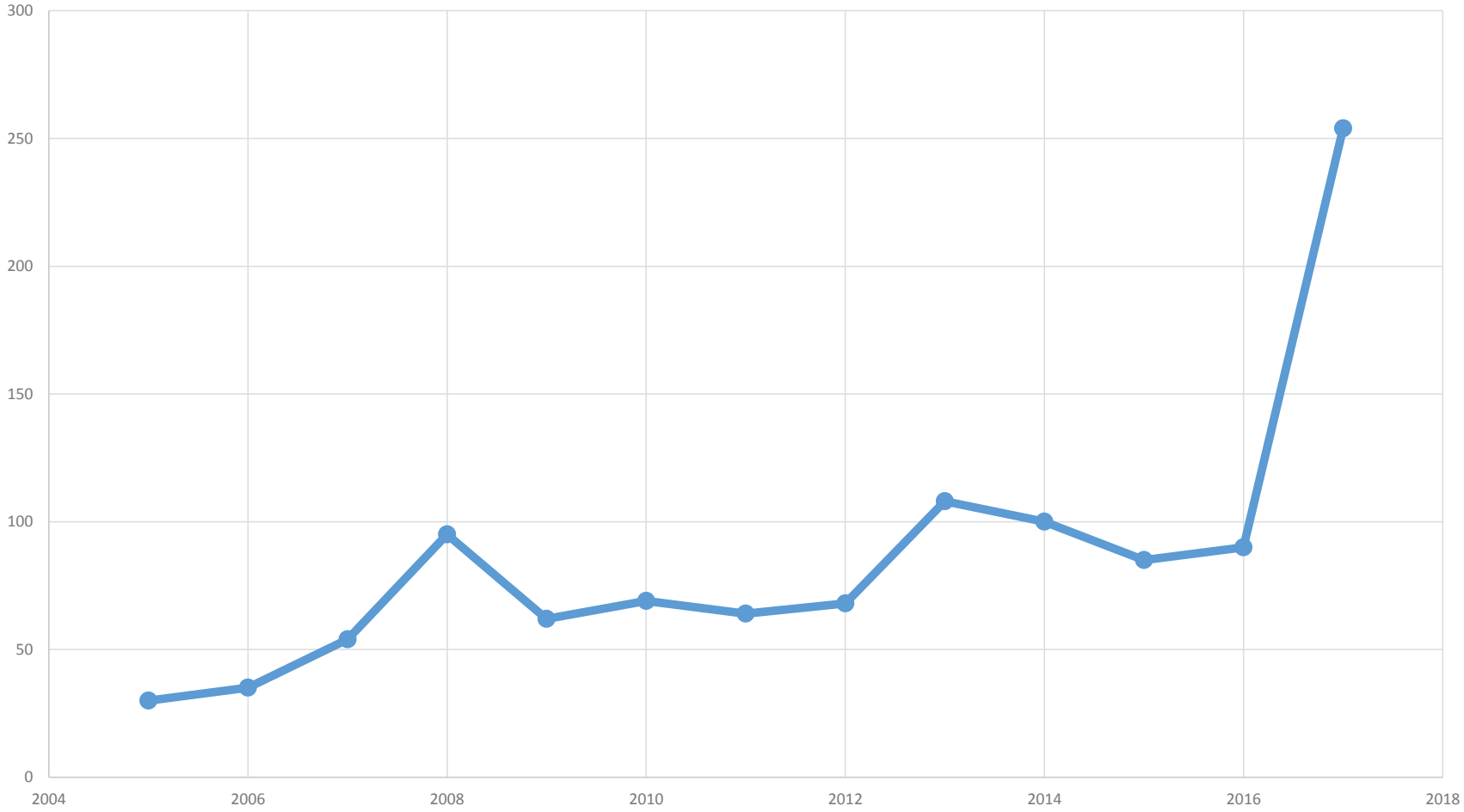
Official Dicamba-related Injury Investigations as Reported by State Departments of Agriculture

(*as of October 15, 2017)

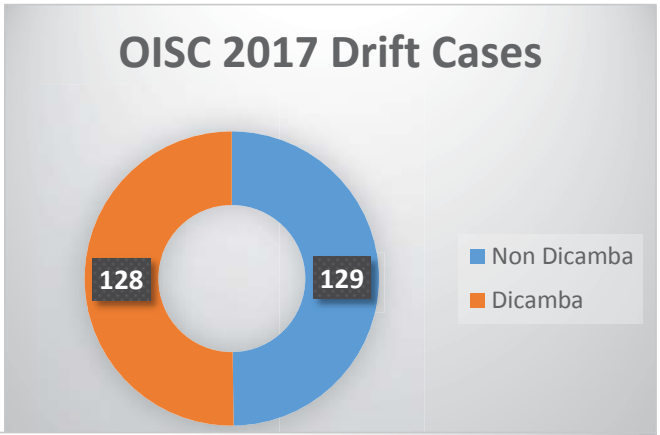


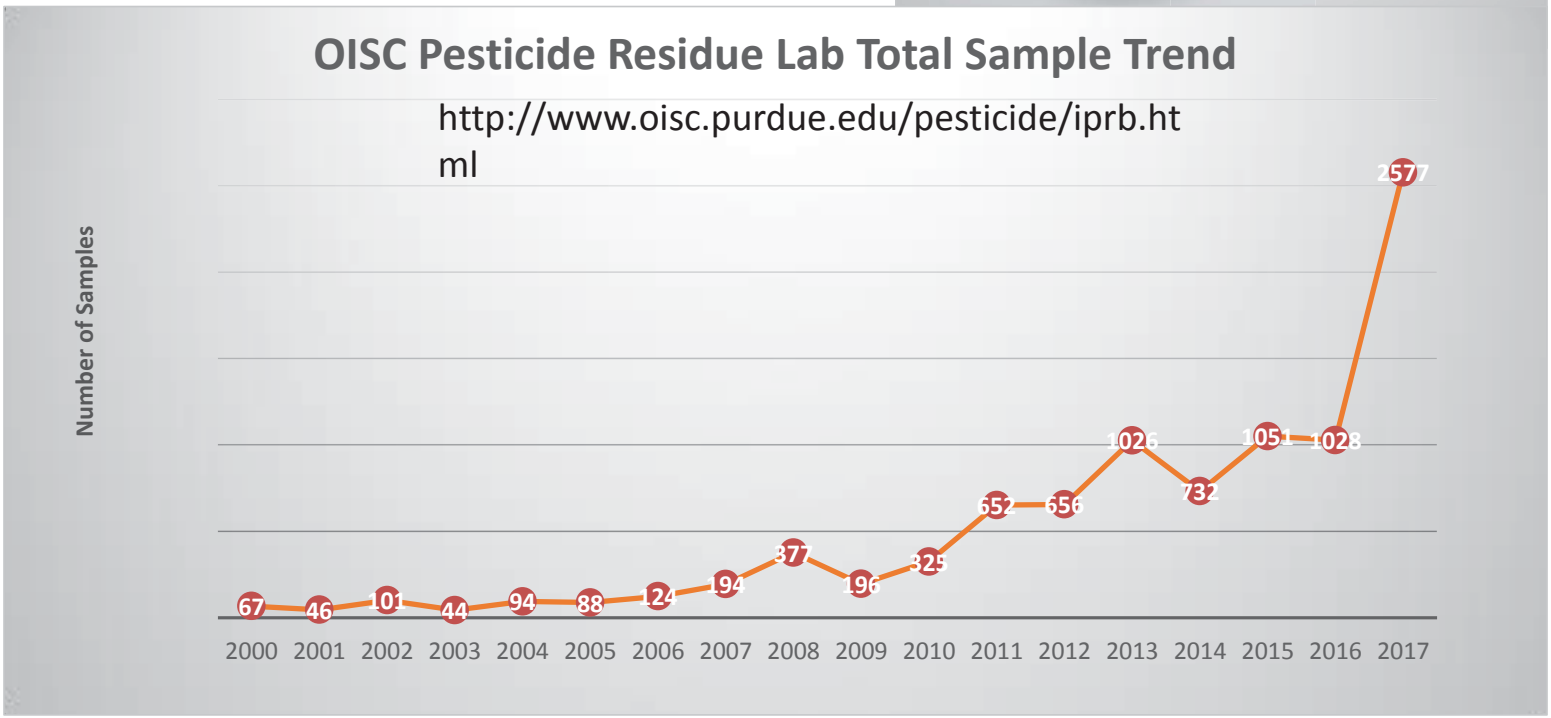
*Total: 2,708

OISC received record-setting numbers of drift complaints in 2017 for **ALL** types of applications



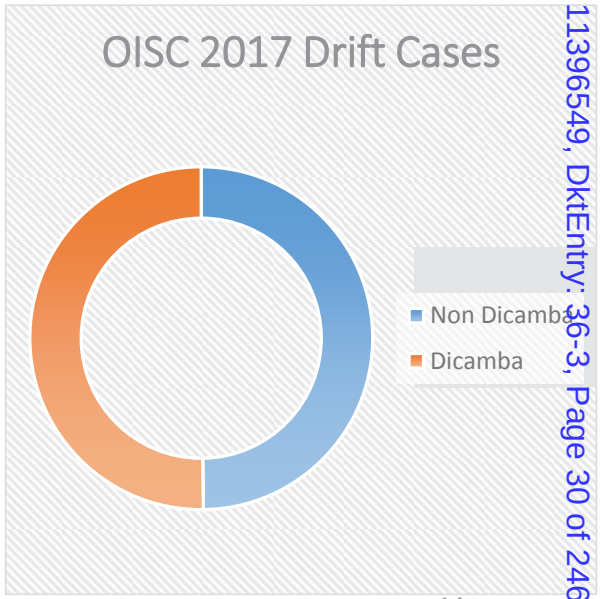
2017 Dicamba Crisis





Drift & Dicamba Data for Indiana

Year	Total Drift	Dicamba	Percent
2013	92	3	3%
2014	83	5	6%
2015	81	8	10%
2016	74	3	4%
2017	287	132	46%



Details of 132 dicamba investigations for 2017

Applicators involved:

- 23% Commercial applicator
- 62% Private applicator
- 15% Noncertified applicator

Products applied:

- 45% Engenia
- 7% FeXapan
- 40% Xtendimax
- 8% Other

Target crop/site:

- 92% Soybean
- 6% Corn
- 1% R.O.W.
- 1% Pasture

Details of 132 dicamba investigations for 2017

Off-Target Exposure Crop/Site

- 92% Non-DT Soybeans
- 1% Melons
- 1% Tomatoes
- 3% Ornamentals
- 1% Blackberries
- 2% Garden
- 1% Person

Route of Off-Target Exposure

- 23% Particle drift
- 3% Tank contamination
- 0% Inversion
- 0% Volatilization
- 0% Dust particles
- 0% Runoff
- 74% Undeterminable

2017 Dicamba Complaint Violations

- Total violative cases… **93%**
- Drift… **23%**
- Wind blowing toward adjacent sensitive crops…**46%**
- Wind (or gusts) greater than 15 mph …**4%**
- Wind less than 3 mph… **8%**
- Did not maintain a 110 ft. buffer ...**2%**
- Did not visit website (registrant or DriftWatch)… **71%**
- Did not survey site… **7%**
- Exceeded 24” boom height …**1%**
- Complaint withdrawn… **1%**

What happened after the 2017 use season?

EPA & Manufacturers Agreed to Make Xtendimax, Engenia, & FeXapan Federal RUPs & to Add More Label Restrictions

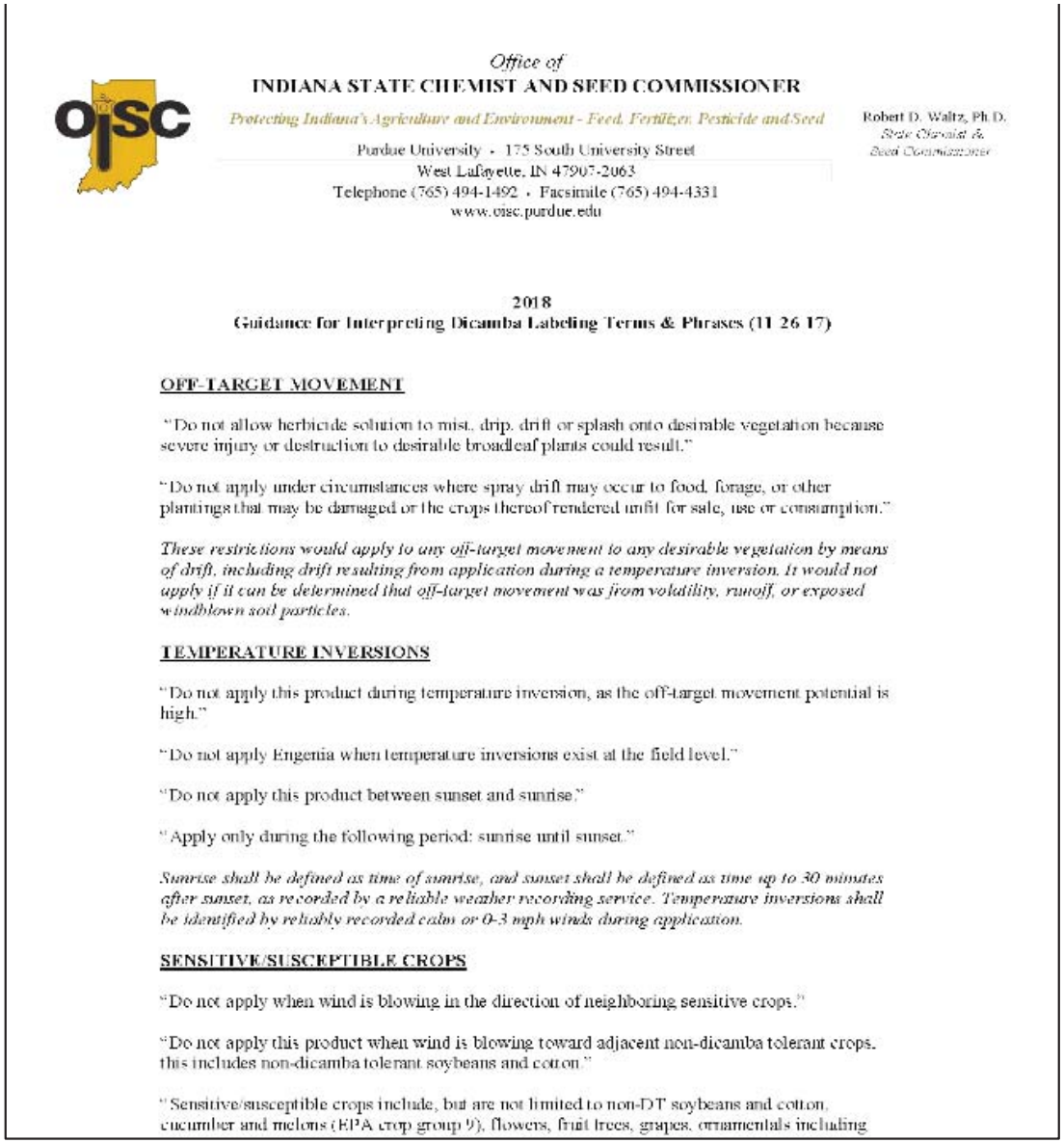
2018 Label Changes Included:

- RUP classification
- Mandatory dicamba-specific training for all users *(state controlled)*
- Mandatory detailed recordkeeping requirements, including weather
- Prohibit application near downwind sensitive crops
- Clarified mandatory buffer requirements
- Reduced max. wind speed from 15 to 10 mph
- Beefed up tank cleaning requirements

The label is complex, requiring much from the user of these products.

Observe OISC's guidance for "Interpreting Dicamba Label Terms And Phrases."

Guidance was developed thru consultation & input with EPA & registrants.



Office of
INDIANA STATE CHEMIST AND SEED COMMISSIONER

Protecting Indiana's Agriculture and Environment - Feed, Fertilizer, Pesticide and Seed

Robert D. Waltz, Ph.D.
State Chemist &
Seed Commissioner

Purdue University • 175 South University Street
West Lafayette, IN 47907-2063
Telephone (765) 494-1492 • Facsimile (765) 494-4331
www.oisc.purdue.edu

2018
Guidance for Interpreting Dicamba Labeling Terms & Phrases (11 26 17)

OFF-TARGET MOVEMENT

"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."

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

These restrictions would apply to any off-target movement to any desirable vegetation by means of drift, including drift resulting from application during a temperature inversion. It would not apply if it can be determined that off-target movement was from volatility, runoff, or exposed windblown soil particles.

TEMPERATURE INVERSIONS

"Do not apply this product during temperature inversion, as the off-target movement potential is high."

"Do not apply Engenia when temperature inversions exist at the field level."

"Do not apply this product between sunset and sunrise."

"Apply only during the following period: sunrise until sunset."

Sunrise shall be defined as time of sunrise, and sunset shall be defined as time up to 30 minutes after sunset, as recorded by a reliable weather recording service. Temperature inversions shall be identified by reliably recorded calm or 0-3 mph winds during application.

SENSITIVE/SUSCEPTIBLE CROPS

"Do not apply when wind is blowing in the direction of neighboring sensitive crops."

"Do not apply this product when wind is blowing toward adjacent non-dicamba tolerant crops. this includes non-dicamba tolerant soybeans and cotton."

"Sensitive/susceptible crops include, but are not limited to non-DT soybeans and cotton, cucumber and melons (EPA crop group 9), flowers, fruit trees, grapes, ornamentals including

Conclusion of Indiana Mandatory Training:

- Weed resistance is a real and ever-growing issue.
- Rotate herbicide classes when possible as a way of reducing resistance.
- Dicamba products are important tools in managing resistant weeds such as marestail, Palmer, and water hemp in dicamba-tolerant crops such as soybeans.
- The label is written to put all of the liability (both regulatory and civil) on the applicator. Follow the label.
- There are alternatives to dicamba products in soybeans in many cases.

Engenia, FeXapan, and Xtendimax Federally Registered Until November 2018

EPA will decide whether the products should continue to be registered. It appears this will depend partially on the number of off-target incidents in 2018.

This is our chance to get it right for 2018 or growers may lose these new-use dicamba products. Dicamba-tolerant seed may be available, but these herbicides may not.

Dicamba
What Happened in 2018?

Recent Drift & Dicamba Data for Indiana

Year	Total Drift	Dicamba	Percent
2013	92	3	3%
2014	83	5	6%
2015	81	8	10%
2016	74	3	4%
2017	287	132	46%
2018	264	138	52%

Trending data impacts from soybean/dicamba launch

- Before launch:
  - OISC investigated an average 89 total drift complaints per year
  - Dicamba was target on average 5% of time

- Since launch (2017 & 2018*):
  - Averaging 276 total drift complaints (300% increase)
  - Dicamba has been target on average 49% of time (980% increase)

Details of dicamba investigations for 2018

Applicators involved:

- 39% Commercial applicator
- 61% Private applicator
- 0% Noncertified applicator

Products applied:

- 66% Engenia
- 3% FeXapan
- 19% Xtendimax
- 11% Other

Target crop/site:

- 93% Soybean
- 6% Corn
- 1% Other

Details of dicamba investigations for 2018

Off-Target Exposure Crop/Site

- 92% Non-DT Soybeans
- 0% Melons
- 0% Tomatoes
- 4% Ornamentals & Trees
- 0% Grapes
- 1% Garden
- 3% Other

Pre or Post-Emergent Use

- 3% Pre-emergent
- 97% Post-emergent

2018 Dicamba Complaint Violations

- Total violative cases… ??%
- Drift… ??%
- Wind blowing toward adjacent sensitive crops…??%
- Wind (or gusts) greater than 15 mph …??%
- Wind less than 3 mph… ??%
- Did not maintain a 110 ft. buffer ...??%
- Did not visit website (registrant or DriftWatch)… ??%
- Did not survey site… ??%
- Exceeded 24” boom height …??%
- Complaint withdrawn… ??%

Potential 2018 Case Resolution #1

Based on the evidence collected in this investigation, it has been determined that you failed to comply with both the off-target drift restrictions and the drift management restrictions on the label for the herbicide FILL IN THE BLANK.

(documented drift + documented drift management violations)

Potential 2018 Case Resolution # 2

Based on the evidence collected in this investigation, it has been determined that you failed to comply with the off-target drift restrictions on the label for the herbicide FILL IN THE BLANK.

(documented drift, but no documented drift management violations)

Potential 2018 Case Resolution #3

Based on the evidence collected in this investigation, it has been determined that you failed to comply with the drift management restrictions on the label for the herbicide FILL IN THE BLANK. It should also be noted that OISC was not able to determine whether the herbicide moved off-target as the result of drift, application into an inversion, or volatilization at some point after the application, and was not able to clearly identify the source of the off-target movement.

(no documented drift, but documented drift management violations)

Potential 2018 Case Resolution # 4

Based on the evidence collected in this investigation, no violations of the Indiana pesticide laws or regulations were documented. Although off-target movement of the dicamba herbicide was documented, OISC was not able to determine whether the herbicide moved off-target as the result of drift, application into an inversion, or volatilization at some point after the application, and was not able to clearly identify the source of the off-target movement.

(no documented drift + no documented drift management violations)

What May Happen in 2019 ?

- Current EPA registrations set to expire in November, 2018

- EPA options for 2019?
  - Not renew the registrations *(has its own set of problems)*
  - Renew with the same labels *(2018 was as good as it gets, get used to it)*
  - Renew with fewer label restrictions *(the Wild West just got wilder)*
  - Renew with additional label restrictions *(somehow put a dent in complaint #s)*

How Might Indiana Respond if EPA Doesn't Fix It?

- Develop state use restrictions?
  - *It takes 1+ years to develop state rules, assuming there is support*
  - *We have had this discussion many times previously*

- Deny state registration based on misbranding?
  - *The label does not contain use directions necessary, and if complied with, adequate for protection of the public.*

- Modify complaint response procedures?
  - What are the objectives of OISC dicamba investigations?
  - We can document violations, but not always source & cause of exposure

Comments or Questions ?

Thank you !

Dave Scott

scottde@purdue.edu

765-494-1593

EPA's Considerations for Over-the-Top Dicamba Registrations (EPA Auxin Updates)

2018 Basic Inspector and Use Concerns, Pesticide Inspector Regulatory Training (PIRT)

Reuben Baris

Office of Pesticide Programs

US Environmental Protection Agency

September 2018

EPA Office of Pesticide Programs

- Licensing program – Office of Pesticide Programs (OPP) regulates pesticide products
  - Applicant develops a pesticide, generates data and submits an application to the EPA
  - EPA reviews submitted data to assess risk
  - EPA makes its decision based on all available information

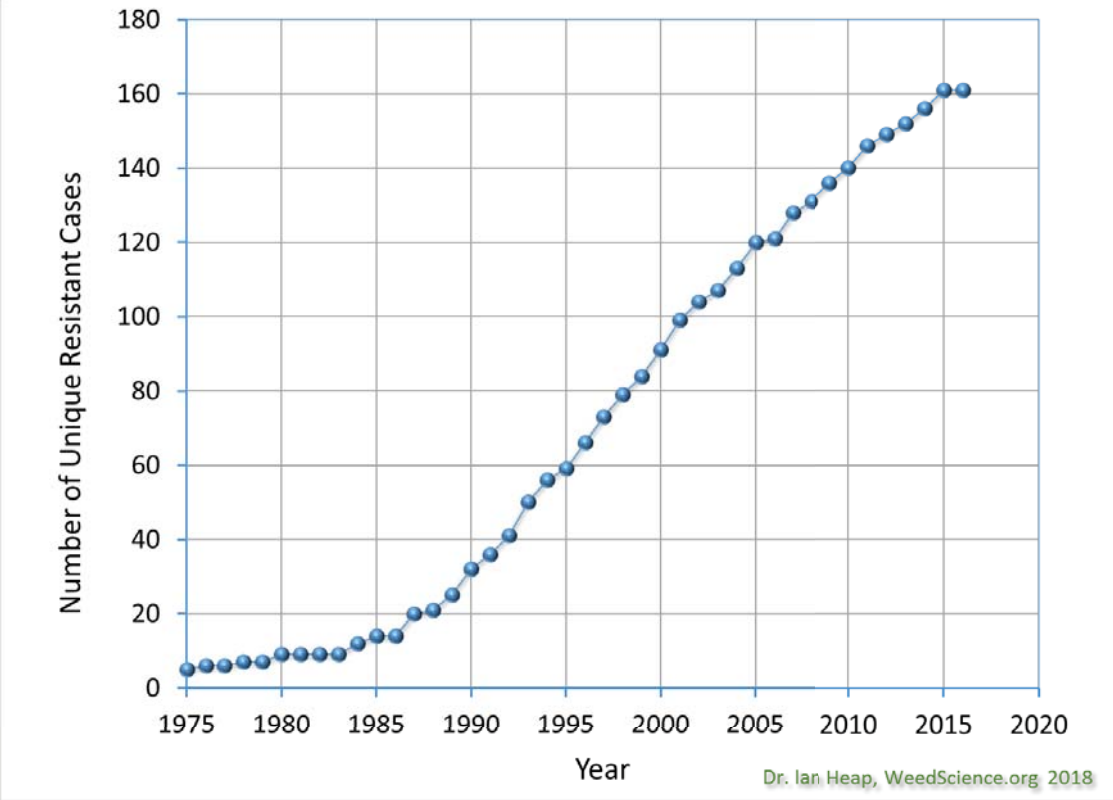
- By design pesticides are intended to kill certain pests so OPP must balance between controlling pests and protecting human health and non-target organisms

- "Label is the law" principle – it is a violation of Federal law to use a pesticide not in accordance with the label
  - States are the primary enforcer

Background on Herbicide Resistance

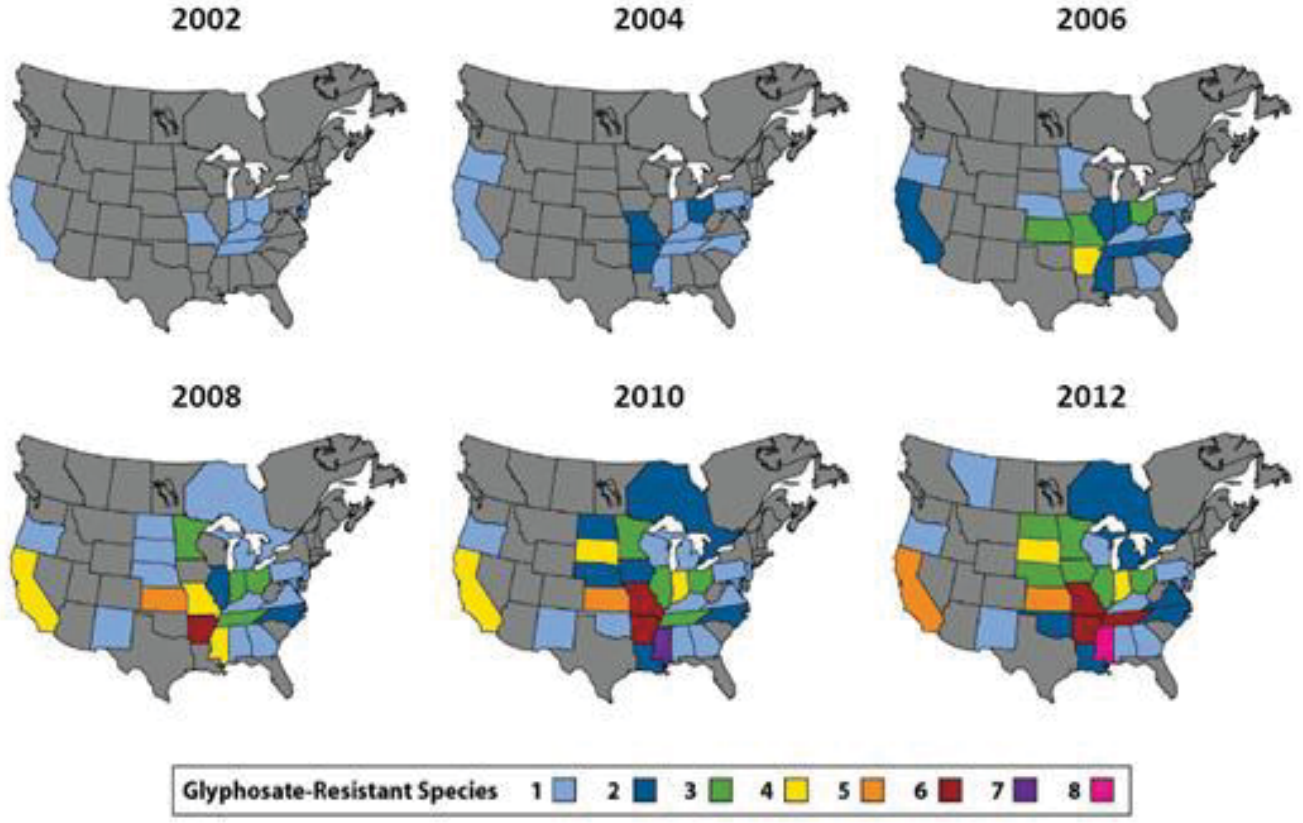
- Weed resistance is an increasing problem
- Resistance results from a variety of biological, technological, and economic factors
- Impacts in the U.S.
  - ~70 million acres infested with resistant weeds (USDA)
  - Cost to U.S. farmers is estimated to be ~$2 billion/year (Vince Davis, University of Wisconsin)
- No new herbicide Modes of Action have been registered in > 30 years.
- In 2017 OPP published two Pesticide Registration Notices (PRNs) on resistance management and is implementing them during registration and registration review.

Increase in unique resistant weed cases for the U.S.



Each resistant weed by individual herbicide is counted as one case.

Glyphosate Resistance over Time



Confirmed glyphosate-resistant weed populations in North America, 2002-2012 (Heap 2012).

Dicamba Over-the-Top Uses

- New Uses for dicamba-tolerant soybean and dicamba-tolerant cotton were registered in late 2016
- Three products were approved for use with 2 year expirations
  - Xtendimax with VaporGrip Technology (EPA reg no. 524-617)
  - Engenia Herbicide (EPA reg. no. 7969-345)
  - DuPont FeXapan Herbicide Plus VaporGrip Technology (EPA reg. no. 352-913)
- 2016 labels contained several restrictions designed to minimize off-target movement
- Additional terms were also placed on these uses

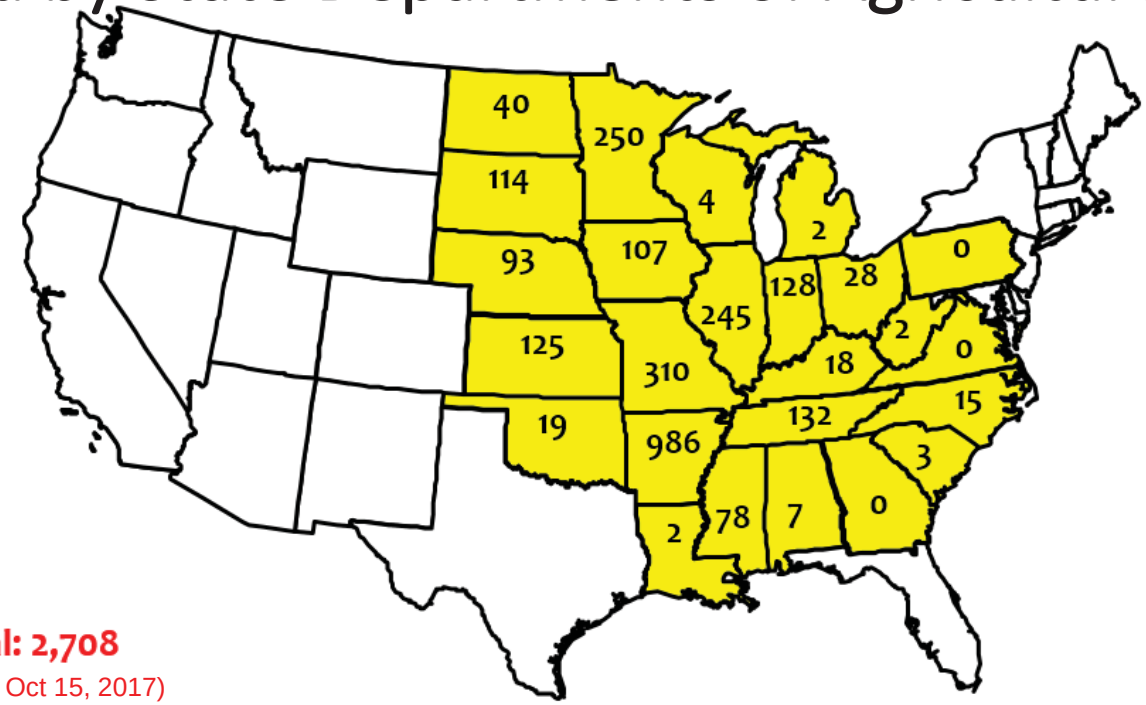
Summary of 2017 Dicamba Incidents

- Late Spring early Summer, EPA started receiving numerous reports of crop damage following applications of dicamba
- Early reports were reported in the Bootheel of Missouri
- As the season progressed, reports of soybean damage spread across southern states and northern MO, into the Midwest and Dakotas

2017 Incident Summary Continued…

- October 15, 2017: 2,708 official dicamba-related crop injury investigations (collected by Univ. of Missouri Ag. Extension as reported by state departments of agriculture)
- More than 3.6 million acres of soybeans impacted
- Other impacted crops: tomatoes, watermelon, cantaloupe, vineyards, pumpkins, vegetables, tobacco, residential gardens, trees and shrubs
- Not all reports of crop damage were reported to State Departments of Agriculture

2017 Dicamba-Related Injury Investigations Reported by State Departments of Agriculture



***Total: 2,708**

(*as of Oct 15, 2017)

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

Summary of Investigations

- Physical Drift
- Tank Contamination
- Temperature Inversions
- Volatility
- Misuse

What was done in response to 2017 incidents?

- EPA engaged State Lead Agencies and University Weed Scientists soliciting information to cooperatively develop solutions to address the dicamba incidents reported in the field

- Cooperative efforts among University Academic, Industry and Growers were used to inform EPA's regulatory decision making

EPA Objectives for Label Changes Ahead of the 2018 Season

- Further minimized the potential for off-target movement by addressing application practices
- Reduced ambiguity in application directions across registered products
- Retain the utility of the technology recognizing the benefit as an important tool for managing weed resistance
- Federal label is applicable in all 34 states where dicamba is registered on dicamba-tolerant soybean and cotton – therefore directions for use were carefully and appropriately implemented

Summary of Label Changes

- All three products are Restricted Use Pesticide products
  - For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification
- Dicamba-specific training is required for all applicators
- Each label limits applications to when maximum wind speeds are below 10 mph (from 15 mph) to reduce potential spray drift;
- Applications may only occur between Sunrise and Sunset
- Tank clean-out language to prevent cross-contamination
- Susceptible/sensitive crop identification and record keeping with sensitive crop registries to increase awareness of risk to especially sensitive crops near application site
- RUP designation requires applicators to maintain specific records regarding the use of these products

Implementation of New Labels

- EPA emphasized the need for registrants to get the revised labels into the hands of farmers in time for the 2018 use season
- Reports estimate nearly 95,000 applicators were trained ahead of the 2018 season
- EPA, cooperatively with SLAs, are monitoring the success of these changes to help inform regulatory decisions for the use of dicamba on tolerant soybean and cotton beyond 2018

What are the additional training requirements for Dicamba products?

- In order to ensure better label compliance and stewardship when used over-the-top to these crops, all applicators must have taken a required dicamba-specific training.
- The dicamba trainings are different from, and do not take the place of, certified applicator training, which is required as part of the state applicator certification requirements.
- Some states permit the dicamba training to be included as part of the continuing education unit (CEU) requirements as part of the annual recertification for certified applicators.

Focus on 2018 (and decisions)

- Registrations for over-the-top uses on dicamba-tolerant soybean and cotton were registered with a two-year expiration (Nov./Dec. 2018)
- Significant label amendments for the 2018 season – objective was to address causes of off-target movement and further minimize off-target movement
- Some states issued additional restrictions (state legislation/rulemaking) and/or issued FIFRA 24c labels
- EPA received early season cases alleging dicamba damage (pre-emergent uses in AR)
- As the growing season progressed, incidents of off-target damage were reported
- EPA and SLAs are actively collecting reported incidents of crop damage related to dicamba

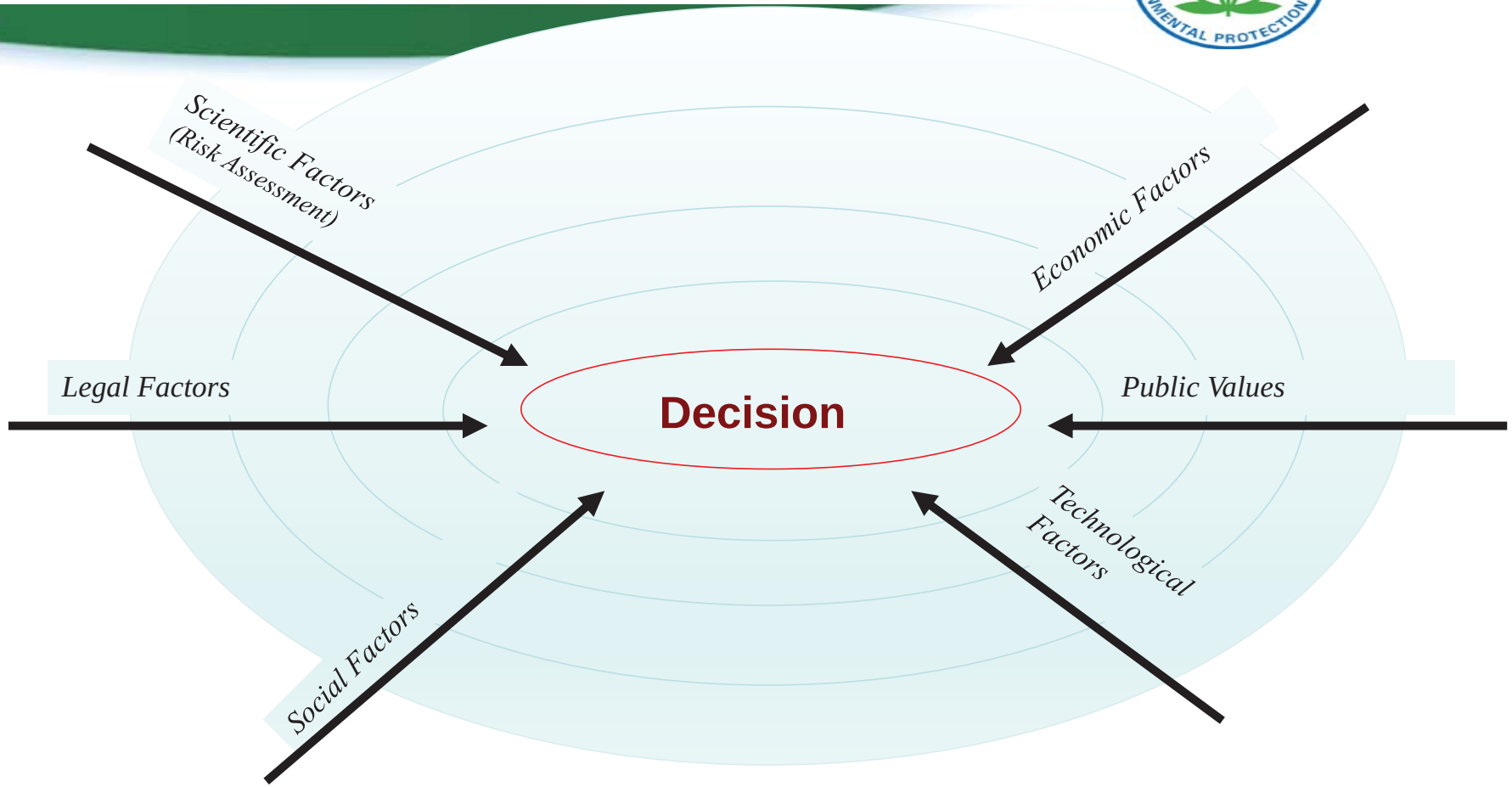
2018 Actions

- The first registration expiration will occur on November 9, 2018
  - Unless EPA determines that allowing the registration to be extended meets applicable legal standards
- EPA is reviewing the current use restrictions in light of the incidents that have been reported in 2017 and 2018
- EPA is considering all the applicable lines of evidence to inform the decision whether to continue to allow the over-the-top uses of dicamba
- This decision will include multiple lines of evidence, including collaboration with growers, states, and registrants
- EPA continues to gather information to inform this decision and will use all available evidence when evaluating dicamba registrations

What is EPA Evaluating to Inform the Regulatory Decision?

- EPA is considering both quantitative and qualitative information to formulate a decision
- Input from states through AAPCO membership
- EPA and State Lead Agencies are cooperatively monitoring the current situation
  - Weekly calls
  - AAPCO surveys of membership
  - State visits
  - Active and closed investigations (IN REAL TIME!)
- Incident data (state reports, registrants' FIFRA § 6(a)2, university weed scientists, USDA extension)
- Yield Information
- On-going research -- address uncertainties (e.g., academia, registrants)
- Continued efforts with other federal organizations
- Stakeholder input

Factors for Regulatory Decision Making



Questions/Discussion?

What does dicamba damage look like compared to other auxin exposures?

Message

From: Sunseri, Matthew (MDA) [matthew.sunseri@state.mn.us]
Sent: 9/6/2018 1:52:14 PM
To: Baris, Reuben [Baris.Reuben@epa.gov]; Kenny, Daniel [Kenny.Dan@epa.gov]
Subject: Minnesota comments on 2019 dicamba registration

Reuben and Dan,

Thank you for the opportunity to provide input regarding dicamba regulations for 2019.

Minnesota received over 250 reports of dicamba damage in 2017. For 2018 the Minnesota Department of Agriculture (MDA) imposed additional cutoff date and temperature restrictions using a Section 24(c) label, which was approved by EPA for 2018.

In 2018, MDA has had 51 reports of dicamba damage.

Even though some farmers were unable to use dicamba during 2018 because of wet weather near June 20th, we attribute much of this reduced number of complaints to the 24(c) labeled restrictions below:

- Do not apply after June 20th
- Do not apply if daily high temperature is forecast to be over 85 degrees F.

Compared to states that did not have cutoff dates, Minnesota had very limited complaints of off-site dicamba movement in 2018.

The MDA would prefer that any Minnesota-specific restrictions for 2019 appear on the Section 3 label. If this is not possible our default approach would be to use a 24(c) label to impose any potential restrictions, as we did for the 2018 season. Not having the 24(c) tool available to apply state specific restrictions would be problematic for Minnesota. The MDA is currently analyzing our 2018 complaint information, but a thorough analysis of this data will take some time before our Commissioner will be ready to make any decisions regarding 2019.

If you have any questions regarding our comments or need additional information please contact us.

Thank you,

Matt Sunseri
Pesticide Management Unit Supervisor
625 Robert Street North
Saint Paul, MN 55155-2538
O: 651-201-6292
www.mda.state.mn.us
DEPARTMENT OF AGRICULTURE

2018 Dicamba State Requirements

[Date]
[Time]

	States	Training Reciprocity	Training (Required by EPA)	Recordkeeping (Required by EPA)	Application Windows
1	Alabama		State : Alabama Cooperative System (ACES)	Required	
2	Arizona		Registrants*	Required	
3	Arkansas		State		4/16 - 9/15
4	Colorado		Registrants	Required	
5	Delaware		Registrants	Required	

6	Florida		Registrants	Required	
7	Georgia	NO	State: University of GA. & GA Dept. of Agriculture	Required	
8	Illinois	NO	Registrants: IL Chem & Fert Assn leading but using registrants	Required	
9	Indiana		State	Required	
10	Iowa	Yes - MN	Registrants: but must register w/ state & have Extension agent present.	Required	
11	Kansas	Yes	Registrants: w/K-State Research and Extension	Required	
12	Kentucky		Registrants: but must register w/ state & have Extension agent present.	Required	

13	Louisiana		Registrants	Required	
14	Maryland		Registrants	Required	
15	Michigan	Yes - MN	Registrants	Required	
16	Minnesota	Yes - ND, SD, IA, WI, MI	Registrants	Required	43271
17	Mississippi		State	Required	
18	Missouri	NO	State	Required	June 1 for 10 boothill counties. July 15 for rest of state.
19	Nebraska	NO	Registrants	Required	
20	New Jersey		Registrants	Required	

21	New York		Registrants	Required	
22	New Mexico		Registrants	Required	
23	North Carolina	Yes to GA, SC	State: Extension Service	Keep 3 years, not 2. Final in 72 hours.	
24	North Dakota	Yes- MN	Registrants	Final in 24 hours	June 30 and when it reaches 85°
25	Ohio		Registrants	Required	
26	Oklahoma	Yes -TX & KS	Registrants: w/ ODAFF and Extension	Required	No applications between May 1 and Oct. 15 in Greer, Harmon, Kiowa, Jackson, and Tillman
27	Pennsylvania		Registrants	Required	

28	South Carolina		Registrants	Required	
29	South Dakota	Yes- MN	Registrants	Required	
30	Tennessee		State: w/ provision to ask registrants for help	Required	June 15 unless w/ hooded sprayer
31	Texas	Yes to OK	Registrants: TX is lead but have registrants using TX program.	Required	
32	Virginia	NO	Registrants	Required	
33	West Virginia		Registrants	Required	
34	Wisconsin	Yes - MN	Registrants	Required	

*Registrants: Registrants are providing training

Max Wind Speed (Required by EPA)	Buffer Zone	Cutoff Temp	Other	Narrative Description
10 MPH			24(C) labeling	The applicator must attend Auxin Herbicides Best Management Practices training that is approved by the Alabama Department of Agriculture and Industries or the Alabama Cooperative Extension System office. The applicator must survey the site before the application for neighboring sucebtible crops and consult sensitive crop registries to identify any commerical specialty or certified organic crops that may be located near the application site. Dicamba cannot be applied at winds greater than 10 mph. Dicamba cannot be aplied when the wind is blowing towards adjacent sensitive crops, EPA crop group 8, and EPA crop group 9.
10 MPH				The applicator must attend dicamba training, records must be kept, and the maximum wind speed for application is 10mph.
10 MPH	400 ft.		(1) Training Requirement (2) Tank mixes may not increase driftable fines by >10% of prodcut alone (3) No > 10% of total mix's droplets smaller than 200 microns (4) VMD of spray droplets > 400 microns	Applicators must complete a state training prior to applying dicamba, keep records, and apply the product with a maximum wind speed of 10 mph. Dicamba cannot be applied between April 16 and Oct. 31. Dicamba is exempted in pastures, rangeland, turf, ornamental, direct injection for forestry and home landscapes. Dicamba is banned in row crops. There are also restrictions on potential dicamba spray drift.
10 MPH				Applicators must complete a training prior to applying to use dicamba.
10 MPH				Applicators must complete a training prior to applying to use dicamba, keep records, and apply dicamba at the maximum wind speed of 10mph.

10 MPH	If wind speed is 0-3 MPH, then 1/8 Mile downwind, 1/8 mile crosswind, 20 feet upwind. If wind speed is 3-6 MPH, then ¼ mile downwind, 1/8 mile crosswind, and 5 feet upwind. If wind speed is 6-10 MPH, buffer zone is ½ mile downwind, ¼ mile crosswind, and 5 feet upwind.		(1) Applicators should minimize production of droplets < 200 microns (2) Flat fan nozzles or their equivalent shall be used (3) Application pressures shall not exceed 35 lbs/in2	Applicators must complete a training prior to applying to use dicamba, keep records, and apply dicamba at the maximum wind speed of 10mph. They must stay within a buffer zone and there are restrictions on potential dicamba spray drift.
10 MPH			(1) 24(C) Special Local Needs Labels, (2) State Record Keeping Requirements; and (3) Sign Posting	Applicators must complete a training through the University of Georgia and the George Department of Agriculture prior to applying dicamba, keep records, post signage when spraying, and apply the product with a maximum wind speed of 10 mph. A special local needs label is included on dicamba regarding spraying practices and required training.
10 MPH				Applicators must complete a training through the Illinois Department of Agriculture, keep records, and apply dicamba at a maximum wind speed of 10 mph.
10 MPH				All applicators must compelte a dicamba training approved by the Office of Indiana State Chemist before using dicamba for the first time.
10 MPH			(1) Additional dicamba-specific training; and (2) 24(c) Special Needs Local Registration	All applicators must complete Auxin Herbicide training approved by the Iowa Department of Agriculture & Land Stewardship and offered by a registered Auxin Herbicide training provider.
10 MPH				Applicators must complete a training through the Kansas State Research and Extension, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training approved by the Kentucky Department of Agriculture, keep records, and apply dicamba at no more than 10 mph.

10 MPH			(1) Application of restricted herbicides requires waiver from Dept. of Ag; (2) Shall not be applied by commercial applicators between March 1 – June 1 between the Miss. River and HWY 61 in the parishes of St. James and St. John the Baptist; (3) Special permit requirements for Sabine River Authority; and (4) No application in the parish of Plaquemines.	People selling, applying, and purchasing dicamba must attend a pesticide stewardship training course provided by the manufacturer and approved by the Lousianna Department of Forestry.
10MPH				Applicators must complete a training, keep records, and apply dicamba at no more than 10 mph.
				Applicators must complete a training and keep records.
		85	(1) State classified as Restricted Use Pesticide;	Dicamba is for sale and use only by certified applicators. Dicamba cannot be applied after June 20 or if air temperatures in the fields are above 85 degrees or if the temperature for the nearest available location is more than 85 degrees.
10 MPH	110 feet			Applicators must complete a training, keep records, apply dicamba within a buffer zone between dicamba treated fields and sensitive crops, and apply dicamba at no more than 10 mph.
10 MPH	Vary by county		(1) 24(c) labeling requires: (2) Training Requirement; (3) Record Keeping Requirement (3 years); (4) Notice of Application Form; and (5) Application time: 7:30AM – 5:30PM.	Applicators must complete a training and a daily online dicambia notice of application before applying dicamba. Dicamba cannot be applied before 7:30 am or after 5:30 pm. Some counties cannot use dicamba after June 1, others cannot use it after July 15.
10 MPH				Applicators must complete a training through the Nebraska Extension, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.

10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH			(1) 24(c) labeling; (1) 24(c) labeling; (2) mandatory training through Extension Service. (1) 24(c) labeling; (2) mandatory training through Extension Service.	Applicators must complete a training through the North Carolina Extension Service, keep records, and apply dicambia at a maximum of 10 mph. There are also restrictions for spraying near certain suceptible crops, EPA crop group 8, and EPA crop group 9.
10 MPH		85	(1) Maximum aerial application speed: 12 MPH; (2) Applications must be made with minimum 15 gallons solution/acre; (3) No applications with nozzles 80 degree or less.	Dicamba is for retail sale and use by Certified Applicators or those under direct supervision. Any applicator must complete a dicambia-specific training course. Applications cannot be made if the temperature of the field is over 85 degrees Farhenheit. Applications can only be made one hour after sunrise to one hour before sunset. Applicators must apply products of 12 miles per hour or less. Applications must be made with a minimum of 15 gallons of spray solution per acre. No applications may be made using 80-degree or less spray nozzles. Dicambia cannot be applied after June 30 or the first bloom (whichever comes first).
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH			(1) Notification of intent to apply; and (2) Report of application after application date.	Applicators must complete a training with the Oklahoma Department of Argriculture Food and Forestry and the Oklahoma Extension, keep records, and apply dicambia at a maximum of 10 mph. Additionally, applicators must apply for dicamba use. An existing herbicide rule in Oklahoma prohibits applications between certain times in certain counties.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.

10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH			(1) Prohibition of older formulations; (2) Application time: 9AM – 4PM; and (3) Application over the top of cotton after first bloom prohibited.	Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph. There are also restrictions on the type of dicambia that can be applied and when dicamba can be applied.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.
10 MPH				Applicators must complete a training, keep records, and apply dicambia at a maximum of 10 mph.

Label/Source Link	Type of Action	Source link
https://docs.wixstatic.com/ugd/732771_65144df6ad3e46278792a7835e47a2c7.pdf	state agency registration as 24 c, January 2018	http://www.aces.edu/anr/pesticidemgt/documents/ANR-2376AuxinHerbicides-PROOF.pdf
https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		
https://www.agweb.com/article/states-tighten-dicamba-regulations/	state regulation, January 19, 2018	http://www.aad.arkansas.gov/Websites/aad/files/Content/6140361/Arkansas_Regulations_to_Prohibit_the_Use_of_Dicamba_Between_April_16__October_31_Receive_Approval,_Jan_2018.pdf
https://www.colorado.gov/pacific/agplants/dicamba-training-information		

http://conference.ifas.ufl.edu/aw/presentations/Tuesday/GF/Session%204/1525%20Dubberly.pdf		
http://agr.georgia.gov/dicamba.aspx	state agency registration as 24 c, 2018	http://extension.uga.edu/content/dam/extension-county-offices/houston-county/anr/2018-Auxin-Training-Requirements.pdf
https://www2.illinois.gov/sites/agr/Pesticides/Pages/Dicamba.aspx		
http://www.cdms.net/ldat/ldDF9002.pdf	state regulation, October 5, 2018	https://www.oisc.purdue.edu/pesticide/pdf/lsa_17-180_final_rule.pdf
http://www.cdms.net/ldat/ldDJ1014.pdf	state agency registration as 24 c, December 28, 2017	https://www.iowaagriculture.gov/press/2017press/press12282017.asp
http://www.ksre.k-state.edu/news/stories/2018/01/dicamba-training.html		
https://weedscience.ca.uky.edu/content/mandatory-training-dicamba-products		

http://www.cdms.net/ldat/ldDF9005.pdf		
http://cloud01.bader-rutter.com/DAAGFEXA7051/training/Maryland/#/?_k=tdb8j2		
https://www.roundupreadyxtend.com/stewardship/education/Pages/default.aspx		
https://www.agweb.com/article/states-tighten-dicamba-regulations/	restrictions set by the State Department of Agriculture, December 12, 2017	http://www.mda.state.mn.us/news/releases/2017/nr20171212dicamba.aspx
http://extension.msstate.edu/content/mandatory-dicamba-training-and-recordkeeping; http://www.mississippi-crops.com/2017/03/29/enlist-and-xtend-what-buffers-are-mandatory/		
https://www.agweb.com/article/states-tighten-dicamba-regulations/	state agency registration as 24 c, (most recent change) April 26, 2018	https://agriculture.mo.gov/plants/pesticides/dicamba-facts.php
https://extension.unl.edu/statewide/saline/dicamba-training-required-in-2018/		
https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		

Applicators must complete a training keep records, and apply dicambia at a maximum of 10 mph.		
Applicators must complete a training keep records, and apply dicambia at a maximum of 10 mph.		
http://ncagr.gov/spcap/pesticides/documents/AuxinResources.pdf		
http://www.cdms.net/ldat/ldDF9003.pdf	state regulation, February 2018	https://www.agupdate.com/tristateneighbor/news/state-and-regional/dicamba-rules-updated-for-growing-season-in-south-dakota/article_781c5212-10df-11e8-9e7d-bb2e9f2be93c.html
https://u.osu.edu/extensionclermont/2018/01/11/dicamba-specific-training-dates/		
http://pested.okstate.edu/pdf/herbform.pdf; http://pss.okstate.edu/PaSSHome/oklahoma-dicamba-training-deck/OklahomaRequiredTrainingDeck412018.pdf		
https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		

https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		
https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		
https://ag.tennessee.edu/Pages/Dicamba-Training-Information.aspx; http://www.southeastfarmpress.com/regulatory/new-dicamba-rules-proposed-tennessee-cotton-soybeans	state regulation, April 24, 2018	https://www.tn.gov/content/dam/tn/agriculture/documents/pestcontrol/Dicamba%20Rules%20Effective%20July%2023-2018.pdf
https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		
https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		
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https://monsanto.com/news-releases/monsanto-launches-website-with-details-on-mandatory-dicamba-training-sessions/		

Office of
INDIANA STATE CHEMIST AND SEED COMMISSIONER
Protecting Indiana's Agriculture and Environment - Feed, Fertilizer, Pesticide and Seed

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Robert D. Waltz, Ph.D.
State Chemist &
Seed Commissioner

August 29, 2018

Richard P. Keigwin
Director, Office of Pesticide Programs
US Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

Sent electronically August 29, 2018

RE: Re-registration of Dicamba Herbicides for Use in Soybeans

Dear Mr. Keigwin,

The following comments are being provided by the Office of Indiana State Chemist (OISC). OISC is the pesticide state lead agency (SLA) for the state of Indiana. OISC strongly supports the comments and recommendations regarding dicamba re-registration, as presented in the August 29, 2018 letter to Agency by the Association of American Pesticide Control Officials (AAPCO). In addition, the following Indiana-specific information is being shared to provide context and detail to our position of support of AAPCO.

These comments represent input from OISC staff that have been involved in pesticide regulation, and in particular drift and off-target pesticide movement management, applicator education, and compliance response for over forty years. OISC staff experience includes participation in and leadership of AAPCO Off-Target Movement Committee for over fifteen years, the National Coalition for Drift Management, and the Pesticide Program Dialogue Committee Drift Labeling Improvement Work Group. OISC also commented extensively on draft revisions to the 2017 *Engenia, FeXapan,* and *Xtendimax* herbicide labels.

Indiana relies heavily on agriculture as one of our principal and historic industries. Indiana ranks second nationally in the production of processing tomatoes, and in the top five for peppermint, spearmint, fresh market cantaloupe and watermelon, however, Indiana agriculture is overwhelmingly comprised of row crops (corn, soybeans, wheat). Indiana is also home to one of the top four soybean seed producing companies in the United States. Correspondingly, Indiana agricultural producers rely heavily on pesticide applications, more specifically herbicide applications in soybeans and corn.

Annually, off-target pesticide movement (hereinafter drift) response is the number one compliance priority identified by OISC. Over the last ten years, OISC has received and investigated an average of 89 drift complaints each year. Dicamba has been a target of those investigations, on average, only 5% of the time. With the introduction of dicamba use on soybeans in 2017, OISC investigated 287 total drift complaints. 132 (46%) of

those complaints involved application of dicamba to soybeans. In 2018, OISC has investigated 257 total drift complaints to date, with 133 (52%) of those involving dicamba. Those 2017 and 2018 figures represent a 300% increase in total average annual drift complaints and a 2660% increase in average annual dicamba complaints. The contribution of dicamba complaints to these increases is obviously grossly disproportionate and indicative of a problem that cannot be explained by unusual climatic conditions or use and handling by a subset of inexperienced applicators.

The 2017-2018 compliance response effort for dicamba drift has been all-consuming of OISC resources for almost two full years. This has included targeted dicamba education and training of over 10,000 applicators, dicamba-specific outreach, dicamba media response, development of dicamba-specific investigation and laboratory analysis procedures and methods, and dicamba complaint investigation, case processing, enforcement, and state regulatory policy evaluation and development to assess and responsibly address the multitude of dicamba related impacts. The efforts required for dicamba response have precluded OISC from engaging in other necessary routine compliance monitoring and educational activities during this period.

2018 complaint investigation and response is currently on-going, so evaluation and assessment data are not yet available. However, Indiana data for the 132 dicamba investigations conducted during 2017 reflect the following: 1) 62% involved private applicators, 23% involved commercial applicators, and 15% involved non-licensed applicators; 2) 92% of the complaints involved applications to soybeans; 3) 92% involved exposure to non-DT soybeans; 4) OISC could document off-target drift and the source of the drift in only 23% of the investigations **(or stated more strikingly in another way, in over 75% of the investigations we were unsuccessful in identifying the source or cause of the off-target movement, in spite of extensive investigation and environmental residue testing)**; 5) complaints caused by tank contamination or inadequate sprayer system hygiene was documented in only 3% of the investigations; 6) documented technical or significant label violations were documented in 93% of the investigations, even if the source of exposure could not be clearly identified.

Although not represented in the above 2017 data, it is important to note that almost 100% of the 2017 and 2018 dicamba complaints were the result of post-emergent and later season applications to soybeans.

Since the formal introduction of dicamba use in soybeans in 2017, OISC has been actively engaged with a variety Purdue University and other Weed Science Society of America weed scientist educators and researchers in an on-going basis. Most of our shared efforts have focused on the safe and effective use of this new dicamba technology. One of the more prominent observations by regulators and educators alike has been that both the 2017 and 2018 dicamba label directions have been extremely challenging for a trained applicator to comply with completely. Perhaps this is best illustrated by our 2017 dicamba investigation compliance data which reflects a 93% violation rate. To further illustrate legal application challenges, we have consulted research conducted by Purdue

University weed scientists https://extension.entm.purdue.edu/newsletters/pestandcrop/article/update-on-wind-speeds-and-the-new-dicamba-labels/. This weather data for Indiana suggests that legal by-the-label application of these products could occur during only about 47 hours during the entire month of June, 2018. June represents a month during which post-emergent applications to soybeans would normally occur in Indiana. Taken collectively, this data supports that there is a low expectation that legal post-emergent use of dicamba on soybeans may occur, whether a complaint is filed with the SLA or not. However, it must be noted that these are the same trained applicators that have been applying similar herbicides to soybeans for many years with far fewer negative impacts.

Mandatory dicamba applicator training was required prior to use in 2018. It was not required in 2017. The numbers of formal complaints filed with OISC in 2017 and 2018 have remained virtually unchanged. OISC and Purdue Cooperative Extension Service conducted all of the mandatory dicamba training in 2018 to an estimated 10,000 applicators, so the message to potential dicamba users was very tightly controlled. The purpose of the training was to insure label compliance and to drastically reduce the extrodinary number of dicamba drift complaints. Needless to say, the mandatory training was not successful in reducing drift complaints.

In summary, OISC is very supportive of the careful consideration that AAPCO has demonstrated in developing their stated position regarding the registration of these products in 2019. We would like to thank you in advance for your consideration of our concerns and comments. We look forward to the opportunity to work with the Agency to ensure that safe and effective crop protection options remain available for use.

Questions regarding any of the data provided in this letter may be directed to our agency at Dave Scott, (765) 494-1593, or scottde@purdue.edu.

Sincerely,

Robert D. Waltz

Robert D. Waltz, Ph.D.
State Chemist & Seed Commissioner
Office of Indiana State Chemist
rwaltz@purdue.edu

cc: Mike Goodis, EPA/OPP/RD
Dan Kenny, EPA/OPP/RD
Reuben Baris, EPA/OPP/RD

The Honorable Andrew Wheeler
Acting Administrator
US Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Sent electronically August 29, 2018

RE: Dicamba Registration Decision

Dear Acting Administrator Wheeler:

The Association of American Pesticide Control Officials (AAPCO) was formed in 1947, the same year that Congress enacted the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). AAPCO is a professional association comprised of the officers charged by law with the execution of the state, territorial, provincial, and federal pesticide laws in the United States, including all its territories, and in Canada. The Environmental Protection Agency (EPA) and States are co-regulators in the implementation of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Our mission is to represent state pesticide control officials in the development, implementation, and communication of sound public policies and programs related to the sale, application, transport, and disposal of pesticides.

A primary goal of AAPCO is to encourage uniformity among the states and territories (referred to hereafter as states) in their pesticide regulatory programs. It is recognized that states cannot have identical programs due to wide differences in population, geographic area, cropping systems, climate, political attitudes, and other factors which influence use of pesticides.

Given the impending decision on the conditional registration of Xtendimax with VaporGrip Technology (EPA Reg. No. 524-617), Engenia (EPA Reg. No. 7969-345), and FeXapan with VaporGrip Technology (EPA Reg. No. 352-913) and also with other potential registration decisions involving the registration of dicamba for the over-the-top (OTT) use on genetically modified crops for the 2019 growing season and beyond, AAPCO respectfully offers the following observations and comments.

States recognize the substantial issues and associated costs of herbicide-resistant weed species in row crop agriculture. The approval of genetically modified soybean seed by USDA in 2016 and the delayed registration of

appropriate approved herbicides by EPA created an unnecessary regulatory burden for state pesticide programs. During 2016, several states had increased caseloads and enforcement issues related to drift of legacy formulations of dicamba which were not approved for OTT applications to genetically modified soybeans and cotton.

With the approval of the appropriate herbicide products in 2017, the full technology package was in use and states recorded unprecedented numbers of drift cases associated with the use of the products in multiple states. Some states chose to add additional risk mitigation measures through the use of Special Local Need labeling. Still, the impact to state pesticide programs was in many cases an unmanageable workload. Impacts included financial costs associated with overtime, laboratory analysis, and travel costs related to large numbers of cases. It is also important to note that pesticide program work in other areas was not accomplished due to the increased workload surrounding dicamba investigations.

AAPCO worked with EPA during the fall of 2017 until the approval of revised OTT dicamba label language for the 2018 growing season. AAPCO worked diligently to provide EPA with the best available data from the states' experiences with product-use issues from the 2017 growing season. EPA adopted many of the risk mitigation measures that states had adopted through Special Local Need labeling, including a wind-speed reduction for applications from 15 mph to 10 mph. EPA changed the use classification to restricted use with the full support of AAPCO. Mandatory training was required for any applicator applying the products and along with very stringent recordkeeping requirements for applicators. This type of mandatory training was an unprecedented effort to maintain the registration of dicamba and was agreed to by states in an effort to preserve these important tools for growers. The mandatory training requirement was a massive undertaking for the states and involved great expense and hundreds of staff hours. States were required to provide extensive additional training to their inspectional staffs to prepare to them investigate cases based on new label amendments.

As we near the end of the 2018 growing season, many states continue to report significant complaints from the movement of the dicamba from the target site. AAPCO developed and conducted weekly surveys of states requesting the number of OTT dicamba-specific compiaints and provided this information to the agency. AAPCO and EPA also held weekly calls to make sure the agency knew, in real time, all of the information that states knew related to the situation on the ground. The unintended consequences of the off-target movement of dicamba affect every aspect of agriculture. AAPCO has reported to the agency damage to a wide array of agricultural, horticultural, and homeowner sites.

The direct impact upon pesticide programs/state lead agencies has been significant. The numbers of FTEs committed to dicamba-related issues is

unsustainable under the current funding structure for the state pesticide programs.

AAPCO is supportive of the following recommendations as EPA moves toward a registration decision:

1. Registrations should be conditional on a year-to-year basis. This allows for changes to the label as additional information becomes available.
2. An early-season cutoff date should be mandated on the Section 3 label, but only if states are allowed to modify the cutoff date to adjust for state-specific conditions such as growing season or weather conditions.
3. State Local Need labels must continue to be a viable option for states to accommodate conditions within states in the regulation of dicamba.
4. EPA should recognize states' ability to enforce label requirements, as opposed to advisory language, and only include risk mitigation measures that are enforceable. If risk mitigation relies on label language involving prohibitions related to plant-growth stage or weather conditions such as inversion or temperature, then the agency should fully understand that states will have great difficulty enforcing these type prohibitions.
5. EPA should recognize the great financial burden these registrations have caused state lead agencies. States have continued to receive reductions in program funding for decades. EPA funding to state pesticide programs should be addressed to accommodate the dicamba issue along with other recent unfunded mandates. Lack of funding and the corresponding loss of staff has eroded states' ability to respond to large-scale issues or incidents. Any immediate financial assistance should be offered proportionally to the states impacted by increased caseloads.
6. EPA should immediately contact states and offer to renegotiate pesticide program work plan outcomes for FY 2018 to accommodate the additional workloads associated with the enforcement of these dicamba registrations.

AAPCO will continue to work closely with EPA in the implementation the pesticide program throughout the United States. We appreciate our ongoing relationship as co-regulators in the implementation of FIFRA.

Sincerely,

Tony L. Cofer, President
AAPCO

cc: Chief of Operations, Henry Darwin
Deputy Assistant Administrator, OCSPP, Nancy Beck
Acting Principal Deputy Assistant Administrator, OCSPP, Charlotte Bertrand
Director, OPP, Rick Keigwin
Director, Office of Pest Management Policy, USDA, Sheryl Kunickis

Message

From: Baris, Reuben [Baris.Reuben@epa.gov]
Sent: 8/29/2018 2:04:11 AM
To: Keigwin, Richard [Keigwin.Richard@epa.gov]; Messina, Edward [Messina.Edward@epa.gov]; Goodis, Michael [Goodis.Michael@epa.gov]; Rosenblatt, Daniel [Rosenblatt.Dan@epa.gov]; Kenny, Daniel [Kenny.Dan@epa.gov]; Hathaway, Margaret [Hathaway.Margaret@epa.gov]; Schmid, Emily [Schmid.Emily@epa.gov]; Meadows, Sarah [Meadows.Sarah@epa.gov]; Basu, Bilin [Basu.Bilin@epa.gov]; Miller, Wynne [Miller.Wynne@epa.gov]; Chism, William [Chism.Bill@epa.gov]; Becker, Jonathan [Becker.Jonathan@epa.gov]; Hawkins, Caleb [Hawkins.Caleb@epa.gov]; Kaul, Monisha [Kaul.Monisha@epa.gov]; Kiely, Timothy [Kiely.Timothy@epa.gov]; Echeverria, Marietta [Echeverria.Marietta@epa.gov]; Anderson, Brian [Anderson.Brian@epa.gov]; Wait, Monica [Wait.Monica@epa.gov]; Peck, Charles [Peck.Charles@epa.gov]; Wagman, Michael [Wagman.Michael@epa.gov]
CC: Davis, Donna [Davis.Donna@epa.gov]
Subject: articles of interest week of Aug 27

https://www.agprofessional.com/article/survey-leads-ifca-make-4-recommendations-dicamba-epa

http://www.newspressnow.com/news/local_news/drought-dicamba-take-center-stage-at-field-day/article_734a5c51-0fc0-5592-834b-7d10fed2c49f.html

https://www.wallacesfarmer.com/crop-protection/dicamba-drift-issues-continue-haunt-iowa

https://www.bloomberg.com/news/articles/2018-08-17/the-other-monsanto-chemical-that-bayer-investors-should-watch

https://news.bloombergenvironment.com/environment-and-energy/epa-on-time-crunch-to-release-drifting-dicamba-herbicide-decision?utm_source=twitter&utm_medium=ehsdesk&utm_campaign=2pm

https://www.deltafarmpress.com/soybeans/epa-decision-dicamba-formulation-labels-expected-soon

https://www.agweb.com/article/waiting-for-dicambas-second-shoe-to-drop/

For tomorrow's entertainment:
https://www.reuters.com/article/products-dicamba/case-to-watch-9th-circuit-hears-arguments-in-monsanto-dicamba-suit-against-epa-idUSL2N1VI07U

And in case you haven't seen it before:

https://www.dtnpf.com/agriculture/web/ag/news/crops/article/2018/08/09/epa-listens-dicamba-discussion

REUBEN BARIS | PRODUCT MANAGER, TEAM 25 | HERBICIDE BRANCH
U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF PESTICIDE PROGRAMS | (703) 305-7356

Survey Leads IFCA To Make 4 Recommendations On Dicamba to EPA

by:- Margy Eckelkamp

For the second year, The Illinois Fertilizer and Chemical Association (IFCA) surveyed its members who are professional applicators on their experience with applying the newest dicamba formulations to soybeans. There are 113 responses to this year's survey, which gave the following details about 2018 applications by IFCA members:

- 90% applied dicamba in post-emergence applications
- 55% applied dicamba pre/burndown
- In post applications, approximately 60% sprayed Engenia, and 40% sprayed XtendiMax.
- Nearly 70% applied post applications occurred the week of June 4
- Nearly 55% applied post applications were completed the week of June 11
- And less than 20% respondents sprayed dicamba in the month of July

"70% of dicamba applications in Illinois are done by a professional applicator," explains Jean Payne, president of IFCA. View the full 2018 survey here.

So far in 2018, the Illinois Department of Agriculture has received 319 misuse complaints attributed to dicamba symptoms (the total number of pesticide misuse complaints so far in 2018 totals 500, which is a historic high.)

"Last year the applicators attributed the problems of off target to a myriad of issues---wind, contamination, volatility----but this year, volatility rose up in the listing. And they felt that they don't have anything else to attribute it to," Payne says.

Per the label requirement, more than 11,000 people attended dicamba specific training in Illinois.

Regarding damage complaints attributed to dicamba, the IFCA survey reports:

- 60% of retailers report less than 40% of their non-Dicamba soybean acres showed dicamba damage
- Approximately 15% said 80 to 100% showed damage
- "Do not apply when sensitive crops are downwind" was ranked as the most difficult aspect of the label for applicators
- About 85% of retailers believe that people are using labeled dicamba products on soybeans
- Retailers estimated their territory had 64% of soybean acres planted with the Xtend trait

"This year the applicators emphasized again that off target movement exists under optimum conditions with extremely careful application and impacts sensitive soybeans," Payne says.

The above findings, along with multiple visits and interviews with industry stakeholders during the year, has been the foundation for IFCA's recent recommendations given to EPA. In light of the pending EPA decision on the new dicamba formulations and their labels past 2018, here are IFCA's four recommendations:

1. Growers should provide to the applicator the type of soybean trait planted on all sides of any Xtend field that is intended to be treated with dicamba, in a form signed by the grower and provided to the applicator, ahead of any commercial application.

2. "Do not apply if sensitive crops are adjacent to the field of application in any direction."

3. Do not apply beyond the V6 growth stage.

4. Do not apply after June 30 of each calendar year.

Read more about IFCA's recommendations here, and you can read the full letter sent to the EPA here.

"Although differences of opinion exist, the IFCA leadership believes that measures can be taken to enable the use of the technology while also outlining reasonable steps to address the tendency of dicamba to impact nearby crops and other areas when applied post-emergence on soybeans, even by the most experienced and well-trained applicators," Payne says.

She says the above recommendations help address the lack of clarity in the 2018 labels. And the focus of IFCA is to help retailers and applicators be good stewards of the technology they have access to.

"The clock is ticking. We are waiting for the EPA to make their announcement regarding 2019 labels either this month or in September," Payne says.

COMMON SYMPTOM: Dicamba herbicide drift injury to non-resistant soybean varieties is expressed as cupping and crinkling of soybean leaves. Pesticide complaints remain high in Iowa for the 2018 growing season.

Dicamba drift issues continue to haunt Iowa

Number of dicamba off-target complaints remains high in state.

Rod Swoboda 1 | Aug 27, 2018

The number of complaints of pesticide misuse continues to be significant in Iowa. From spring through mid-August, the Iowa Department of Agriculture and Land Stewardship received 238 ag-related pesticide misuse reports, compared to 248 total pesticide misuse complaints last year.

About 47% of the ag complaints this year involve a growth regulator herbicide, and most of those complaints involve herbicide drift. Dicamba and 2,4-D are the most widely used growth regulator herbicides in Iowa, but several other growth regulator herbicides are used.

Last year saw a big increase in drift complaints as new formulations of dicamba came on the market for use on dicamba-resistant soybean varieties. Problems arise when the dicamba herbicide applications drift to nearby fields where nonresistant soybeans are planted, damaging the nonresistant soybeans.
risk higher with postemergent

Challenging weather conditions for application this spring and summer contributed to more investigations of off-target herbicide damage by the IDALS Pesticide Bureau. However, weather isn't the only factor causing this problem.

Because of the extreme sensitivity of soybeans and many other plants to dicamba, it takes a much higher level of management to minimize the risk of off-target injury when using dicamba, especially in June and July when temperatures are higher.

Thus, the risk of drift occurring with a postemergence application of dicamba is greater than with dicamba applied preplant. To reduce the potential for dicamba drift and related problems, Iowa State University Extension weed management specialists Bob Hartzler and Mike Owen recommended that dicamba be applied only preplant in Iowa in 2018, and not applied postemergence. In addition to increased drift potential, there's also the volatilization issue with dicamba.

Evaluating precautions

Off-target injury associated with dicamba application on dicamba-resistant beans led to a record number of pesticide misuse investigations by IDALS last year. Nationwide, estimates were 3.6 million acres of soybeans injured by off-site movement of dicamba during 2017, including 150,000 acres in Iowa.

Off-target dicamba damage shows up in several ways, says ISU's Hartzler. Those include physical drift from application in windy conditions, volatilization of the product after it is applied, runoff from fields when heavy rains occur following application, and improper clean-out of sprayer tanks.

Prompted by last year's troubles, the U.S. Environmental Protection Agency implemented new labeling requirements and increased separation distances for spraying dicamba over the top on soybeans, hoping to curb the problems.

EPA also required farmers and commercial applicators who planned to apply dicamba in 2018 to attend training sessions last winter. EPA is now evaluating how successful the label changes and the required training have been in reducing off-target movement from applying dicamba.
acres damaged in 2018

Soybean varieties with the Xtend trait are resistant to dicamba herbicide; those without the trait are susceptible to injury from dicamba. Hartzler has been reluctant to provide estimates of the number of Iowa soybean acres damaged in 2018 from dicamba applied to Xtend soybeans due to the difficulty in developing a realistic number of affected acres.

"While there has been a significant number of acres damaged by dicamba this year, I'm sure it is less than 5% of Iowa's nearly 10 million soybean acres," Hartzler says.

"Due to this relatively small number of acres affected, in relation to total soybean acres in Iowa, dicamba injury will not significantly impact Iowa's productivity in 2018," he says. "However, if you are a farmer whose crop has been damaged by dicamba, the fact that the majority of soybean acres in the state were not affected is of little consolation."

To get a better handle on the extent of dicamba injury across Iowa, Hartzler in mid-August asked ISU Extension field agronomists located around the state to complete a brief online survey.

Half of the agronomists said the number of soybean acres damaged by dicamba was similar to 2017, whereas the remainder were split between fewer acres and more acres damaged in 2018 than 2017.

“When I’ve asked commercial agronomists the same question, the range of responses is similar to those of my Extension colleagues,” Hartzler says.

Volatility involved in some cases

More than 75% of the ISU field agronomists polled felt volatility was involved in at least 25% of the drift cases they investigated, while 25% of the agronomists thought movement following application played a role in over 50% of the incidences they investigated.

Complaints to state regulatory agencies is one measure EPA will consider in its upcoming decision regarding future use of dicamba on Xtend soybean varieties.

“We know the reported incidences represent a very small fraction of total drift cases, as farmers are reluctant to involve regulatory agencies,” Hartzler says. “Many farmers just don’t report that their soybeans were injured.”

Most of the ISU Extension agronomists in Hartzler’s survey said IDALS was contacted in less than 25% of the dicamba cases, and no one in the survey said IDALS was contacted in the majority of cases.

Off-target movement still problem

Most growers using the Xtend system are happy with the increased performance in weed control obtained with dicamba compared to alternatives, the survey shows. However, one ISU Extension agronomist said farmers planting non-dicamba-resistant soybeans in his area “are really upset with the continued off-target movement of dicamba.”

Based on what Hartzler has observed and heard from talking to farmers, commercial applicators and others, he says,

"It is my opinion that the new label restrictions put into place by EPA following the 2017 growing season, and the training required for applicators of the new dicamba products, have failed to reduce off-target problems to an acceptable level," Hartzler says.

EPA label revisions

EPA officials recently held two teleconferences with academic weed scientists from states where the new dicamba herbicide products are registered. In those conversations, there was near unanimous agreement that the level of off-target injury observed in 2018 is unacceptable.

EPA officials asked for suggestions on label modifications that could reduce problems in the future. Hartzler says the following ideas were put forward:

• All herbicide products containing dicamba should be labeled as restricted-use products.

• Volatility is viewed as a contributing factor to off-target damage, thus some sort of temperature restriction should be implemented.

• Date restrictions for application are viewed as more effective than the current growth stage restriction, but they would need to be state-specific.

• Better clarification is needed between sensitive and susceptible crops.

• Buffers need to be established 360 degrees around rather than downwind.

EPA officials said they plan to announce their decision in the near future so farmers and others in the ag industry will know the status of the technology before making 2019 seed purchases.

"Off-target movement of dicamba is complex. There is no simple solution. And whatever action EPA takes will not make everyone happy," Hartzler says.

"Agriculture must do a better job managing pesticide applications, so we can continue to have these valuable crop protection tools available to use."

Source URL: https://www.farmprogress.com/crop-protection/dicamba-drift-issues-continue-haunt-iowa

Message

Sent: 8/22/2018 8:57:30 PM
To: Gere, Tom [Tom.Gere@state.sd.us]
Subject: update

Hi Tom,
DO you have a good sense of any

REUBEN BARIS | PRODUCT MANAGER, TEAM 25 | HERBICIDE BRANCH
U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF PESTICIDE PROGRAMS | (703) 305-7356

From: Gere, Tom [mailto:Tom.Gere@state.sd.us]
Sent: Wednesday, August 22, 2018 11:50 AM
To: Baris, Reuben <Baris.Reuben@epa.gov>; Kenny, Daniel <Kenny.Dan@epa.gov>
Cc: Farley, Joseph <Joseph.Farley@state.sd.us>; Kinard, Sherrie <Kinard.Sherrie@epa.gov>; Wood, MelanieL <Wood.MelanieL@epa.gov>; Jacobson, Bruce <Bruce.Jacobson@state.sd.us>
Subject: Dicamba volatility_8-21-2018.docx

Hey Reuben and Dan,

South Dakota put together some thoughts on Dicamba and what is going on here in South Dakota. I believe most all of the states are in agreement that this weed control option is a needed tool, but there are a lot of problems that the registrants are not willing to address. Volatility being one of the issues. The dicamba chemistry had problems with volatility. South Dakota has over 5 million acres of soybeans. Fifty percent are roughly dicamba tolerant. If 3% of those acres have a volatility issue that would equate to over 150,000 acres in SD where the product did not stay put for various reasons.

The EPA weekly calls have been helpful and we all have the same story with 50% or greater of drift complaints pertain to a possible dicamba issue.

Thanks,

South Dakota
DEPARTMENT OF
AGRICULTURE

Tom Gere, C.C.A
Assistant Director
South Dakota Department of Agriculture
Agricultural Services Division
523 East Capitol Ave
Pierre, SD 57501
Direct: 605.773.4432
Fax:605.773.3481
sdda.sd.gov

Message

From: Wozniak, Chris [wozniak.chris@epa.gov]
Sent: 8/21/2018 11:26:45 AM
To: Kausch, Jeannine [Kausch.Jeannine@epa.gov]; Kough, John [Kough.John@epa.gov]; Martinez, Jeannette [Martinez.Jeannette@epa.gov]; Striegel, Wiebke [Striegel.Wiebke@epa.gov]; Pierce, Amanda [pierce.amanda@epa.gov]; Milewski, Elizabeth [Milewski.Elizabeth@epa.gov]; Djurickovic, Milutin [Djurickovic.Milutin@epa.gov]; Wingeart, Jennifer [Wingeart.Jennifer@epa.gov]; Chism, William [Chism.Bill@epa.gov]; Becker, Jonathan [Becker.Jonathan@epa.gov]; Jones, Arnet [Jones.Arnet@epa.gov]; Jones, Russell [Jones.Russell@epa.gov]
Subject: 2,4-D / Dicamba drift / HT cotton

FYI

https://www.npr.org/sections/thesalt/2018/08/21/638588456/west-texas-vineyards-blasted-by-herbicide-drift-from-nearby-cotton-fields

West Texas Vineyards Blasted By Herbicide Drift From Nearby Cotton Fields

West Texas Vineyards Blasted By Herbicide Drift From Nearby Cotton Fields

August 21, 2018 5:02 AM ET
Heard on Morning Edition

Merrit Kennedy

Instagram Twitter

Enlarge this image

The vines at Pheasant Ridge Winery near Lubbock, Texas, were devastated by drift from the herbicide 2,4-D in 2016.
Merrit Kennedy/NPR hide caption

toggle caption
Merrit Kennedy/NPR

The vines at Pheasant Ridge Winery near Lubbock, Texas, were devastated by drift from the herbicide 2,4-D in 2016.

Merrit Kennedy/NPR

On the High Plains in West Texas, hot winds blast through cotton fields as far as the eye can see.

In the middle of it all is a tiny vineyard.

Andis Applewhite is the owner. She's an artist whose family has worked this land for a century. They once planted crops more typical of the neighborhood, like cotton and wheat. Applewhite decided to try something different: She put in a couple of acres of cabernet franc grapes.

"It's fun," says Applewhite as we stand in her fields. She inspects a vine that is starting to wrap itself around a trellis. "It's looking like a real grape plant."

But Applewhite has yet to harvest a crop. Over the past two years, something has caused her vines to twist and wither. And she's not alone. Grapevines in Texas are being damaged by a seemingly invisible force.

Livelihoods are at stake. Texas is one of the largest wine-producing states. It has more than 400 wineries. The industry says it boosts the state's economy by some $13 billion annually.

Andis Applewhite's vineyard near Lockney, Texas, has been hit multiple times by herbicide drift. **Merrit Kennedy/NPR hide caption**

toggle caption
Merrit Kennedy/NPR

The damage at Applewhite's vineyard and elsewhere is likely coming from one of her cotton-growing neighbors. New weedkillers used on the cotton crop are drifting beyond the fields and causing damage elsewhere.

The same herbicides are being used on soy and other crops in the U.S. Some estimates, such as this report published last month from the University of Missouri, suggest that drift this year from one of the herbicides, dicamba, has caused over a million acres of damage to vulnerable crops across the country.

When Applewhite first noticed what was happening, she says, "I was really mad. I wanted to kind of lash out."

"But then I said, 'No, I really need to get more information, and this is going to be a process.' "

Huge changes to cotton

Right down the road from Applewhite is her neighbor Dan Smith. Out in his fields, we can see tiny plants just starting to come up from the soil.

The Salt

A Wayward Weedkiller Divides Farm Communities, Harms Wildlife

"This cotton has been out of the ground about three weeks, it's 3 weeks old," he says.

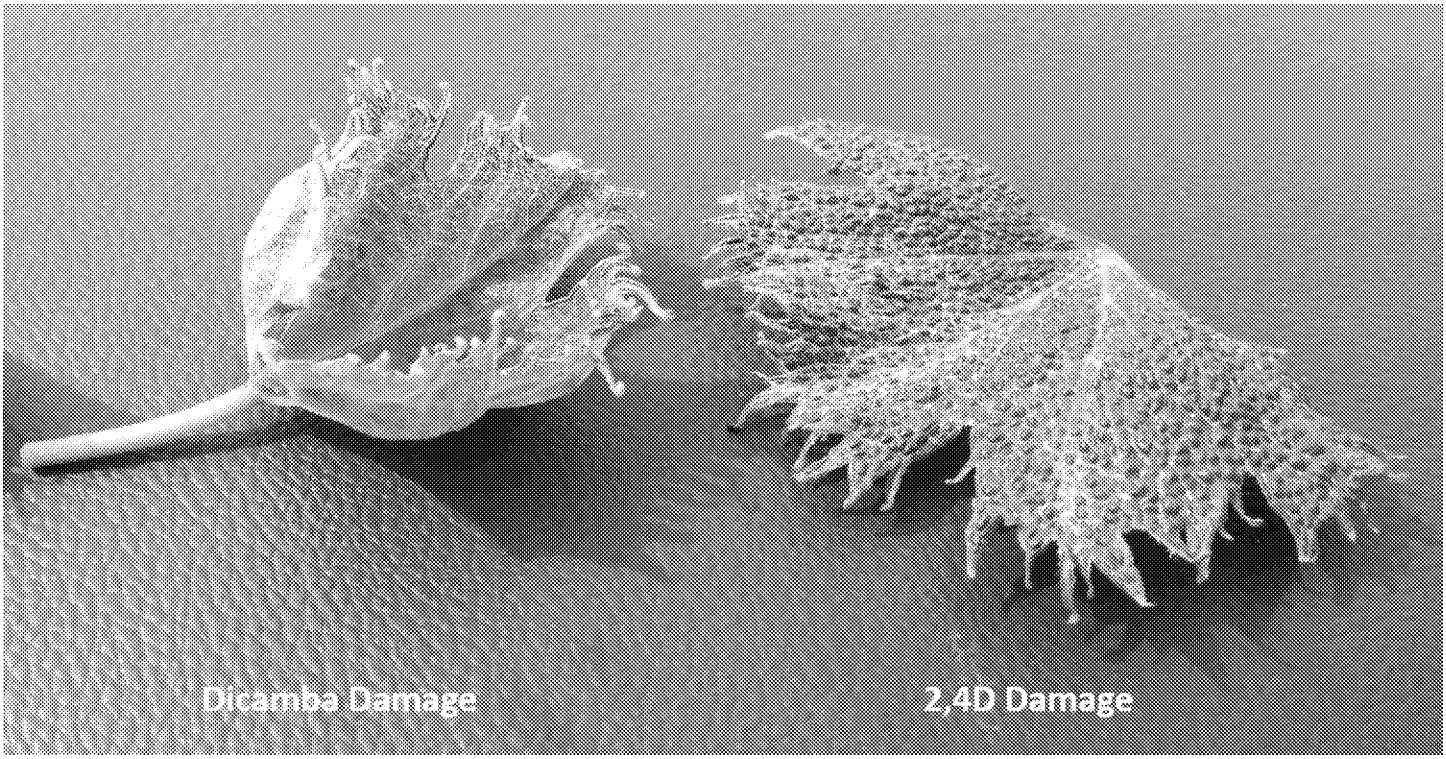
Smith, 64, has lived on this land for almost his entire life, except for a stint for school and for a term as a young mayor of Lockney, a nearby town. Since he started, he says the cotton business has gone through huge changes.

"Back then, you could farm a smaller amount of land and still make a good living," he says.

Today, profit margins are thinner. To make that living, farmers like him have to work much larger patches of land. Smith is growing cotton on about 5,000 acres across multiple counties. And to do it, he says, he needs technology, including high-tech weedkillers.

Leaf Damage From Herbicide Drift

Dicamba and 2,4-D have different physical effects on grape leaves. Leaves damaged by dicamba (left) are known to cup, while leaves damaged by 2,4-D tend to fan out at a wider angle from the stem.



Credit: Pierre Helwi

His favorite was one called Roundup. "The old Roundup, it'd kill any size weed, anytime, anywhere. It was great," he says, smiling nostalgically.

This is how Roundup worked: First, he would plant cotton seeds that were genetically modified so the herbicide didn't bother them. Then he could spray the entire field. The weeds would die, and the cotton would thrive.

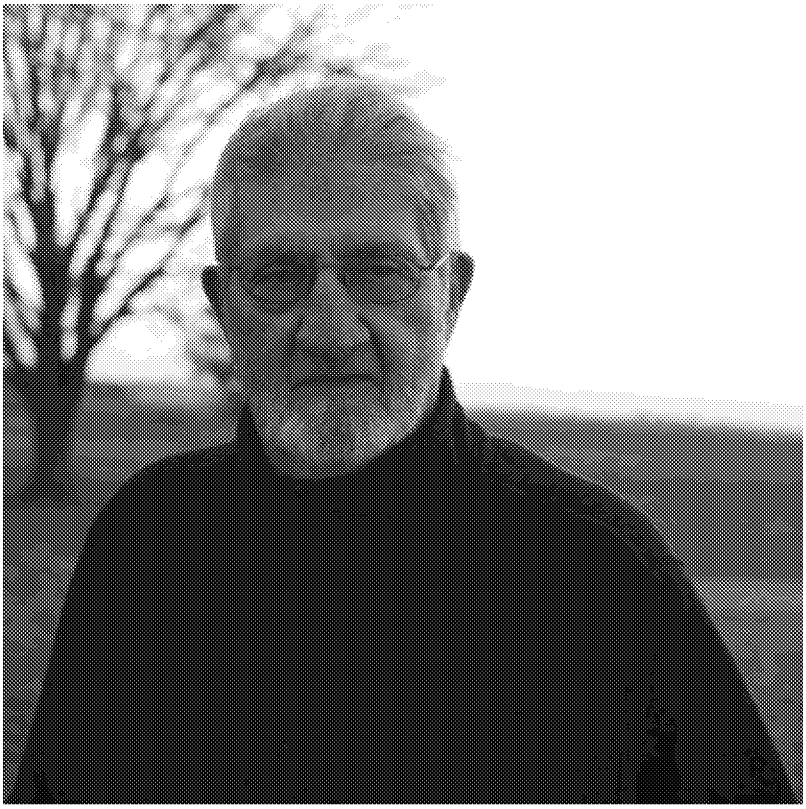
This was until 2013, when Roundup suddenly stopped working in this area. The weeds had become resistant.

"The first couple of years, when we got hit with that resistance, it was a nightmare. We didn't exactly know what to do," said Smith.

New herbicide products with new rules

Then big agricultural companies started pushing new herbicides.

In 2017, companies such as Monsanto and Dow released new formulations of old chemicals that had been used for decades, called dicamba and 2,4-D, respectively. The products have some chemical similarities and are known as synthetic auxin herbicides. The companies also started selling cotton seeds that had been modified to resist these herbicides.



The Salt

These Citizen-Regulators In Arkansas Defied Monsanto. Now They're Under Attack

The problem is that these chemicals are more likely to drift into other fields than the older weedkillers did. That is causing a crisis that has swept across agricultural lands nationwide. Last month, University of Missouri researchers said states have reported more than 600 complaints about damage to soybeans and other kinds of plants.

The crisis has sparked lawsuits. And in Arkansas, a farmer was shot and killed during a drift dispute.

The companies insist that the new herbicides are safe to use according to label requirements. The labels are more elaborate than those on previous chemicals.

"There's a lot more specific information that the applicator needs to be aware of, and those conditions must be followed very carefully," says Peter Dotray, a weed science professor at Texas Tech University and Texas A&M University.

Those labels include a lot of rules aimed at preventing drift — things like limiting sprayer boom height and creating buffer zones. Texas requires applicators of these herbicides to get a permit.

Dotray, who sees the new herbicides as important tools for growers, says he personally might be even more cautious than the label requires if there is a sensitive crop nearby. "I'm going to try to manage the risk as best I can, and if I see something close by that is a crop like a vineyard, I'm probably going to try to create an even greater buffer."

Cotton grower Dan Smith stresses that he goes to great pains to be careful. "Nobody wants to hurt that vineyard," said Smith.

The Salt

Monsanto Attacks Scientists After Studies Show Trouble For Weedkiller Dicamba

He's using a different kind of herbicide in the area near Applewhite's vineyard, and in other areas, he adds an extra chemical that is supposed to prevent dicamba drift, just to be safe.

"It's an expense I don't have to do, but I feel like I better," Smith says.

Some grape growers think the current regulations may not be enough to protect their vines.

To prevent drift, spraying is only supposed to happen when wind speeds are below 10 mph. Longtime winemaker Bobby Cox says a 10-mph day in blustery West Texas is basically a fairy tale.

"You can't do it," he says, laughing uproariously. "Your fairy godmother has to pull out a wand, tap the pumpkin and turn it into a carriage."

Thirty-year-old vines destroyed

Cox planted his vines more than 30 years ago in an area that is now the heart of the Texas wine grape-growing industry. "Oh, people thought you were flaming nuts," he says, remembering the early days when he was a pioneering grower.

Despite the challenges, over the years, he built a successful vineyard.

But in 2016, everything changed for Cox. His neighbor sprayed the herbicide 2,4-D — an old formulation of the chemical now used more widely — and it drifted onto his vineyard.

Bobby Cox, who owns a 30-year-old vineyard in Lubbock, Texas, has seen many of his vines destroyed by herbicide drift. **Merrit Kennedy/NPR hide caption**

toggle caption
Merrit Kennedy/NPR

The results were devastating. Unlike crops like cotton, which farmers replant each year, it takes years for vines to reach their prime. "It takes so long to make a crop, it sticks with you so long ..." he says, trailing off. "You just lost so much."

Some of his vines still look sick. The leaves are really small and fan out in a strange way. He has seen a major reduction in yields. About 20 percent of Cox's vines completely died.

As he walks down the long rows, he sighs and reaches down to pull a dry, brown stump out of the ground that can't be saved.

The next time he's expecting a full crop is 2020, four years after the damage was done.

'It's everywhere'

Many wine growers nearby are also facing drift damage, ranging from light exposure that doesn't impact the fruit, to total devastation like Cox. And this area grows about 80 percent of the wine grapes in Texas.

Because there's so much variation in how harmful the damage is, it's hard to say conclusively how many growers have been impacted.

Pierre Helwi is a viticulturist for the Texas A&M AgriLife Extension Service. He monitors dozens of vineyards around here and is on the lookout for damage. "And I saw it, I would say in 90, 95 percent of the vineyards there. So it's everywhere."

Incidents of drift are probably vastly underreported through official channels, based on figures provided by the Texas Department of Agriculture. It says that as of Aug. 8, there have been five dicamba drift complaints and 13 complaints for 2,4-D across all types of crops — not just grapevines.

Perry Cervantes, coordinator for pesticide certification and compliance at the Texas Department of Agriculture, said that given the few complaints, tightening the laws on these chemicals would hard to justify. "As big a state as we are, I don't see why we would want to put any more regulation on it if we don't have, you know, proof that we need to."

And not all winegrowers agree that more regulation is needed for the new herbicides. Katy Jane Seaton, executive director of the High Plains Winegrowers Association, also grows cotton, like many wine grape growers here. She says she does not believe the chemical itself is responsible — it's about the herbicide's applicators, she says, and the relationships that they have with their neighbors.

"It's never the product's fault," she says. "Pencils don't misspell words, guns don't shoot people and the product isn't at fault."

Accountability often elusive

After Cox's vines were devastated, the Texas Department of Agriculture fined the neighbor $800 for "using herbicide in a manner inconsistent with the label," according to documents obtained by NPR. Cox is also in the process of working out a settlement with the neighbor.

But for other growers, it can be difficult to hold people accountable for the damage because it's sometimes impossible to know where the drift came from. Applewhite, the artist, filed a complaint with the Texas Department of Agriculture in 2016 after her vines were damaged.

The outcome of the investigation was vague.

"Our investigation shows that a violation of Texas pesticide laws may have caused or contributed to the effects or activities which led you to file a complaint," the department says in its closure letter. "We did not, however, find enough evidence to identify the person responsible or to determine that a violation did in fact occur. As a result, the investigation of your complaint has been closed."

And two days after I left, the damage was back.

"I noticed on new growth, the deformed leaves," Applewhite says. The vines were suddenly showing signs of new herbicide drift. And her neighboring farmers say they didn't do it.

"You know, they told me they didn't spray. So I have to believe them," she says.

This time, she didn't see any point in filing a complaint because she doesn't think it will help the problem. All she can do is keep working on her vines.

Do not believe everything you read on the internet, especially quotes from famous people.
Abraham Lincoln (probably)

From: Sorokin, Nicholas
To: AO OPA OMR CLIPS
Subject: Reuters: U.S. farmers confused by Monsanto weed killer"s complex instructions, 8/21/17
Date: Monday, August 21, 2017 10:06:14 AM

Reuters
http://www.reuters.com/article/us-usa-pesticides-labels-idUSKCN1B110K

U.S. farmers confused by Monsanto weed killer's complex instructions

By Tom Polansek and Karl Plume, 8/21/17

CHICAGO (Reuters) - With Monsanto Co's (MON.N) latest flagship weed killer, dicamba, banned in Arkansas and under review by U.S. regulators over concerns it can drift in the wind, farmers and weed scientists are also complaining that confusing directions on the label make the product hard to use safely.

Dicamba, sold under different brand names by BASF (BASFn.DE) and DuPont (DD.N), can vaporize under certain conditions and the wind can blow it into nearby crops and other plants. The herbicide can damage or even kill crops that have not been genetically engineered to resist it.

To prevent that from happening, Monsanto created a 4,550-word label with detailed instructions. Its complexity is now being cited by farmers and critics of the product. It was even singled out in a lawsuit as evidence that Monsanto's product may be virtually impossible to use properly.

At stake for Monsanto is the fate of Xtend soybeans, it largest ever biotech seed launch.

Monsanto's label, which the U.S. Environmental Protection Agency (EPA) reviewed and approved, instructs farmers to apply the company's XtendiMax with VaporGrip on its latest genetically engineered soybeans only when winds are blowing at least 3 miles per hour, but not more than 15 mph.

Growers must also spray it from no higher than 24 inches above the crops. They must adjust spraying equipment to produce larger droplets of the herbicide when temperatures creep above 91 degrees Fahrenheit. After using the product, they must rinse out spraying equipment. Three times.

"The restriction on these labels is unlike anything that's ever been seen before," said Bob Hartzler, an agronomy professor and weed specialist at Iowa State University.

The label instructions are also of interest to lawyers for farmers suing Monsanto, BASF and DuPont over damage they attribute to the potent weed killer moving off-target to nearby plants.

A civil lawsuit filed against the companies in federal court in St. Louis last month alleged it might be impossible to properly follow the label. Restrictions on wind speed, for example, do not allow for timely sprayings over the top of growing soybeans, according to the complaint.

The companies failed "to inform the EPA that their label instructions were unrealistic," the lawsuit said.

Monsanto said that while its label is detailed, it is not difficult to follow.

"It uses very simple words and terms," Scott Partridge, Monsanto's vice president of strategy, told Reuters. "They are not complex in a fashion that inhibits the ability of making a correct application." BASF and DuPont could not immediately be reached for comment on the lawsuit on Friday.

Monsanto and BASF have said they trained thousands of farmers to properly use dicamba. Monsanto also said the crop damage seen this summer likely stemmed largely from farmers who did not follow label instructions.

Those detailed instructions led some growers and professional spraying companies to avoid the herbicide altogether.

Richard Wilkins, a Delaware farmer, abandoned plans to plant Monsanto's dicamba-resistant soybeans, called Xtend, this year because a local company would not spray the weed killer.

"The clean-out procedure that you have to go through to ensure that you don't have any residue remaining in the applicator equipment is quite onerous," he said.

In Missouri, farm cooperative MFA Inc said it stopped spraying dicamba for customers last month partly because high temperatures made it too difficult to follow the label.

STUDYING WIND, TEMPERATURES

The EPA is reviewing label instructions following the reports of crop damage.

Monsanto has a lot riding on the EPA review. The company's net sales increased 1 percent to $4.2 billion in the quarter ended on May 31 from a year ago, partly due to higher U.S. sales of Xtend soybeans. Since January, the company has increased its estimate for 2017 U.S. plantings to 20 million acres from 15 million.

One confusing requirement on its dicamba label, farmers said, prohibits spraying during a "temperature inversion," a time when a stable atmosphere can increase the potential for the chemical to move to fields that are vulnerable.

To follow the rule, some growers used their smart phones to check weather websites for wind speeds and information on inversions.

"You have to be a meteorologist to get it exactly right," said Hunter Raffety, a Missouri farmer who believes dicamba damaged soybeans on his farm that could not resist the chemical.

Nicholas Sorokin
Office of Media Relations Intern

Message

From: Rick Robinson [rrobinson@ifbf.org]
Sent: 8/17/2018 2:51:07 PM
To: Baris, Reuben [Baris.Reuben@epa.gov]; Greg Kruger [greg.kruger@unl.edu]
CC: Jones, Doug [jones.doug@epa.gov]; Gulliford, Jim [gulliford.jim@epa.gov]
Subject: Dicamba 2018 - The Iowa Experience

The latest on Iowa from Dr. Robert Hartzler, Iowa State University, with some survey numbers.

https://crops.extension.iastate.edu/cropnews/2018/08/dicamba-2018-iowa-experience

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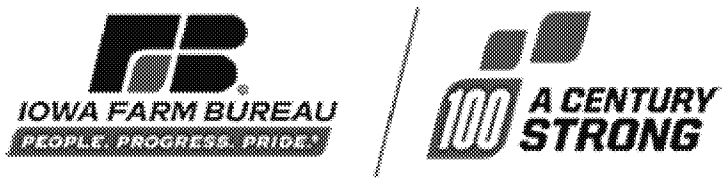

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IOWA STATE UNIVERSITY
Extension and Outreach

Integrated Crop Management

Dicamba 2018 - The Iowa Experience

August 15, 2018

I have been reluctant to provide estimates of soybean acres damaged from dicamba applied to Xtend soybean due to the difficulty in developing a realistic number of affected acres. While there has been a significant number of acres damaged by dicamba, I am sure it is less than five percent of Iowa's nearly 10 million soybean acres. Due to this relatively small number of acres affected (in relation to total soybean acres), dicamba injury will not significantly impact Iowa's productivity in 2018. However, if you are a farmer whose crop has been damaged by dicamba, the fact that the majority of soybean in the state were not affected is of little consolation.

To get a better handle on the extent of dicamba injury across the state, I asked ISU Extension and Outreach field agronomists to complete a brief on-line survey. Half of the agronomists stated the number of soybean acres damaged by dicamba was similar to 2017, whereas the remainder were split between fewer acres and more acres damaged in 2018 than 2017. When I've asked commercial agronomists the same question, the range of responses was similar to those of my extension colleagues.

More than 75% of ISU Extension and Outreach agronomists felt volatility was involved in at least 25% of the drift cases they investigated, while 25% thought movement following application played a role in over 50% of the incidences they investigated.

Complaints to state regulatory agencies is one measure that the Environmental Protection Agency (EPA) will consider in their upcoming decision regarding future use of dicamba on Xtend soybean. We know the reported incidences represent a very small fraction of total drift cases as farmers are reluctant to involve regulatory agencies. The majority of ISU Extension and Outreach agronomists reported that Iowa Department of Agriculture and Land Stewardship (IDALS) was contacted in less than 25% of the dicamba cases, and nobody reported IDALS was contacted in the majority of cases.

The majority of growers using the Xtend system are happy with the increased performance in weed control obtained with dicamba compared to alternatives. However, one ISU Extension and Outreach agronomist stated that farmers planting non-dicamba resistant soybean "are really upset with the continued off-target movement of dicamba". It is my opinion that the new label restrictions placed following the 2017 growing season, and the training required for applicators of the new dicamba products, has failed to reduce off-target problems to an acceptable level.

The EPA recently held two teleconferences with academic weed scientists from states where the new dicamba products are registered. There was near unanimous agreement that the level of off-target injury observed in 2018 is unacceptable. The EPA asked for suggestions on label modifications that could reduce problems in the future. Following are ideas that were put forward:

- All products containing dicamba should be *Restricted Use Products*
- Volatility is viewed as a contributing factor to off-target damage, thus some sort of temperature restriction should be implemented
- Date restrictions are viewed as more 'workable' than the current growth stage restriction, but they would need to be state specific
- There needs to be better clarification of sensitive/susceptible crops
- Buffers need to be 360 degrees rather than downwind

The EPA stated they plan to announce their decision in the near future so that people will know the status of the technology before making 2019 seed purchases. Off-target movement of dicamba is complex, there is no simple solution, and whatever action the EPA takes will not make everyone happy.

Category: Weeds

Crop:

Soybean

Tags: dicamba drift volatility

Author:

Bob Hartzler *Professor of Agronomy*

Dr. Bob Hartzler is a professor of agronomy and an extension weed specialist. He conducts research on weed biology and how it impacts the efficacy of weed management programs in corn and soybean. Dr. Hartzler also teaches undergraduate classes in weed science and weed identificatio...

HTTPS://WWW.REUTERS.COM/ARTICLE/US-USA-PESTICIDES-MONSANTO-EXCLUSIVE/EXCLUSIVE-U-S-SEED-SELLERS-PUSH-FOR-LIMITS-ON-MONSANTO-BASF-WEED-KILLER-IDUSKBN1L124Z

AUGUST 16, 2018 / 1:37 PM / 19 DAYS AGO

Exclusive: U.S. seed sellers push for limits on Monsanto, BASF weed killer

Tom Polansek

6 MIN READ

CHICAGO (Reuters) - America's two biggest independent seed sellers, Beck's Hybrids and Stine Seed, told Reuters they are pushing U.S. environmental regulators to bar farmers from spraying dicamba weed killer during upcoming summers in a potential blow to Bayer AG's Monsanto Co.

Rodrigo Werle, a weed scientist at the University of Wisconsin inspects soybean fields as part of the university's research into whether the weed killer Dicamba drifted away from where it was sprayed in Arlington, Wisconsin, August 2, 2018. REUTERS/Tom Polansek

Limiting spraying of the chemical to the spring season, before crops are planted, would prevent farmers from using the herbicide on dicamba-resistant soybeans that Monsanto engineered. The seeds are sold by companies including Beck's and Stine.

Last summer, after farmers planted Monsanto's dicamba-resistant soy seeds en masse, the herbicide drifted onto nearby farms and damaged an estimated 3.6 million acres of non-resistant soybeans, or 4 percent of all U.S. plantings.

Problems have not gone away. As of July 15, the University of Missouri estimated that more than a million acres of non-

resistant soybeans were hurt by dicamba. Homeowners who live near farms have also complained of damage to their trees and flowers.

The U.S. Environmental Protection Agency (EPA) is now weighing such complaints as part of a high-stakes decision on the herbicide's future.

Bayer bought Monsanto and its portfolio of dicamba-resistant Xtend brand soy seeds for $63 billion this year in a deal that created the world's largest seed and pesticides maker.

St. Louis-based Monsanto sells dicamba herbicide, along with rivals BASF SE and DowDuPont Inc. Monsanto and BASF said farmers need dicamba to kill tough weeds and that the chemical can be used safely. DowDuPont declined to comment.

A view of soybean fields that are part of University of Wisconsin research into whether the weed killer Dicamba drifted away from where it was sprayed in Arlington, Wisconsin, U.S., August 2, 2018. REUTERS/Tom Polansek

Monsanto is banking on Xtend soybean seeds to dominate soy production in the United States, the world's biggest producer. They are seen as a replacement for the company's Roundup Ready line of seeds, engineered to tolerate the weed killer glyphosate, which has lost effectiveness as weeds develop their own tolerance to the chemical.

EPA approval for dicamba to be sprayed on resistant crops expires this autumn. The agency could extend its approval, with or without new restrictions on use, or take dicamba off the market. Seed companies expect a decision in the coming weeks.

Most complaints about dicamba drifting would stop if the EPA restricted its use to killing weeds in fields before crops are planted, Beck's Hybrids told the agency in a July 27 letter seen by Reuters.

"Anybody that sprays it, you have issues with the volatilization," CEO Sonny Beck said in an interview on Wednesday, referring to the chemical vaporizing and drifting.

Though his company profited from selling more than a million bags of Xtend soybean seeds this year, Beck said he worried that continued problems with the chemical could give the agriculture sector a bad reputation among consumers.

Restricting use would also help prevent weeds from developing resistance to dicamba, he said.

New limits would be another headache for Bayer, following its acquisition of Monsanto.

Last week a California jury ruled Monsanto must pay $289 million in damages in the first U.S. lawsuit over alleged links between glyphosate and cancer. Monsanto denies glyphosate causes cancer.

Slideshow (4 Images)

Earlier this month, a Brazilian judge suspended the use of products containing glyphosate.

MONSANTO EXPECTS EPA NOD

Monsanto has blamed U.S. field damage from dicamba largely on improper applications by farmers and says mandatory training helped this year.

Inquiries to the company about dicamba problems dropped to about nine per million acres of dicamba-resistant crops planted, down from about 40 inquiries per million acres last year, said Ryan Rubischko, who heads the company's dicamba portfolio. He said Monsanto expects the EPA to extend its approval for dicamba.

In a sign the company is concerned, however, Monsanto has asked seed sellers to contact the agency to express support for the product, according to an email the company sent this week that was seen by Reuters. The email noted others had encouraged the EPA to add restrictions on dicamba or prevent sales.

Monsanto likened those efforts to an "uninformed vocal minority" in the email. Rubischko confirmed the company had asked dicamba users to give positive feedback to regulators.

The EPA did not respond to requests for comment.

The agency has held weekly phone calls with agriculture officials in farm states this summer to assess dicamba damage. Agency officials also visited farms in Tennessee, Missouri and Arkansas to see damaged crops first-hand, according to tour participants.

Farther north, Monsanto funded a study by University of Wisconsin researchers that showed dicamba hurt non-

resistant soybeans that were covered with plastic when the chemical was sprayed on nearby Xtend soybeans after planting.

Stine Seed has told the EPA in writing and conversations that dicamba should not be sprayed on top of growing soybeans to control weeds, CEO Harry Stine said in an interview on Tuesday. The herbicide has damaged fields of Stine soy seeds by drifting, he said.

Stine Seed is preparing to launch products that will compete with Xtend soy and also works with Monsanto on seed technology.

"I've been doing this for 50 years and we've never had anything be as damaging as this dicamba situation," Harry Stine said. "In this case, Monsanto made an error."

Reporting by Tom Polansek in Chicago; Editing by Caroline Stauffer and Matthew Lewis
Our Standards:The Thomson Reuters Trust Principles.

Appointment

From: Jewell, Shannon [jewell.shannon@epa.gov]
Sent: 8/16/2018 6:53:48 PM
To: Baris, Reuben [Baris.Reuben@epa.gov]; Hathaway, Margaret [Hathaway.Margaret@epa.gov]; Brian Major Personal Matters / Ex. 6

Subject: Call: Brian Major and OPP
Location: Please call Brian at Personal Matters / Ex. 6 Rick's Office

Start: 8/22/2018 6:00:00 PM
End: 8/22/2018 6:30:00 PM
Show Time As: Tentative

Brian's cell number is: Personal Matters / Ex. 6. Participating in the call with Brian will be farmer Henry Sanger and farm bureau agent Shannon Waltmon.

Related emails:
On Aug 15, 2018, at 14:52, Keigwin, Richard <Keigwin.Richard@epa.gov> wrote:

Mr. Major—

Thank you for reaching out to EPA and providing the information you discuss below. Hearing from the agricultural community regarding their experiences with the dicamba technology is an important piece of information for the agency to consider as we work towards the upcoming regulatory decision for dicamba.

While I don't think we will be able to get to Kentucky in the near future, we could schedule a telephone call with you so that we can have a conversation about your concerns. Please let us know and we can get something on calendars.

--Rick

Rick Keigwin
Director, Office of Pesticide Programs
US Environmental Protection Agency
Phone: 703-305-7090
Email: keigwin.richard@epa.gov
Visit: https://www.epa.gov/pesticides

From: Brian Major **Personal Matters / Ex. 6**
Sent: Wednesday, August 15, 2018 10:46 AM
To: Keigwin, Richard <Keigwin.Richard@epa.gov>
Subject: Dicamba

Mr. Keigwin.

My name is Brian Major, I am a grain producer in Fulton County Kentucky. We are the western most county in the state, the last the last county before you cross the Mighty Mississippi River. We are about a 5,000 acre grain producing operation with a typical year being 800 to 1,100 acre of corn and 4200 to 4000 acres of soybeans. We normally try to grow 500-700 acres of soft red winter wheat and those acres are followed by double crop soybeans.

I am writing to you today to express my concern for the renewal of the Dicamba herbicide label. There has been studies by multiple universities in our region, University of Arkansas, University of Tennessee, and University of Missouri. These studies have not been favorable to Dicamba and have shown the chemical to be volatile, maybe not as much as the older formulations, but volatile none the less. There have been studies that have shown that visible damage can be seen during vegetative growth with amounts as low as 1/100,000th of the recommended rate. In my opinion, a chemical that can do damage with this low of a rate does not need to be on the market. We have also seen a discoloring of the cypress trees that are around some of the sites where Dicamba has been applied. I will attach a link to the U of Arkansas study to this email and a couple pictures to this email. Last year my county had as much damage as the rest of the State of KY

I hope that hearing what is happening on the front lines, so to speak, will help the EPA to see that the label for this chemical does not need to be renewed. This used to be a pretty close area, with neighbors helping neighbors. This chemical has changed this for quite a few growers. The applicators of dicamba are damaging their neighbor's crops and when they are asked about it the normal answer is " You cant prove it" or "I didn't do it". There is no way to realistically apply this herbicide without it damaging a susceptible crop, either by direct drift damage or by inversion damage. We have about four private applicators here that disregard the label in its entirety or in areas that stop them at the moment. For example, I know of one grower that has a field that is surrounded by Liberty Link technology soybeans on three and a greenhouse on the fourth. From the training I attended there is no legal way to spray this field. You can't apply dicamba with a wind speed of 0 MPH (must be 3-10MPH) and you can't apply it when the wind is blowing towards a sensitive crop. So there is really no way to use the products. We here in west Kentucky are also seeing a lackadaisical approach from Ky Dept of Agriculture on enforcement of the label, the fines for label violation are viewed among the violators "as the cost of doing business" or "its cheaper to pay the fine than lose yield by not spraying". This stance has allowed the reckless operators to continue to damage their neighbors. This problem also has growers making management decisions based on their neighbors decisions and fear of damage/loss. Some have changed their crop plan to plant more corn next to dicamba soybean fields, some switched to the dicamba soybeans out of fear of yield loss. This is Monsanto and other outside influences governing what you do on your own farm. I am a firm believer that what you do on your farm needs to stay on your farm. Last year I had a friend that said if he had a loss over 15-20 bushels to the acre it could put him out of business. He would have been driven out of business by a reckless applicator. Crop insurance wont cover man made issues, and liability insurance would have fought paying the claim because too many people were using it and its too volatile to prove definitively where it came from. There is way to be a good steward of this product. I would like to encourage you to come visit our area. I had a chance to visit with Mr. Dan Rosenblatt a few weeks ago, I was glad to be able to express some of what is going on to someone in the EPA, however, I still don't believe everyone truly understand the scope of this problem. Everyone that comes to see this had left with a better understanding of the problem after coming here. This email is not intended to turn anyone in, it is meant to be educational to show the grounds for not renewing the label.

Thank you for your time.

Brian Major

https://www.uaex.edu/publications/pdf/FSA-2181.pdf

Supply
Service
Stewardship

Illinois Fertilizer & Chemical Association

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August 16, 2018

Mr. Reuben Baris
Office of Pesticide Programs, Herbicide Branch
United States Environmental Protection Agency
Washington, DC

RE: Comments from the Illinois Fertilizer & Chemical Association (IFCA) on Re-Registration of Dicamba for Use in Soybean – *sent electronically on August 16, 2018*

Dear Mr. Baris:

On behalf of the IFCA, we respectfully provide the following recommendations for consideration on the re-registration of dicamba herbicides for use in soybean.

IFCA represents the crop input supply and service industry in Illinois, including the manufacturers, distributors, equipment suppliers and ag retailers who provide products, agronomic recommendations and custom application services to Illinois farmers. The development and support of stewardship programs, policies, and sensible regulation of ag inputs (including crop protection products) is inherent in our mission statement: *"To assist and represent the crop production supply and service industry in Illinois and support the sound stewardship and utilization of agricultural inputs."*

Illinois consistently ranks #1 or #2 in US soybean production. Commercial applicators in Illinois apply pesticides to nearly 22 million acres of crops. On average, commercial applicators apply crop protection products to 70% of the total acres. Illinois commercial applicators have an admirable record of judicious and effective use of crop protection products, and historically, complaints registered by concerned citizens regarding agricultural pesticide misuse have totaled only 70-100 complaints each year, on average, since the Illinois Department of Agriculture (IDA) began tracking misuse complaints in the 1980s. Taking into consideration that over a crop season, millions of acres of soybean, corn, wheat and specialty crops may be treated 2-3 times, this record is something our organization believes illustrates a remarkable level of attention given to the proper application pesticides, and the desire to keep these products on target.

Regarding the use of dicamba in soybean in 2017 and 2018, pesticide misuse complaints to the IDA have risen dramatically, to over 350 complaints in 2017 and exceeding 450 complaints so far in 2018. The vast majority of these complaints in 2017 (246) and 2018 (309 to date) are attributed to symptoms indicative of dicamba exposure in sensitive soybean. The vast majority of these complaints have also been reported by farmers, whereas in all prior years, farmers made up a very small percent of persons contacting IDA to report suspected pesticide misuse.

IFCA maintains weekly contact with the IDA to assess developments on this issue and to support the efforts of the IDA to manage the tremendous workload on their staff—especially given the budget constraints in Illinois government and the level of emotion that exists, on both sides, regarding the use of dicamba.

IDA inspectors have a difficult task and the burden of managing this significant increase in pesticide misuse complaints takes valuable resources away from other vital regulatory programs including agrichemical facility inspections, the pesticide licensing program, pesticide container recycling, etc.— programs that IFCA supports and which are fundamental to the success of our industry.

The IFCA is extremely concerned with the impact on IDA as well as the impact on our commercial applicator members, who face extremely difficult circumstances as they try to find appropriate days in which to apply these products in an environment that is frequently windy, humid, wet, etc. Crops grow quickly in Illinois' fertile soils and so do the weeds. Farmers place pressure on commercial applicators to get their fields treated regardless of the weather conditions. Applicators who refuse to apply based on conditions are often threatened with loss of future business.

In addition to these pressures, commercial applicators face an uncertain future with regard to violations assessed to their licenses that are associated with the difficulty in managing the intricacies of these labels. They also face higher insurance premiums and deductibles, emotional stress on their applicators and financial stress on the retail business. And ultimately, many retailers are called upon to be the referees between customers who support dicamba use in soybean and customers who choose to grow soybeans that are not tolerant to dicamba. While soybean acres planted with the dicamba tolerant traits will certainly grow, there will always be growers who desire to produce non-GMO, organic or other identify-preserved soybeans, thus the need for successful co-existence is paramount.

The significant increase in pesticide misuse complaints is a serious concern for IFCA. In both 2017 and 2018, we surveyed our ag retail members (commercial applicators) to assess their observations on dicamba use in soybean. We have shared those results with our members, with ag industry stakeholders, and with state and federal regulatory agencies. Our organization recognizes the need for options, including the judicious use of dicamba, to manage weeds in soybean. Of equal need and importance is a system that helps applicators make successful applications, supports co-existence with other crops and assures public trust in the on-target use of all herbicides, including dicamba.

On August 14, 2018, IFCA hosted a meeting that included IFCA Board Members (all of whom are retailers who custom apply dicamba to soybean), the Illinois Department of Ag (Bureau of Environmental Programs), the registrants, representatives from the state's largest farm organization and the University of Illinois Weed Science Extension representative. We discussed the current situation in Illinois, the desire to maintain use of dicamba in soybean at some level, the need for improved clarity on several label provisions, the importance of co-existence with sensitive soybean growers, and the responsibility we have to the citizens of Illinois to sustain their rightful expectation that pesticides applied in the ag industry remain on-target.

For these reasons, we provide four suggestions for label changes regarding use of dicamba on soybean. We explain the reasons for these changes below and do not offer these suggestions lightly given the divisive nature of this issue. However, we believe that these changes will enable a path forward for applicators to more clearly determine when a soybean crop can be treated post-emergence with dicamba, and when it cannot be, depending on the vicinity of a sensitive soybean crop.

For simplicity, we have used the Engenia label as the example for the proposed changes, as follows:

1. Add an additional recordkeeping requirement to the label to follow the "Sensitive Crop Awareness" recordkeeping requirement:

Prior to application, the applicator shall obtain from the grower a document signed by the grower identifying the trait of any soybean crop planted adjacent to the field (next to, but not necessarily touching) on any side of the field intended for postemergence application.

Explanation: Applicators apply products to soybean, they do not plant soybean; therefore it has been very difficult for applicators to determine the location of sensitive soybeans in the very hectic application season—we need the grower's assistance in this effort. This requirement will engage growers in the stewardship of this product by requiring the applicator to obtain a document from the grower to identify the soybean traits planted adjacent to the field they wish to be treated with dicamba. We believe that growers who support this technology will understand the need for this documentation. This does place an additional requirement on the applicator to obtain the document from the grower, but the applicator can also take a firm stand well ahead of the season that they need this document in order to perform a custom application.

2. Under the "Sensitive Crops" section of the label, revise the current "Do Not Apply…." to read:

DO NOT APPLY if there is a sensitive crop adjacent to (next to, but not necessarily touching) on any side of the field.

Explanation: In both 2017 and 2018, the majority of commercial applicators noted symptoms in sensitive soybean regardless of the wind speed direction at the time of application. The debate continues as to the exact cause of this symptomology, but the only certain thing is that the symptomology in sensitive soybean, whether upwind or downwind or crosswind at the time of application, does occur.

Given the necessity to co-exist with sensitive soybean, and the fact that the vast majority of complaints registered with IDA are from farmers with symptoms in their sensitive soybean, we believe the "do not apply" restriction needs to apply to more than just downwind sensitive crops—it needs to apply for all adjacent sensitive crops. We have also attempted to define "adjacent" for the reader of the label. This label change coincides with the requirement that the applicator obtain from the grower the trait of all soybeans that exist adjacent to the intended field to be application. This way, the applicator can make a clearer determination of when they can apply, following all the other label requirements. Shifting winds that occur during application are frequent in Illinois, making compliance with the current "downwind" do not spray requirement nearly impossible to manage effectively. Farmers who understand this requirement well ahead of planting season can also strategically plant Xtend soybeans in areas where they know that dicamba application will be more likely, or choose to rotate their crop to corn to avoid being adjacent to sensitive soybean in 2019 and in years to come.

3. Under the "DT Soybean Restrictions" it should state:

DO NOT APPLY this product after V6 growth stage (soybean plants are 12-14 inches tall).

Explanation: It is the experience of the applicators that R1 and R2 are often difficult for both growers and applicators to successfully determine, whereas a V6 stage is more easily identifiable and also moves the application of dicamba earlier in the season. Early application, along with not applying near sensitive

soybean, were the top two conditions that Illinois applicators noted that led to a successful application of dicamba to soybean.

4. Under the "DT Soybean Restrictions" it should state:

DO NOT APPLY after June 30 of each calendar year.

Explanation: This cut-off date will assist the industry and the IDA in taking an enforcement stance that beyond this date, no matter what the circumstances, dicamba application is no longer feasible given the application industry's decades-long experience with dicamba and its propensity to react undesirably and impact sensitive crops and plants the later in the season it is applied. Late application is also counter-productive to effective weed resistance management. This date takes into consideration the possibility of weather delays in Illinois that could impact planting or growth of the soybean. States may need some flexibility in setting a cut-off date depending on their geography and soybean planting dates, but not going much beyond the summer solstice can be a reasonable guideline.

Thank you for considering the recommendations of the IFCA. As is so frequently noted, applicators are wholly responsible for the effective application of pesticides. We believe these changes will provide an opportunity for improvement in planning and in application, while still allowing the use of dicamba postemergence as one weed control option for soybean. IFCA is ready and willing to assist in organizing training programs to explain existing and any new label requirements, just as we did for the 2018 label, with over 11,000 applicators in Illinois receiving the training.

If you have questions regarding our recommendations, please contact us at (309) 827-2774 or at jeanp@ifca.com.

Sincerely,

The Illinois Fertilizer & Chemical Association

Jean Payne, President

American Association of Pesticide Safety Educators

August 14, 2018

RE: Efficacy of Applicator Training to Minimize Off-Target Movement of Dicamba Herbicide in Major U.S. Soybean Producing States

The American Association of Pesticide Safety Educators is dedicated to protecting human health and the environment by promoting high quality pesticide education. Our membership consists of university educators, state/federal regulators, and private industry. Our members would like to comment on the value of the specialized applicator training that EPA imposed in mitigating the off-target movement of dicamba herbicide applied to Dicamba Tolerant Crops in 2018.

Land Grant Universities, state regulatory agencies, and private industry have mounted an unprecedented educational campaign targeting users of this technology. We believe strongly that education is essential in addressing all aspects of pesticide use. These efforts have been only marginally successful in spite of the thousands of hours of training devoted to the stewardship of Dicamba products. The amount of off-target damage observed in 2017 and now in 2018 remains unacceptably high throughout much of the Midwest and Southern states. We urge EPA to look in other areas, besides more training, to solve the serious problem we face with off-target movement of Dicamba used on soybeans/cotton as the products are being reassessed by the agency.

We appreciate the opportunity to comment on this issue. If we can be of further assistance, please do not hesitate to call upon us.

Sincerely,

On behalf of the American Association of Pesticide Educators
AAPSE President Elect
Chair of the Issues and Evaluations Committee

cc: Tony Cofer, AAPCO President
Liza Fleeson Trossbach, SFIREG Chairperson

Center for Biological Diversity - Earth's New Ways - Illinois Environmental Council
Illinois Stewardship Alliance - Iroquois Valley Farmland REIT, PBC
Prairie Rivers Network - The Land Connection

August 10, 2018

Andrew Wheeler, Acting EPA Administrator

US EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 1101A
Washington, DC 20460

Via email: Wheeler.andrew@Epa.gov

Re: Comments regarding the renewal of the registration of dicamba for over-the-top use on herbicide tolerant soybean and cotton.

Dear Mr. Wheeler:

Please accept the following comments on behalf of the Center for Biological Diversity, Earth's New Ways, the Illinois Environmental Council, the Illinois Stewardship Alliance, Iroquois Valley Farmland REIT, PBC, Prairie Rivers Network, and The Land Connection, regarding the renewal of the registration for the growth regulator herbicide dicamba (3,6-Dichloro-2-methoxybenzoic acid) on herbicide tolerant soybean and cotton.

We are writing to request that the USEPA **decline** the renewal of the registration of dicamba, with label names Engenia, FeXapan, and Xtendimax.

The unstable nature of the new formulations of this chemical pose serious threats to the future of farms growing non-GMO and/or specialty crops, orchards and vineyards, as well as to the native flora and fauna in these regions. There were an estimated 40 million acres of dicamba resistant soybeans planted throughout the United States in 2018. This greatly increased the wide-scale use of the new formulations of dicamba, and therefore increased exposure to off-target plants, as well as increased pollution to air and water resources. There are numerous reasons why registration for these products should not be renewed.

1. Physical drift and volatilization

We acknowledge the environmental protection efforts made by strengthening the application and label restrictions. These increased restrictions were designed to reduce physical drift during application and particle drift during inversions. However, these efforts are still inadequate. With the limitations now set for application (wind speed between 3 and 10 mph, no rain event predicted for 24 hours, no application during a temperature inversion, no application upwind of a sensitive crop, and application only during daylight hours), the window for application is extremely limited. A study performed by researchers at Purdue University revealed applicators had very few hours in which to apply registered dicamba products legally

and according to label instructions.[1] This increases the likelihood that the product will be used off-label, and therefore increases risks posed to non-GMO and specialty crops and native flora and fauna.

Despite the tightening of the application and label restrictions, the fact remains that this is a chemical that does not obey boundaries. These restrictions do nothing to address the chemical's volatility. Even with the updated label changes there were over 600 complaints of dicamba damage on an estimated 1.1 million acres so far this year - numbers that are sure to rise.[2] It is widely acknowledged that, post-application, dicamba volatilizes and disperses, often moving up to several miles. Recent studies from state extension researchers have found little difference in volatility between older and newer formulations. Research out of the Universities of Arkansas and Missouri show that newer dicamba formulations not only result in volatility, but can do so at levels similar to older formulations, which are known to be highly volatile.[3] The issues of off-label use and volatility are causing extensive impacts to specialty crops, organic farms, and farms growing non-GMO crops. Farmers across the U.S. are reporting damage to their specialty crops, non-GMO soybeans, vineyards, and even declines in honey production surrounding crop fields treated with dicamba.[4]

2. Rights and freedoms of farmers and growers

Farmers in the United States should have the right and freedom to grow what they want and not fear losing their business due to chemical damage. Farms that choose not to grow GMO crops, that grow specialty crops, organic crops, or are smaller in size and highly diverse are under intense pressure due to dicamba volatilization, drift, and the risk of contamination.

3. Injuries to native flora, fauna, and aquatic systems

Throughout the Midwest, people have been witnessing and documenting off-target damage to native habitats including woodlands and prairies. Across the U.S., incidences of damage to trees and plants on both public and private lands are widespread. In Illinois alone, damage to native forested tracts on public and private lands, as well as landscaping trees, has been significant in the past two years. Natural areas that are now the only refuge for wildlife and biodiversity are experiencing injuries from volatile growth regulator herbicides.

Many species of trees are susceptible to growth regulator herbicide drift (photos attached). Some of the most sensitive species include: redbud, red oak, post oak, black oak, box elder,

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[1] Ikley, J. and Johnson, B. (2018) Update on Wind Speeds and the New Dicamba Label. Pest and Crop Newsletter, Entomology Extension Newsletter, Purdue University, July 20, 2018. Issue 2018.16 Available here: https://extension.entm.purdue.edu/newsletters/pestandcrop/article/update-on-wind-speeds-and-the-new-dicamba-labels/

[2] Bradley, K. July 15 Dicamba injury update. Different Year, same questions. July 19, 2018. Available here: https://ipm.missouri.edu/ipcm/2018/7/July-15-Dicamba-injury-update-different-year-same-questions/.

[3] Norsworthy, J.K, Barber, T, Scott, B. Presentation to the Arkansas Dicamba Task Force. "Dicamba: What do we know?" Sept. 21, 2017. Appendix B. Available here: http://www.aad.arkansas.gov/Websites/aad/files/Content/6126295/Dicamba_Task_Force_Report_sept_21_2017.pdf; and Bradley, K. Presentation to the Dicamba Injury Forum. Dicamba Update July 6, 2017. Available here: https://weedscience.missouri.edu/2017%20Dicamba%20Injury%20Forum.pdf.

[4] Chow, L. (2018) Dicamba roars back for third season in a row. EcoWatch, June 22, 2018. Available here: https://www.ecowatch.com/dicamba-crop-damage-2580306844.html; Hettinger, J. (2017) Complaints surge about weed killer dicamba's damage to oak trees. Available here: http://investigatemidwest.org/2017/10/09/complaints-surge-about-weed-killer-dicambas-damage-to-oak-trees/; University of Missouri. "Dicamba injury is back in 2018". *Successful Farming*. June 21, 2018. https://www.agriculture.com/crops/soybeans/dicamba-injury-is-back-in-2018.

and sycamore. These trees are critical to environmental health. They stabilize soil and sequester carbon, provide vital early spring nectar and pollen resources for bees and pollinators. Many tree species have complex relationships with pollinators such as lepidopterans (moths and butterflies) and coleopterans (beetles) which serve as food for our protected migratory birds and many fish. Additionally, their fruits, nuts, and seeds provide food for many game species, supporting hunting and fishing revenue streams for many states.

All flora and fauna are under intense pressure resulting from habitat loss, climate change, invasive species, hydrologic changes, and pollution. States throughout the Nation are spending millions of dollars to restore and protect wildlife habitat. Additionally, many farmers provide wildlife and pollinator habitat on their farms through federally-funded conservation programs. Agrichemicals like dicamba can potentially negate, at varying degrees and intensities, the benefits gained through the conservation efforts of hundreds of thousands of people and billions of dollars.

Flowering plants exposed to dicamba (approximately 1% of the field application rate via simulated particle drift) showed a reduction in flower expression and delayed onset of flowering. These flowers were also less likely to be visited by pollinators.[5] Research has shown that the active ingredient in dicamba is lethal to lady beetles, a commercially important beneficial predatory insect.[6] It is also known that even low levels of dicamba can have indirect effects on caterpillars; studies have shown that butterfly caterpillars that fed on broadleaf plants exposed to dicamba were much smaller and had a lower pupal mass than those feeding on healthy plants, which can influence their survival and reproductive capacity as adults.[7]

Very little peer-reviewed research has been performed on the new formulations of dicamba and little to no research has been performed on the "inert" or "inactive" ingredients of these formulations. Additionally, farmers and applicators state they frequently mix more than one chemical in a tank during application. We have little to no information about the synergistic effects of the myriad of chemical combinations, the interactions of their inert ingredients, or the toxicity of the frequency and rate of exposure to invertebrates, birds, mammals, fish, reptiles, amphibians, and bacteria and fungi.

Additionally, it is uncertain how much damage from acute and chronic exposure to herbicides is visible to the trained eye. It is unclear if there are sub-optical, though problematic physiologic changes occurring in flowering plants and trees that are not visible or quantifiable.

Dicamba enters waterbodies through foliar and surface runoff.[8] These water bodies are habitat for fish and wildlife, drinking water resources, areas of recreation, and are used for utilitarian purposes such as irrigation and industrial use. The levels of dicamba in surface water since the massive increase in its use is unknown. Research has indicated that dicamba should be

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[5] Bohnenblust, E., Vaudo, A. Egan, J., Mortensen, D., Tooker, J. (2016) *Effects of the herbicide dicamba on nontarget plants and pollinator visitation. Environmental Toxicology and Chemistry* 35, 144.

[6] Freydier, L., Lundgren, J. (2016) *Unintended effects of the herbicides 2,4-D and dicamba on lady beetles. Ecotoxicology.* 25, 1270.

[7] Bohnenblust E, Egan J.F, Mortensen D, Tooker J (2013). *Direct and indirect effects of the synthetic-auxin herbicide dicamba on two lepidopteran species. Environmental Entomology*, 42(3): 586-94.

[8] Grover, R. et al., (1997) *Magnitude and persistence of herbicide residues in farm dugouts and ponds in the Canadian prairies. Environmental Toxicology and Chemistry.* 16, 638; Nishimura, J., Gazzo, K., Budd, R. (2015) *Environmental Fate and Toxicology of Dicamba.* Department of Pesticide Regulation, California Environmental Protection Agency. Report available here: https://www.cdpr.ca.gov/docs/emon/pubs/fatememo/dicamba.pdf.

considered a possible endocrine disruptor in some species of fish.[9] With such widespread and increased use of new formulations that contain new inert ingredients, more research is needed to understand the acute and chronic effects of exposure to aquatic and terrestrial organisms.

4. Ineffective or non-existent mechanisms for injury reporting, misuse enforcement, and feedback processes for label reviews.

There is no good feedback mechanism to prompt product label reviews by the state and federal agencies. The main feedback is whether products work for their intended uses, and whether they lose their efficacies or competitiveness in the marketplace. Unlike with pharmaceuticals where patients and doctors can continue to test efficacies and potential side effects, the environment has no voice for feedback.

It is widely accepted that cases of damage are grossly under-reported. There are numerous reasons landowners, managers, and farmers do not file complaints with the Department of Agriculture. These include: lack of trust in the reporting process, lack of confidence in achieving redress of grievances and compensation for damage, fear of losing their organic certification or being delayed in the process of achieving organic status, no-application error was witnessed, fear of social backlash within local farming community, mis-interpreting cause of symptoms as something other than herbicide damage, lack of appropriate reporting process for injuries received, etc... This under-reporting is a significant issue across the U.S. and grossly underrepresents the extent of off-target herbicide drift, volatilization and damage.

There is no accountability for damage to crops, farms, or personal property due to volatilization. In Illinois and many other states across the U.S. the pesticide misuse complaint process is not structured to handle cases where volatilization is the cause of injury. Additionally, many state agencies lack qualified staff to assist in the documentation of injuries. Therefore, many cases of damage are simply not reported and are not documented in any location.

5. Biomonitoring needs

Primary and secondary effects can be silently expressed for decades with no monitoring protocols in place. There is no federal or state funded biomonitoring program that is dedicated to monitoring the environmental and biological impacts of such broadscale use of an herbicide. Products such as dicamba that resulted in fewer harms when products were first registered, now when combined with greatly expanded monoculture acreages and the greatly increased capacities of application technologies, may pose much greater risks to the environment and human health. Environmental risks are magnified in diminished and fragmented habitats that are subjected to other, multiple threats.

There is a significant lack in understanding of this issue with the general public and the majority of landowners do not understand that they have herbicide injury on their property, which further contributes to the harm posed by underreporting injury and damage. There are countless cases of people asking why their trees look so sick this year, not even knowing that nearby agrichemicals can move off-site after application.

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[9] Zhu, L; Li, W; Zha, J; Wang, Z (2015). *Dicamba affects sex steroid hormone level and mRNA expression of related genes in adult rare minnow (Gobiocypris rarus) at environmentally relevant concentrations. Environmental toxicology.* 30 (6): 693–703.

Closing remarks

Farmers have the right, but are losing the freedom, to grow what they want because of chemical damage. More and more farmers are choosing not to grow GMO crops in favor of specialty crops and organic crops, and many choose to run smaller, highly diversified farms. These farmers are under intense pressure due to dicamba volatilization, drift, and the risk of contamination. They should not have to fear losing their crops, customers, certification, or their ability to produce the crops that their family has grown for generations.

The 2018 growing season is still underway. In many parts of the country, reports of off-target damage are just beginning to become evident. Injuries from off-target exposure to dicamba that are being witnessed in our native ecosystems are avoidable. These ecosystems do not need another stressor, in addition to the existing pressures of habitat loss, climate change, pollution, pesticides, hydrologic changes, and invasive species. For the reasons outlined above, we respectfully request you **decline** the renewal of dicamba on genetically engineered soybeans and cotton.

Sincerely,

Kim Erndt-Pitcher
Habitat and Agriculture Programs Specialist
Prairie Rivers Network

Nathan Donley, Ph.D
Senior Scientist
Center for Biological Diversity

Liz Moran Stelk
Executive Director
Illinois Stewardship Alliance

Jen Walling
Executive Director
Illinois Environmental Council

John Steven Bianucci
Earth's New Ways, LLC
Co-founder

John Steven Bianucci
Director of Impact
Iroquois Valley Farmland REIT, PBC

Mallory Krieger
Farmer Training Manager
The Land Connection

cc: Charlotte Bertrand,
Acting Principal Deputy Assistant Administrator in the Office of Chemical Safety and Pollution Prevention (OCSPP) - US EPA
Bertrand.charlotte@Epa.gov

Rick P. Keigwin, Jr.,
Director of Office of Pesticide Programs - US EPA
Keigwin.richard@Epa.gov

Message

From: Bennett.Tate@epa.gov [Bennett.Tate@epa.gov]
Sent: 8/10/2018 2:31:59 PM
To: Beck, Nancy [Beck.Nancy@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]; Keigwin, Richard [Keigwin.Richard@epa.gov]; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Subramanian, Hema [Subramanian.Hema@epa.gov]
Subject: Ag Retailers Discuss Dicamba

https://www.dtnpf.com/agriculture/web/ag/perspectives/blogs/production-blog/blog-post/2018/08/10/ag-retailers-discuss-dicamba

"Not that we need more restrictions, but there are things on that label that need to be better defined (such as the downwind designations), and the registrants have to understand that," Payne said.

"IFCA's position has always been stewardship is important and regulations don't mean anything unless they can be enforced," she added. "I think there's definitely room to better define the language on those labels and still allow use of this product."

The 41-question IFCA survey reveals that, despite challenges, 46% of those commercial applicators still consider the technology to be largely positive when considering all aspects of the dicamba experience. The rest were negative or neutral.

Payne said there's no time to waste if farmers and applicators want a say in this issue. The clock is ticking on the dicamba labels. "Some of these discussions might be uncomfortable, but how much more uncomfortable can we get?

"The trait is going to be in the field next year, whether we have an approved herbicide or not," Payne noted.

Payne acknowledged that some may balk at the remedies IFCA will likely suggest. Stiff penalties for those who shirk the rules may be included in the suggestions. "But farmers that want this weed control need to embrace compromise because it what may be what allows them to keep it as a tool, " she added.

"I'm lucky to work for an organization that would rather be at the table offering ideas, rather than reacting. We have to use pesticides in manner that assures public trust in our industry. Society rightfully expects the agricultural industry to successfully co-exist in increasingly diverse rural and urban communities," she said.

Production Blog

Ag Retailers Discuss Dicamba

8/9/2018 | 7:47 PM CDT

By Pam Smith , Crops Technology Editor

Connect with Pam:

@PamSmithDTN

A new dicamba use survey searches to uncover what happened in Illinois this year. (DTN photo by Pamela Smith)

DECATUR, Ill. (DTN) -- Illinois has been a hot spot for the dicamba debate in 2018. Injury complaints to the Illinois Department of Agriculture are running 20% higher than during the same period in 2017.

With re-registration of the herbicides approved for use with the Xtend technology pending and off-target movement still being reported, the Illinois Fertilizer and Chemical Association (IFCA) felt a survey of custom applicators might provide some helpful clues to assess experiences with post application of dicamba on soybean.

The intent was to give feedback to registrants and other stakeholders on how this technology might be better managed, said IFCA President Jean Payne.

"We are working diligently at IFCA to work with our members and devise a path forward for dicamba. I think we uncovered some things that can address concerns, whether it is at the state of federal level," she said.

The results of that poll were released Thursday, Aug. 9. You can find the entire survey posted here: www.ifca.com.

IFCA members were surveyed July 25-Aug. 3. At that time, the Illinois Department of Agriculture (IDA) had received nearly 300 formal misuse complaints attributed to dicamba, Payne said.

The majority of those complaints were being made by farmers regarding symptoms on soybeans. "Overall, IDA has taken nearly 1,000 phone calls on this issue in 2018; most are from farmers, but there are also calls regarding symptoms on other sensitive plants. The number of official dicamba-related complaints has increased from 2017, and IFCA believes it is imperative to provide useful recommendations going forward to address the off-target issues related to dicamba use in soybean that cause concern in the farming community and to assure continued public trust in judicious pesticide use," the association said in a prepared report.

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The 113 responses in the survey show a divided membership. Almost 35% of the answers came from central Illinois, which is an area heavily devoted to custom application. In the poll, 90% of the applicators said they sprayed dicamba in 2018. Over 70% said they observed symptoms in adjacent non-dicamba-tolerant soybeans when the wind was not blowing toward the field at the time of application. Nearly 55% said they saw fields where multiple dicamba exposures likely occurred. The finger was pointed at volatility as the primary factor for those symptoms.

Still, the symptoms observed were reported as "light cupping" of soybean leaves, and over 70% ranked weed control in Xtend soybeans as good to excellent.

"Do not apply when sensitive crops are downwind" was ranked as the most difficult aspect of the label for applicators, followed by wind-speed requirements, identifying nearby sensitive crops, inversions, in-field buffers, clean-out procedures, soybean growth cut-off stage, recordkeeping and no pre-sunrise or post-sunset applications. Nozzles were the least difficult aspect.

"What really stood out is this: Dicamba works on weeds and in areas of the state where we have a lot of pressure. However, it is very difficult to keep on target by even the most professional, experienced applicators," Payne told DTN. "We have to define some parameters that work better for the professional applicators."

EPA tacked on additional label restrictions for the 2108 season after off-target movement issues became apparent the previous year, the first year Engenia, FeXapan and XtendiMax were available to use in-season on Xtend crops.

"Not that we need more restrictions, but there are things on that label that need to be better defined (such as the downwind designations), and the registrants have to understand that," Payne said.

"IFCA's position has always been stewardship is important and regulations don't mean anything unless they can be enforced," she added. "I think there's definitely room to better define the language on those labels and still allow use of this product."

The 41-question IFCA survey reveals that, despite challenges, 46% of those commercial applicators still consider the technology to be largely positive when considering all aspects of the dicamba experience. The rest were negative or neutral.

Payne said there's no time to waste if farmers and applicators want a say in this issue. The clock is ticking on the dicamba labels. "Some of these discussions might be uncomfortable, but how much more uncomfortable can we get?

"The trait is going to be in the field next year, whether we have an approved herbicide or not," Payne noted.

Payne acknowledged that some may balk at the remedies IFCA will likely suggest. Stiff penalties for those who shirk the rules may be included in the suggestions. "But farmers that want this weed control need to embrace compromise because it what may be what allows them to keep it as a tool, " she added.

"I'm lucky to work for an organization that would rather be at the table offering ideas, rather than reacting. We have to use pesticides in manner that assures public trust in our industry. Society rightfully expects the agricultural industry to successfully co-exist in increasingly diverse rural and urban communities," she said.

Pamela Smith can be reached at Pamela.smith@dtn.com

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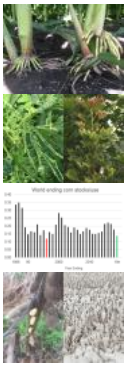

Production Blog

Pam Smith

About the Author

Connect with Pam:

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Message

From: Bennett.Tate@epa.gov [Bennett.Tate@epa.gov]
Sent: 8/10/2018 2:31:59 PM
To: Beck, Nancy [Beck.Nancy@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]; Keigwin, Richard [Keigwin.Richard@epa.gov]; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Subramanian, Hema [Subramanian.Hema@epa.gov]
Subject: Ag Retailers Discuss Dicamba

https://www.dtnpf.com/agriculture/web/ag/perspectives/blogs/production-blog/blog-post/2018/08/10/ag-retailers-discuss-dicamba

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Dicamba drift problems not an aberration

A veteran Tennessee weed scientist's perspective

Larry Steckel 2 | Aug 08, 2018

Dicamba drift across the landscape was the dominant call again this June and July.

Once again, Palmer amaranth control with dicamba was very good in many fields. This is the third year where there have been major issues keeping dicamba in the field, but Palmer amaranth control was good in fields where it was applied. It really dawned on me that this is not so much new, but after three consecutive years is, in fact, the "new normal."

For three decades, I have had the privilege to make thousands of field visits to help growers troubleshoot problems. Every year, a number of those problems were drift-related. The herbicide drift in those calls would typically travel no farther than a couple hundred yards. In only a few cases can I recall it going much farther.

However, the drift we are saw this June and July in Tennessee with dicamba in the new use pattern in Xtend crops is like nothing I have ever seen before. I have never seen a herbicide that has so easily and frequently slipped the leash. Nor have I seen a herbicide that, once off the leash, would roam so far. Dicamba drift

have I seen a herbicide that, once off the leash, would roam so far. Dicamba drift for the past three years has often travelled a half mile to three-quarters of a mile and, all too frequently, well beyond that.

We are not alone. I keep in contact with my university Extension weed scientist colleagues and, again this year, pretty much any state that borders or contains the Mississippi, Missouri and/or Wabash River valleys is having extensive off-target drift issues with dicamba applied in Xtend crops.

I truly would like to have seen a much better outcome from a stewardship standpoint this summer with dicamba as the weed control has been good. Instead, it has been more of the same with landscape level movement of that herbicide. The one significant difference this year has been there were fewer Tennessee soybean fields injured by dicamba.

I feel the main reason for this is there are very few soybeans planted in Tennessee that are not Xtend and, therefore, in harm's way. Many growers have told me they simply gave up trying to grow non-Xtend soybeans because they had repeatedly seen dicamba injury in past years — often multiple times in the same year. In essence, they "grew them in defense" of being drifted on.

My best estimate is that Tennessee has roughly 100,000 acres of non-dicamba tolerant soybeans planted and about 40 percent of them are currently showing dicamba injury. Moreover, there has been an increase in other broadleaf plants besides soybeans showing dicamba injury.

After walking fields and visiting with many applicators and folks whose fields or landscape have been drifted on, one can find many causes for the off-target dicamba. However, when time and time again I walk into a soybean field that is showing uniform injury from one side to the other, dicamba volatility into an inversion seems a very plausible explanation. Indeed, a number of my weed science colleagues have conducted research that would suggest this very thing.

See also: ***Monsanto responds to increased dicamba drift reports***

Monsanto keeps all my weed science colleagues and me updated on their investigations of all the complaints of off-target dicamba movement. They repeatedly inform us that it is all off-label issues and, therefore, the fault of our applicators.

I have seen some applicator error, as well. However, from all my conversations with applicators this spring and summer I feel that most took the dicamba stewardship training to heart and, as a whole, they have really done as good a job as possible. Tennessee Department of Agriculture spot checks conducted this summer would also indicate applicators are following the label.

Also, I take into account our applicators' pesticide stewardship record in recent

Also, I take into account our applicators' pesticide stewardship record in recent decades and they have, with few exceptions, kept most any herbicides applied in the target field. Therefore, the results from Monsanto's investigations strike me odd that suddenly, and only with dicamba in June and July applications, our applicators are incompetent. In my mind that does not wash.

There will be a new sheriff in town by the name of Bayer who will own this technology. I, for one, would like them to cast a fresh perspective on this issue and look to change course. In my mind, Monsanto's course is leading us toward losing our credibility with the non-farm public that we know how to steward pesticides. My hope is that Bayer will change course before that credibility is damaged beyond the point of no return.

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	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM
	91°F	91°F	91°F	92°F	91°F	90°F
	0%	0%	0%	0%	0%	0%
Wind	10 mph SW	10 mph SW	10 mph SSW	9 mph SSW	8 mph SSW	7 mph SSW

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August 8, 2018

On July 25, 2018 the IFCA sent a dicamba use survey to our ag retail members only, and asked them to respond by August 3, 2018. We used SurveyMonkey. We sent a similar survey last year and continue to engage with our members to assess their experiences with post application of dicamba on soybean to provide input to the registrants and other stakeholders on the management of this technology.

As of July 27, 2018 the Illinois Department of Agriculture has received 297 formal misuse complaints attributed to dicamba, the vast majority of the complaints being made by farmers regarding symptoms on non-DT soybeans. Overall, IDA has taken nearly 1,000 phone calls on this issue in 2018; most are from farmers, but there are also calls regarding symptoms on other sensitive plants. The number of official dicamba-related complaints has increased from 2017, and IFCA believes it is imperative to provide useful recommendations going forward to address the off-target issues related to dicamba use in soybean that cause concern in the farming community and to assure continued public trust in judicious pesticide use.

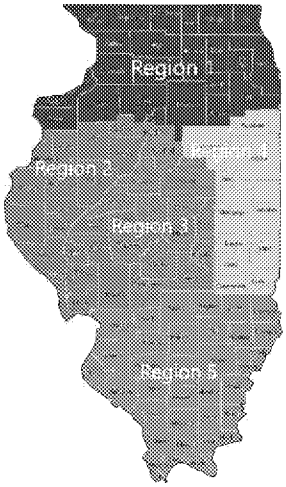
We received 113 responses to the survey. In many cases, the main ag retail office replied on behalf of all their branches and applicators, thus one response often reflected the experiences of dozens of branch offices and applicators. We are very pleased with the response rate to this survey.

In addition to this survey, IFCA staff has taken many calls from our members and from farmers expressing concern with the issues they were dealing with relative to the use of dicamba on soybeans, and asking IFCA for assistance and leadership on the issue.

IFCA members answered the survey questions but also provided extensive written comments. The IFCA Board and staff evaluated all the comments provided by the retailers; we have included many of the comments verbatim. We selected those which we feel illustrate the most common concerns, observations and recommendations provided by the retailers who perform commercial application services.

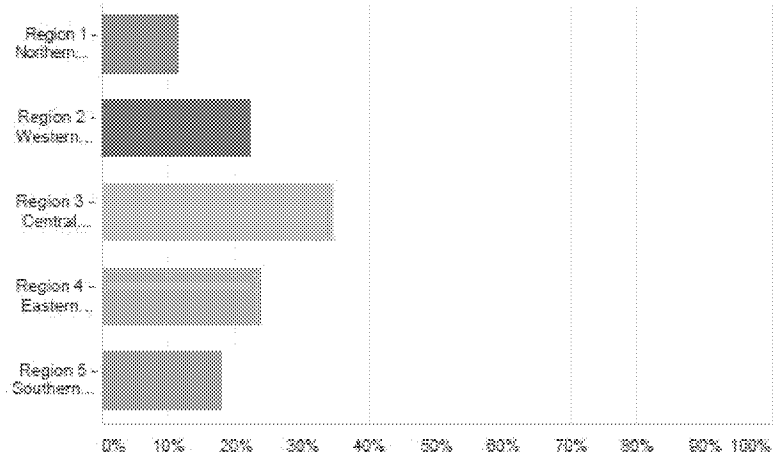
As this survey reveals, commercial applicators are split over the use of this technology. Although differences of opinion exist, the IFCA leadership believes that measures can be taken to enable the use of the technology while also outlining reasonable steps to address the tendency of dicamba to impact nearby crops and other areas when applied post on soybean, even by the most experienced and well-trained applicators. IFCA members are very cognizant of their stewardship responsibilities—they desire to help their farmer customers protect their crops, and they also know that they must use pesticides in manner that assures public trust in our industry. Society rightfully expects the agricultural industry to successfully co-exist in increasingly diverse rural and urban communities and IFCA will work diligently to achieve this goal.

Please direct questions about this survey to Jean Payne, IFCA President, at (309) 827-2774 or jeanp@ifca.com. Visit our website at www.ifca.com for an overview of the programs and issues managed by IFCA on behalf of our members. The 2018 IFCA dicamba management survey results follow.



Q1 Please select the region or regions in Illinois where you operate as retailer based on the map provided in this survey.

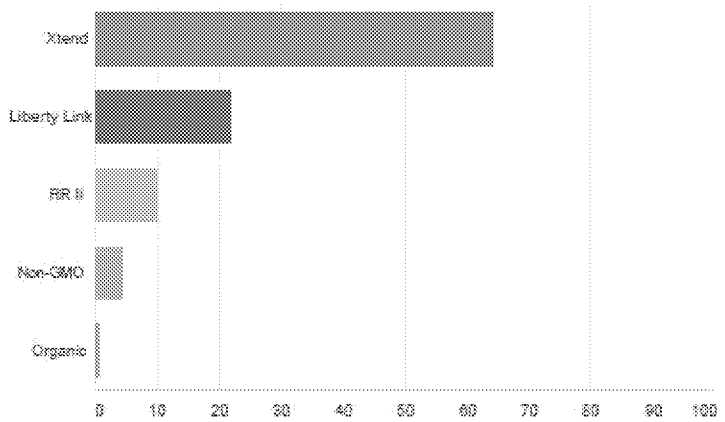
Answered: 113 Skipped: 0



ANSWER CHOICES	RESPONSES	
Region 1 - Northern Illinois	11.50%	13
Region 2 - Western Illinois	22.12%	25
Region 3 - Central Illinois	34.51%	39
Region 4 - Eastern Illinois	23.89%	27
Region 5 - Southern Illinois	17.70%	20
Total Respondents: 113		

Q2 Please estimate the % of each soybean trait planted in your commercial territory region in 2018 (total should equal 100%):

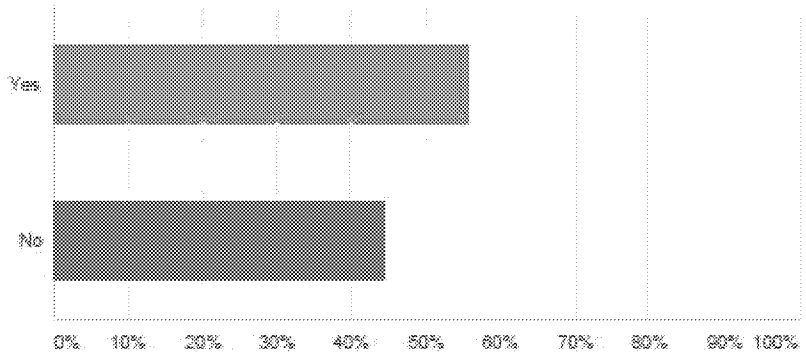
Answered: 112 Skipped: 1



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
Xtend	64	7,199	112
Liberty Link	22	3,439	110
RR II	10	1,093	106
Non-GMO	4	434	99
Organic	1	48	55
Total Respondents: 112			

Q3 Did you use dicamba for soybean burndown this spring?

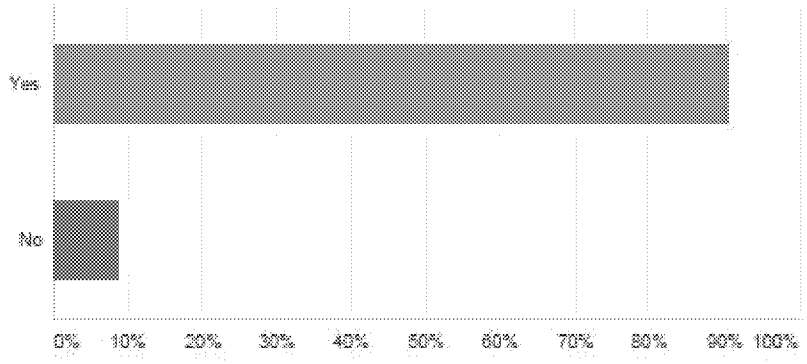
Answered: 113 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	55.75%	63
No	44.25%	50
TOTAL		113

Q4 Did you apply dicamba post-emerge (POST) to soybeans this year?

Answered: 113 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	91.15%	103
No	8.85%	10
TOTAL		113

Comments:

Very good weed control.

Controlled weeds but had off target movement.

We applied when wind was right direction & temperature was below 85 degrees.

We did not apply—with no official backing from the manufacturer, we cannot put our company at risk.

Performance was pretty good.

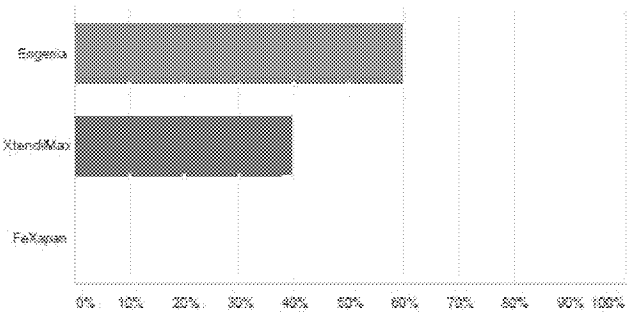
Much needed.

Didn't want the liability and headaches. Lost one 400-acre grower over it but everyone else stayed with us.

I had no issues with my rigs but customers that sprayed their own had plenty of issues.

Q5 If yes to Q4, what product did you primarily use POST insoybeans this year?

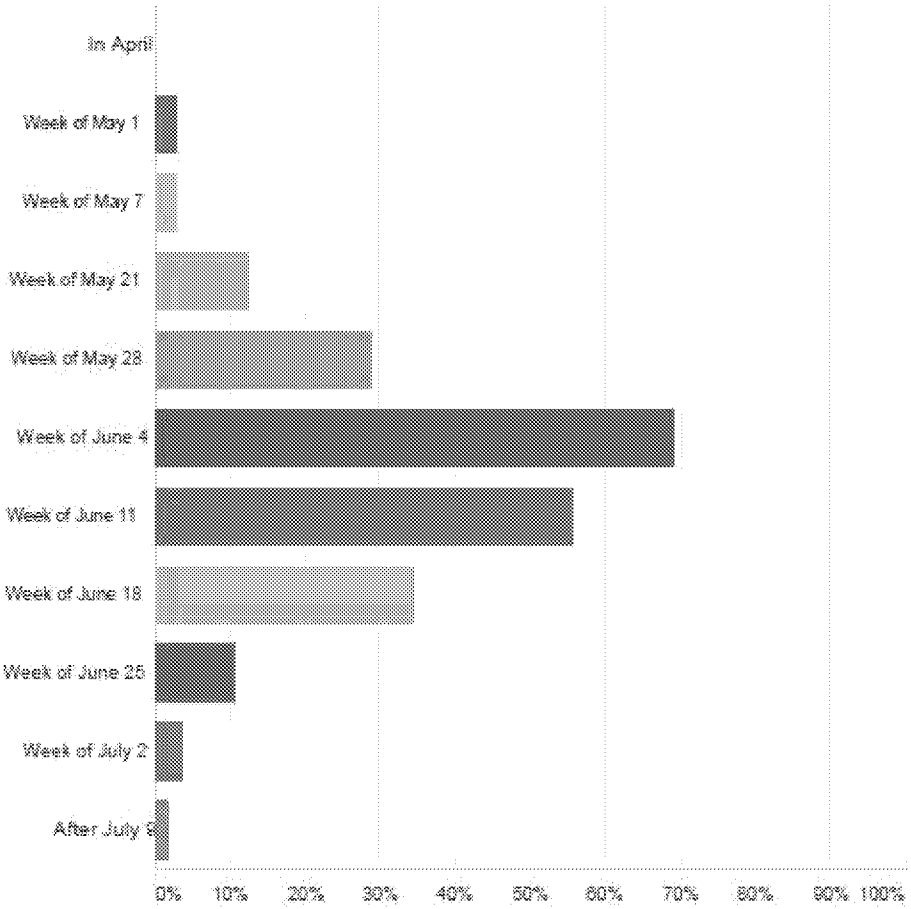
Answered: 104 Skipped: 9



ANSWER CHOICES	RESPONSES	
Engenia	60.58%	63
XtendiMax	37.50%	39
FeXapan	1.92%	2
TOTAL		104

Q6 If you used these products POST in soybeans this year, select the week(s) you applied the majority of your commercially applied POST dicamba. You may select more than one week, but please focus onthe week(s) when MOST applications occurred.

Answered: 104 Skipped: 8



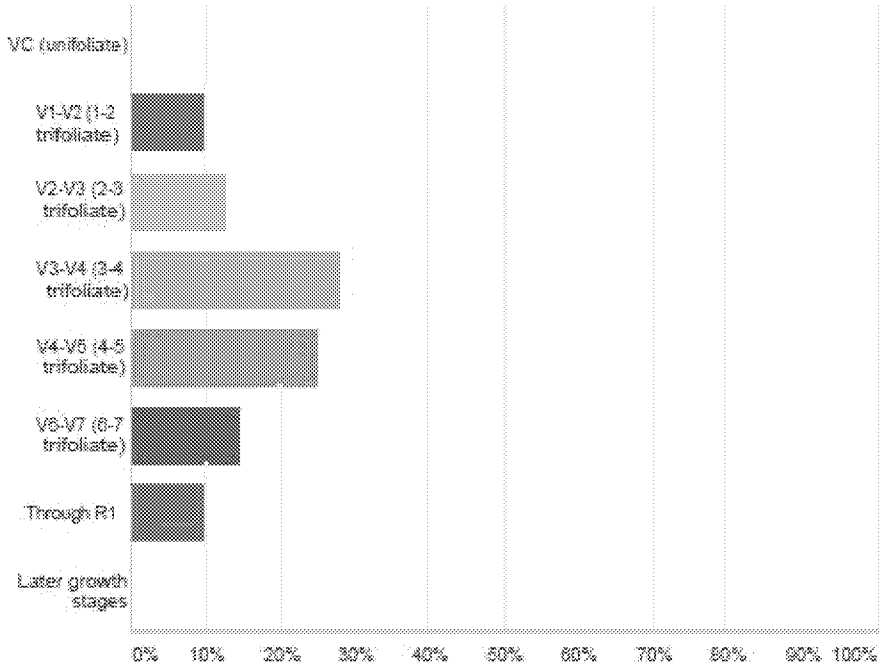
Comments:

Growers with Liberty or RR2 beans were more damaged by the later applications that moved over on to those fields.

With so much rain, our applications in June were scattered equally through the month.

Q7 At what growth stage were soybeans during the majority ofyour POST dicamba applications?

Answered: 104 Skipped: 9

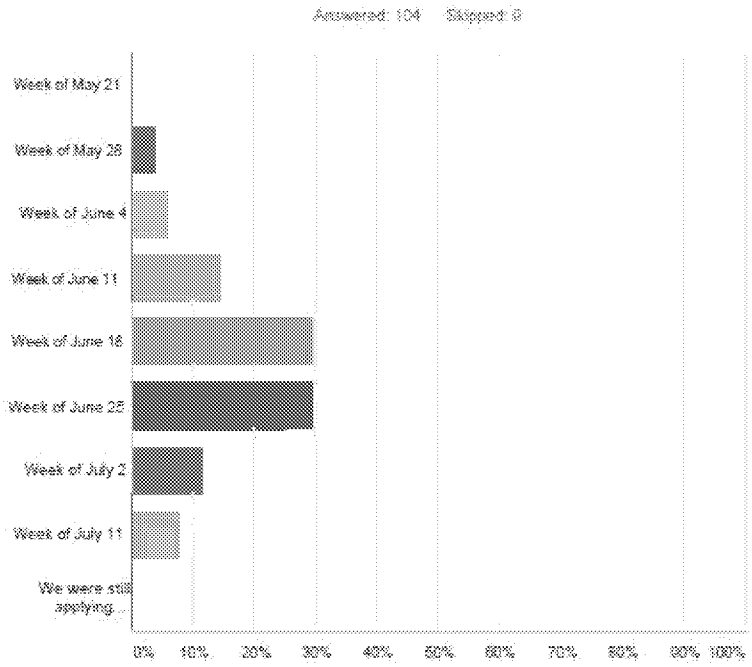


Comments:

A wet June delayed application 2 weeks.

I observed a number of early small soybeans being sprayed by neighboring dealers. But our impacted growers' fields came from the later applications from other growers and a few from commercial applicators.

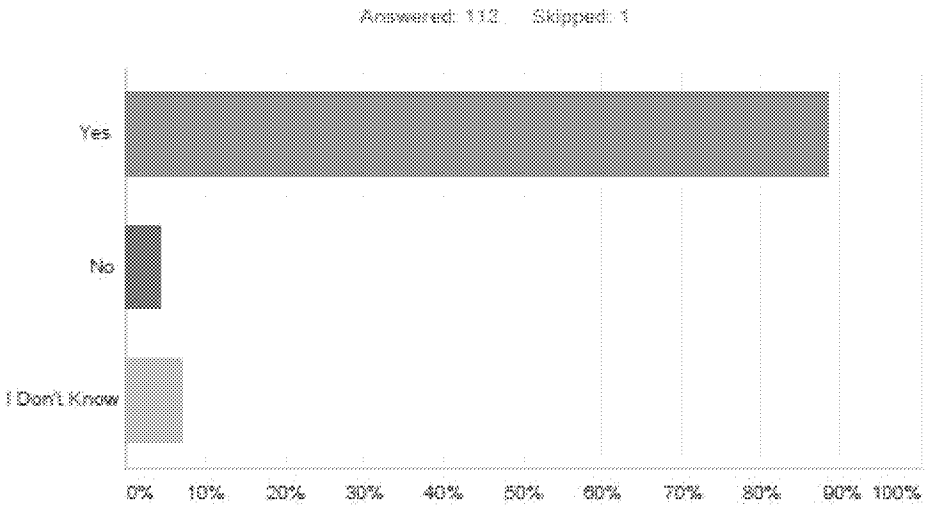
Q8 Please indicate the date that most of your commercial POST dicamba applications ended:



Comments:
Tried to stop at end of June.
Did not spray double crop soybeans last two years.
Some resprays were late in season and still didn't kill waterhemp.

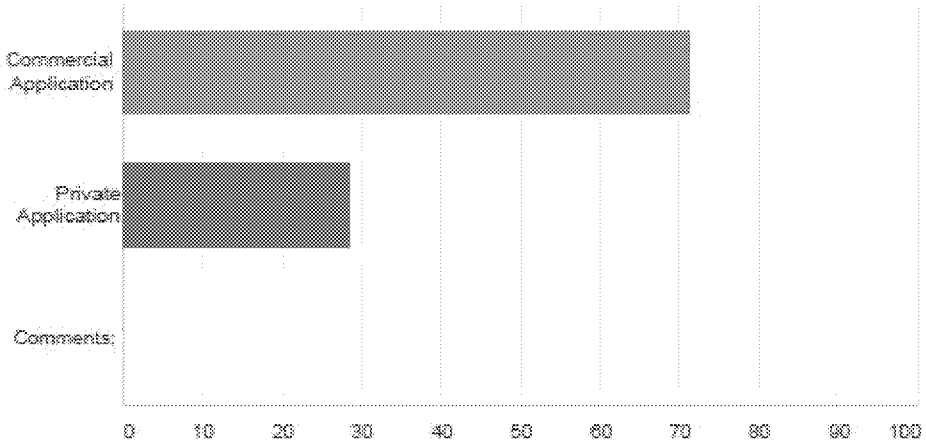
.

Q9 Did most private applicators (farmers) apply dicamba POST during the same time frame as most commercial applicators in yourterritory?



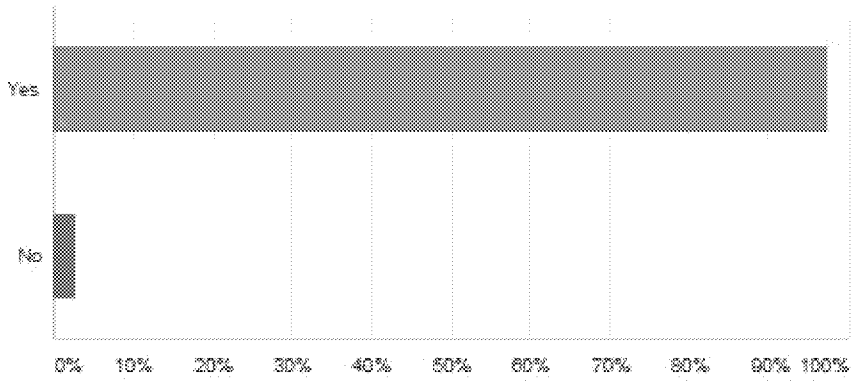
Q10 Considering all POST dicamba in your territory, please estimate the % of acres that were applied by commercial applicators (including your company and other retailers) vs. acres applied by private applicators (total should equal 100%).

Answered: 111 Skipped: 2



Q11 Did you recommend that a non-dicamba soil residual herbicide be applied to soybean before emergence?

Answered: 113 Skipped: 0



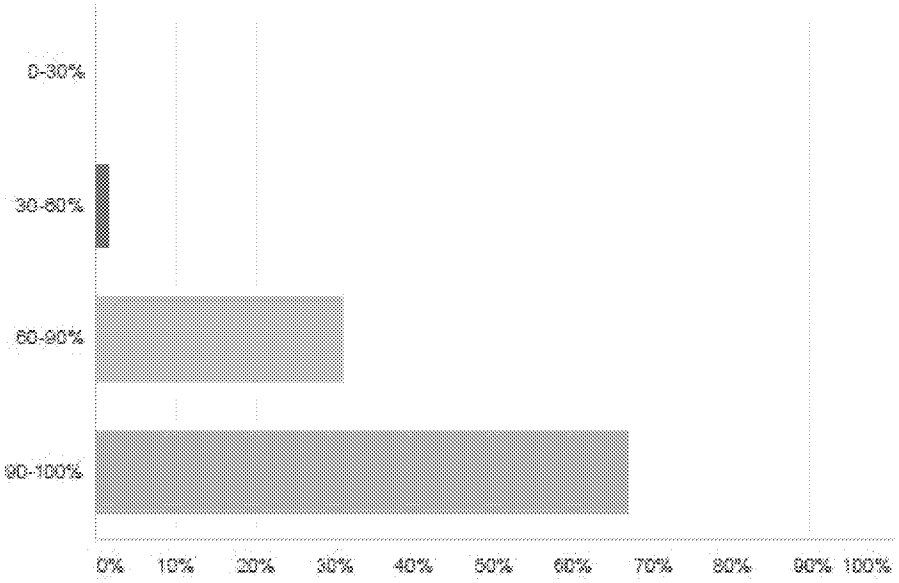
Comments:

Every acre whether it was or was not dicamba tolerant received a soil residual application to it.

Our neighboring dealerships told me growers didn't want to spray these products, so their custom acres were up.

Q12 What % of your customers used a non-dicamba soil residual herbicide pre-emergence?

Answered: 113 Skipped: 0



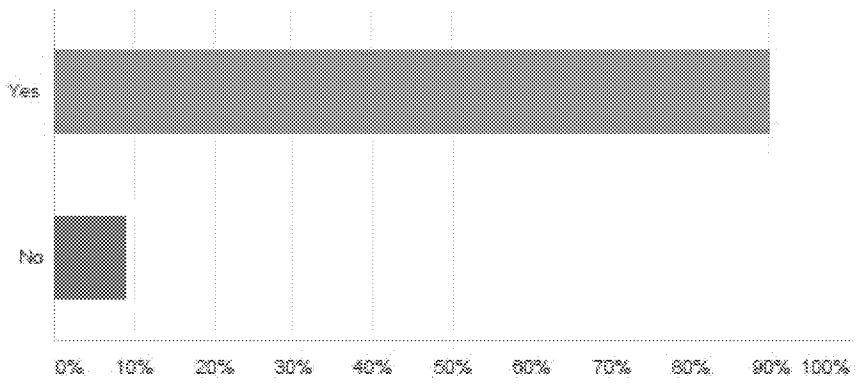
Comments:

Less weed pressure the farther north you go; 30% in some areas in the north.

Cleaner fields in general around here by doing preplant residual followed by Outlook or Dual post.

Q13 Did you recommend a soil residual herbicide be included in POST dicamba applications?

Answered: 111 Skipped: 2



Comments:

Only in fields with heavy waterhemp pressure.

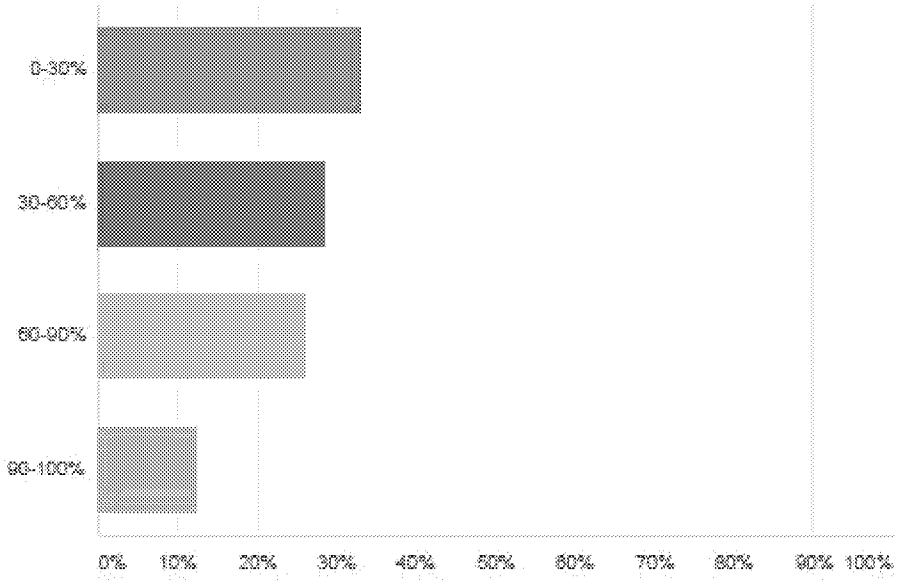
Not if they had a residual applied pre-emerge.

Not in all situations.

We did if the waterhemp population was high.

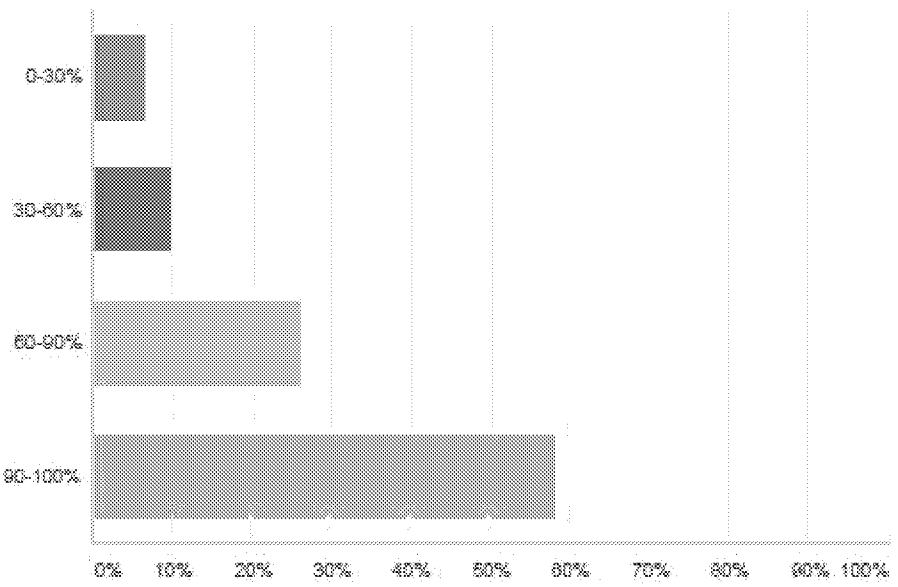
Q14 What % of your customers used a soil residual herbicide POST?

Answered: 112 Skipped: 1



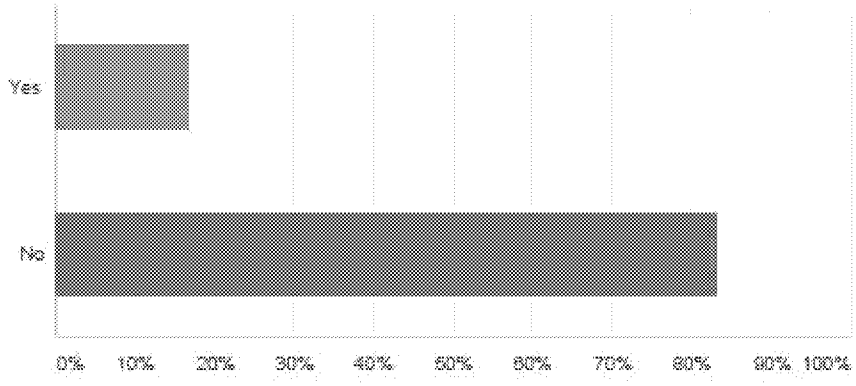
Q15 If your customers apply their own dicamba, what % do youbelieve uses a pre-emerge or residual in their weed management plan?

Answered: 112 Skipped: 1



Q16 Do you believe that any applicators are using non-labeled dicamba products POST in soybean?

Answered: 113 Skipped: 0



Comments:

Not a lot but it happens; "any" is a big word. It is not a large number and probably lower than last year.

Likely minimal. There will always be those who look only at price regardless of label restrictions.

Maybe a small percentage due to lack of education or looking for cheaper options.

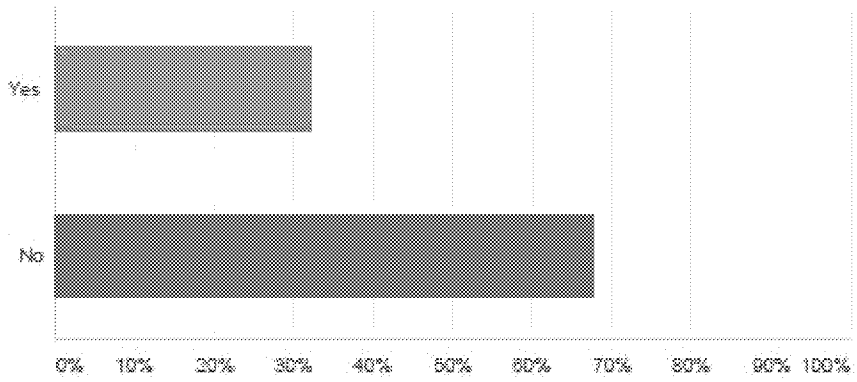
Witnessed it and it was a relatively small percentage.

I think a very low percentage, but believe it happened.

This particular farmer that did it buys from the tin-shed.

Q17 Do you believe that any applicators are using non-labeled dicamba products PRE-EMERGE in soybean?

Answered: 112 Skipped: 1



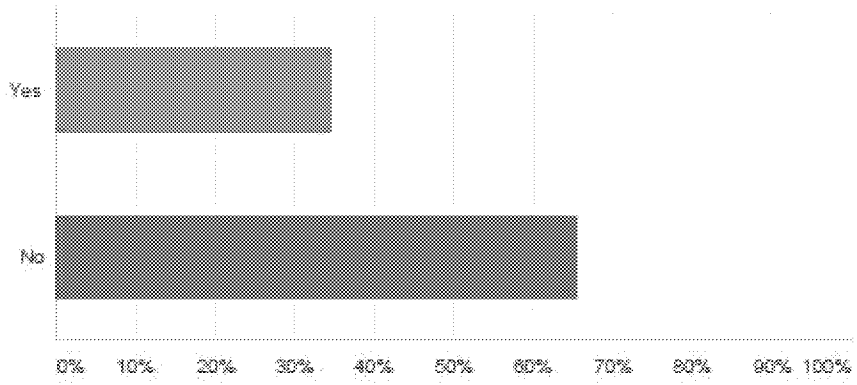
Comments:

Likely, although again minimal for the same reasons in question 16.

They see no reason to follow the label in pre-emerge as they usually wait the labeled period of the dicamba product before planting. Many though are using the theory that it is just like planting after a 2,4-D application. It can only hurt them not the neighbor.

Q18 Did you observe or are you otherwise aware of POST dicamba occurring when soybean was at or beyond the R2 developmentstage?

Answered: 113 Skipped: 0



Comments:

The R1 growth stage cutoff needs to be emphasized more in the training. It wasn't followed with the RR labels either.

Growers are not good at identifying growth stages. Farmers do not believe the later applications damage the beans because RR did not damage the beans. Weeds would have been way too tall meaning boom height is also way too high.

Need more grower education on this.

Saw some evidence of some of the larger growers doing some in early July.

Not sure how often, but they do it because they want clean fields and dicamba is their only choice.

Very little. This would be in a severe weed situation that needed resprayed, not whole fields.

Witnessed this multiple times, the growers see it as their only option to control waterhemp.

Other custom applicators waited for correct wind directions/speed and got backed into a corner forcing them to make several off-label applications.

It took that long working around the wind restriction of the label.

There was some spot spraying.

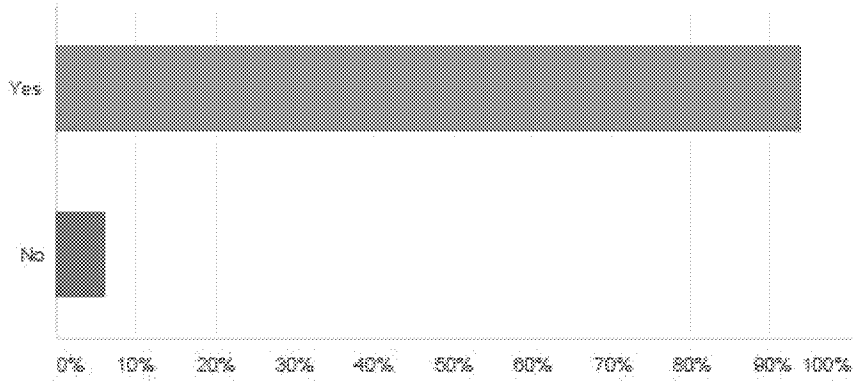
I've seen growers do it and discourage it every time.

No way to monitor this; all will say they were younger than R2.

Saw people spraying past the R2 stage, because they had too many acres to get sprayed in a timely fashion.

Q19 In your experience observing fields in your territory following POST dicamba, did you observe symptoms of dicamba exposure in non-DT soybean fields?

Answered: 112 Skipped: 1



Comments:

Only very minor cupping which they outgrew in a week to 10 days. May have been from dicamba in corn.

Cupping was almost a guarantee if there were non-DT soybeans around.

Mainly on liberty link soybeans.

It was not bad.

Small areas when non-DT soybeans are next to DT soybeans, but only on a few acres.

Saw evidence of volatility, particle drift, and actual movement with running water with a heavy rain 4 days after application.

Of the approximately 9000 acres of dicamba product we sprayed this year we only received about 30 acres worth of spray drift complaints. Of those complaints, we do not believe any will result in crop loss.

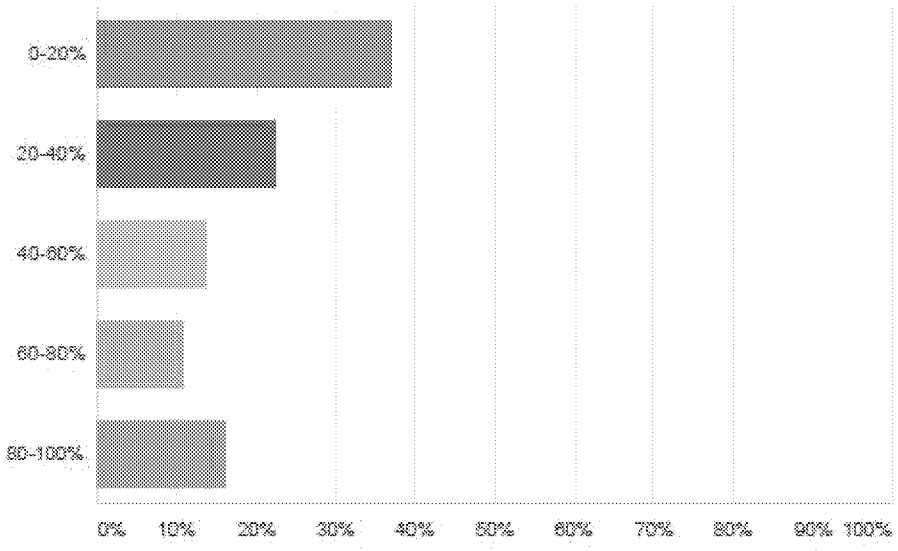
This year has been totally different from last year but everyone I believe is a lot more conscious of our surroundings i.e. non-DT beans, buffers and wind direction.

95% of time if it could have been a problem, it was a problem in our territory (Central IL). It showed up anytime it was applied within 1/2 mile of a non-DT crop.

Around the week of June 18th, about 75% of the non-DT beans started showing symptoms which was uniform cupping in entire fields.

Q20 What % of non DT soybeans in your territory had some symptoms of dicamba exposure?

Answered: 111 Skipped: 2



Comments:

I had only one.

We had a few areas that had 60-80% of the non-DT exposed, but overall in our the area it was 20-40%.

Some fields got hit 2 & 3 times. At this time they are still cupped and not growing.

More from spraying corn than beans.

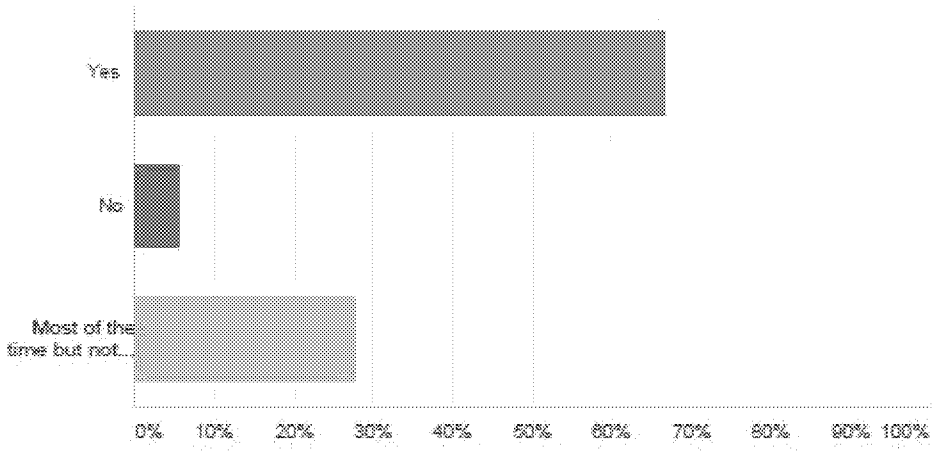
Exposure was not that bad because most ag retailers and farmers did not use dicamba. Symptoms were 95% of time when it was near a field sprayed with dicamba.

Less than 5%.

Very few fields did not show symptoms and when there were no symptoms, those fields were around 1 mile away from dicamba fields.

Q21 As a commercial applicator, do you feel that your operatorswere able to follow the dicamba product label effectively this year?

Answered: 108 Skipped: 8



Comments:

Conditions that allow for a technically legal application is very small---we tried to stop at June 20 but couldn't get everything covered--we ran out of time.

Weather is never right. Too windy, too hot, to humid—we can't win.

The border restrictions are ridiculous and don't really help. It travels way further than that, so why have them.

Very light, shifting winds made it impossible to "always be right" during the time when we needed to spray.

Yes, but we also tried to spray the least amount of acres possible due to the label restrictions. Only sprayed when absolutely needed.

Only because if there was a chance we would be off label, we didn't spray. There was a lot of time we couldn't spray.

The no spray was not defined well so if a field was 400 ft away and it was light wind we might of still sprayed.

Ever changing field conditions make this difficult. Wind speeds change, wind direction changes, storms arrive and dissipate, weather is constantly changing.

Light breeze changes during an application made it difficult. Started a field on label, ended off label.

Hard to follow the wind speed requirements. Also difficult for growers to leave buffer strips knowing the weed pressure to come.

I think it is very difficult to apply these products and be on label for wind and inversion chances. This season also had high temps during applications.

It was difficult. Hard to find days with complying weather, and finding out that farmers planted different products than what they told us in adjacent fields.

Worked very hard to follow label to the "T". No application unless we could follow the label. I want this product to stay around so not following the rules is not an option.

A lot of going back to the same fields more than once to finish because of wind direction.

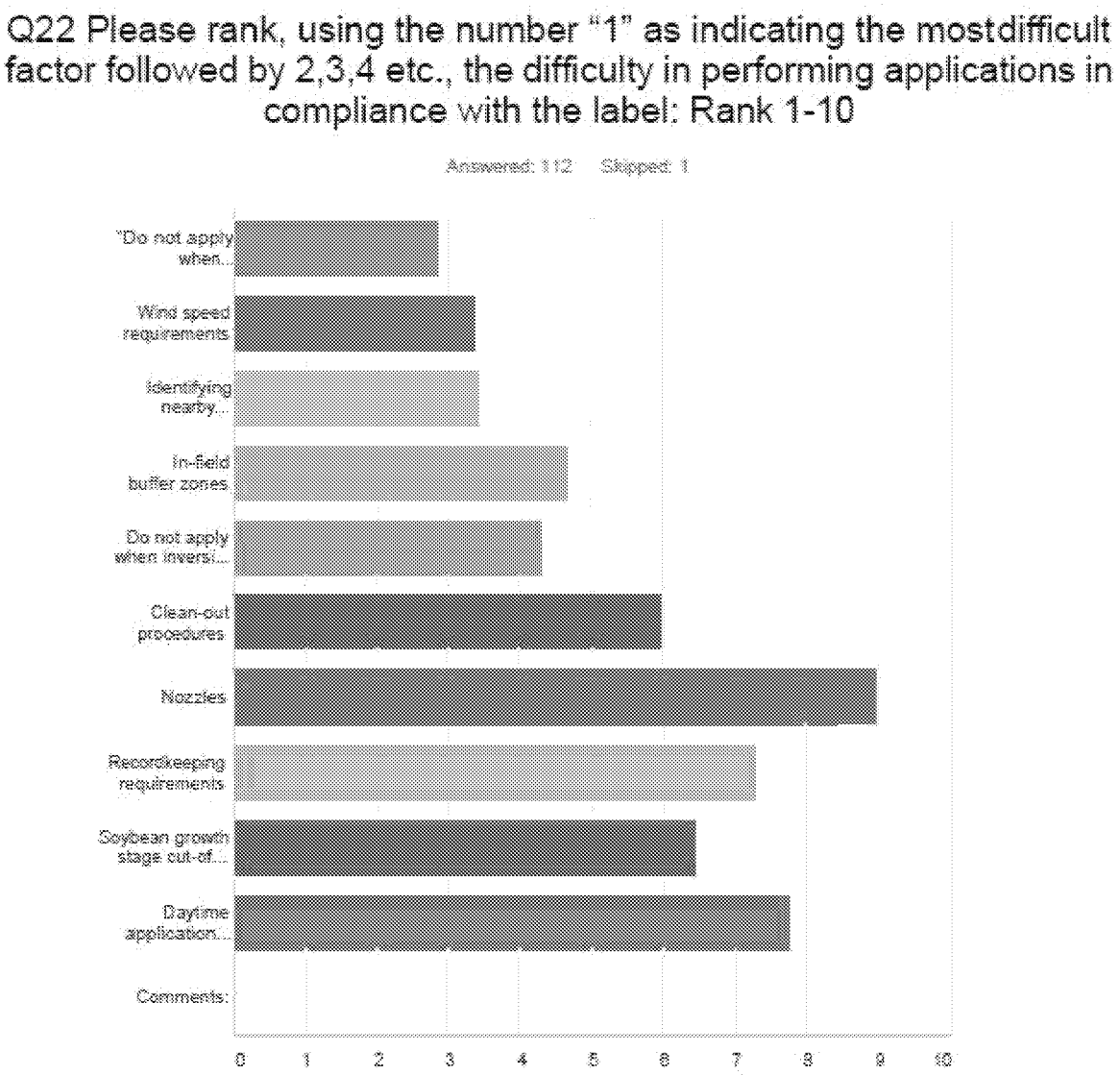
I believe it is impossible to make an on-label application as the label is written; there is always a susceptible crop down-wind since there is no distance limit.

There were several instances where the wind would obviously never be in the right direction for an on label dicamba application, but applicators made them anyway.

You can be in the middle of spraying a field and the weather conditions change. It is very hard to leave mixed product on truck or sprayer.

How far is downwind to a sensitive crop considered?

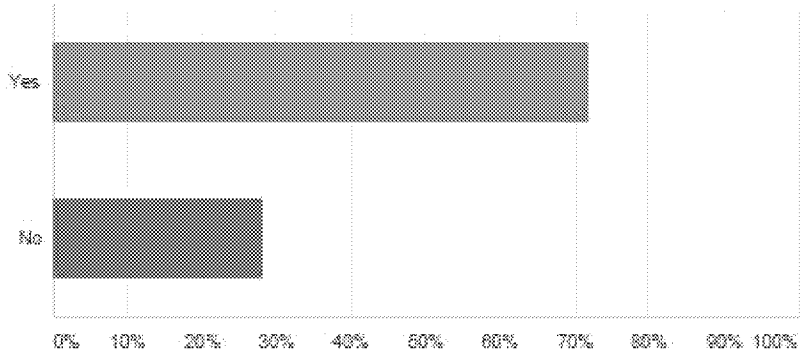
But the labels are too hard to try and justify when you can and can't spray. You go to spray class and everything is "use your best judgement." This needs to be more cut and dry and chemical companies need to accept more responsibility.



IFCA Note: Since a "1" indicated the "most difficult" the smaller the bar, the most difficult. "Do not apply when sensitive crops are downwind" was ranked as the most difficult aspect of the label for applicators, followed by wind speed requirements, identifying nearby sensitive crops, inversions, in-field buffers, clean-out procedures, soybean growth cut-off stage, recordkeeping, no pre-sunrise or post-sunset applications, and nozzles being the least difficult aspect.

Q23 After your commercial applications, did you observe symptoms in adjacent non-DT soybean fields after application when the wind was not blowing toward that field during application?

Answered: 107 Skipped: 6



Comments:

This is the very frustrating when we were on label with the wind direction the day of application; but it was not a large percentage.

Most of the documented issues involved wind that was not blowing toward non-DT fields.

Nothing too serious.

Wind speed went to 0 the night after application.

Noticed this in 2017 but didn't see this in 2018.

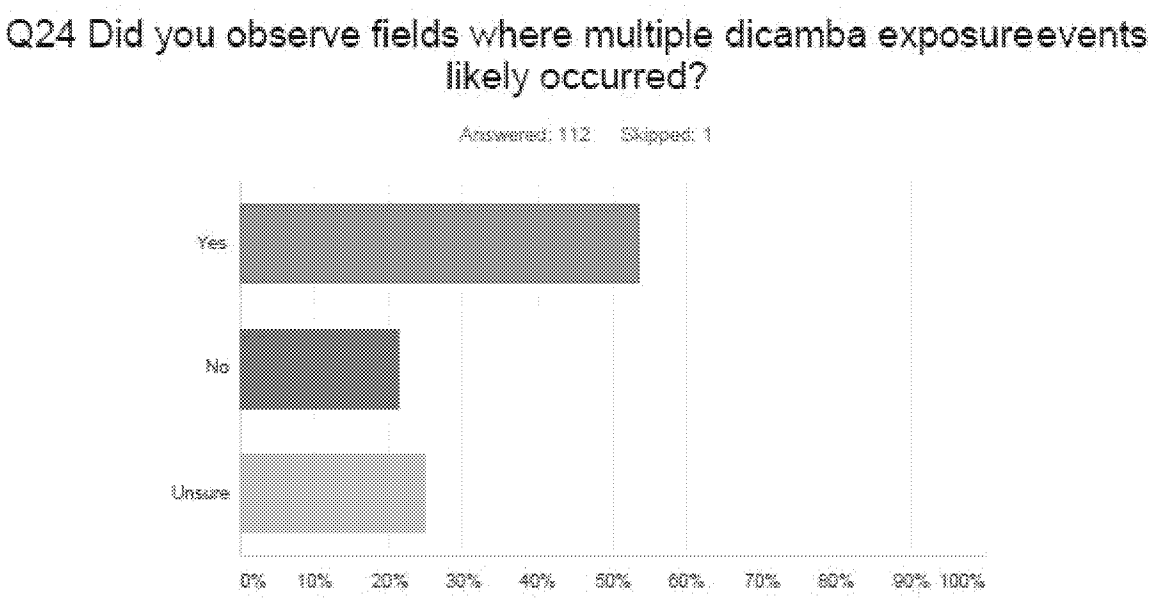
We set boundaries for no-DT fields at 1/4 mile.

Did not spray near any non-DT crops but did witness many fields that did show symptoms when wind was blowing away.

On just a couple occurrences.

Wind direction at the time of application did not seem to have much effect on the off-target movement of dicamba; vapor drift occurred in all directions from applied fields.

Did not have any symptoms as we managed fields differently when near non-DT .



Comments:

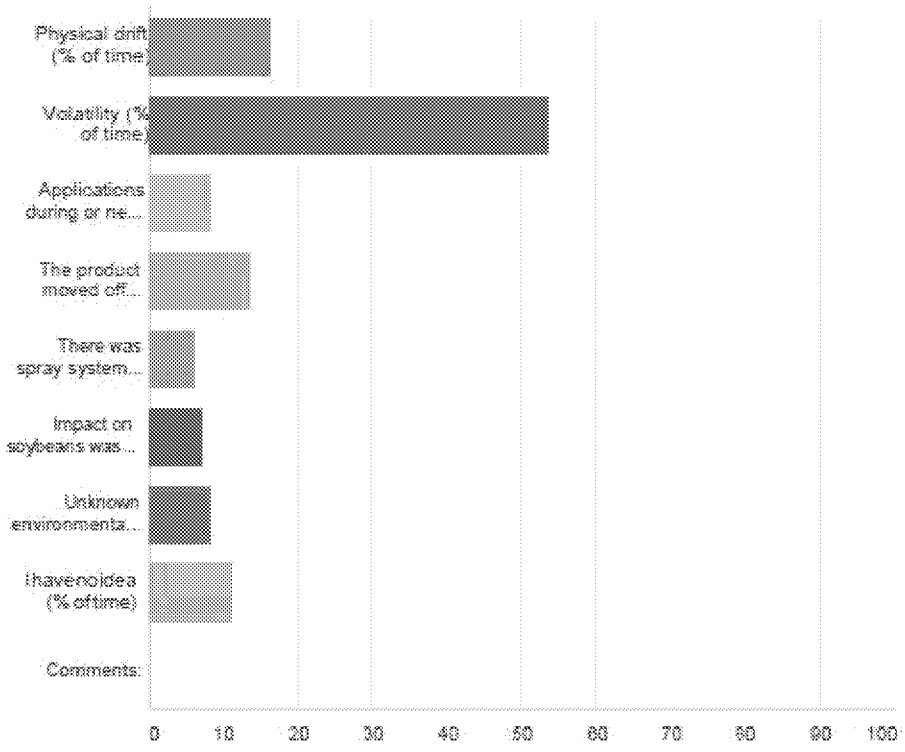
Several where chemistry could have come from multiple fields.

Several non-DT bean acres were exposed to dicamba during post corn and then again during post bean application.

Saw fields that got hit 2 and 3 times, earlier planted beans showed the worst symptoms.

Q25 Please indicate below what you believe are the primary factors that resulted in symptoms. Answer this question by inserting the % of time you believe symptomology occurred from these factors. Select only those that you feel are the primary factors. Answers should total 100%.

Answered: 110 Skipped: 3



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
Physical drift (% of time)	16	1,584	98
Volatility (% of time)	54	5,461	102
Applications during or near an inversion (% of time)	8	677	82
The product moved off target due to shifting winds after application (% of time)	14	1,191	87
There was spray system or tank contamination (% of time)	6	451	74
Impact on soybeans was from off target movement of a dicamba application made to corn (% of time)	7	579	82
Unknown environmental factors impacted the susceptibility of non-DT soybeans to dicamba (% of time)	8	537	66
I have no idea (% of time)	11	510	46

Q26 Indicate the degree of symptomology that you most commonly observed in non DT soybeans by providing the % of fields that you observed with that level of symptomology.

LIGHT CUPPING OF LEAVES: 67.2% OF FIELDS

SEVERE CUPPING OF LEAVES: 28% OF FIELDS

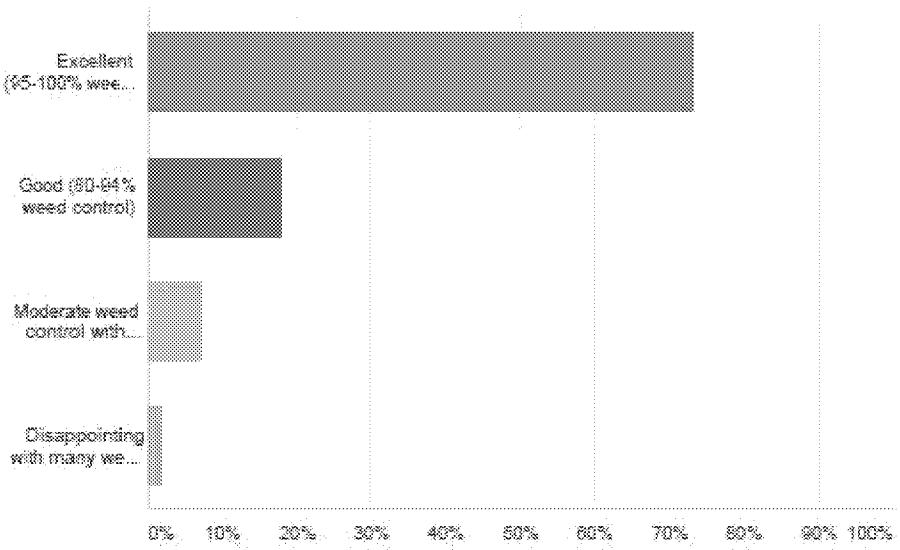
SEVERE CUPPING WITH STUNTING OF THE SOYBEANS: 16.3% OF FIELDS

SEVERE CUPPING WITH TERMINAL BUD: 3.8% OF FIELDS

PLANT DEATH DUE TO EXPOSURE TO DICAMBA: 0.6% OF FIELDS

Q27 Please rank the success of weed control in Xtend soybeans following the post application of dicamba:

Answered: 112 Skipped: 1



Comments:

As long as it was sprayed early. Bigger waterhemp escaped.

Dicamba does excellent job killing weeds and volatilizing long enough for the residual herbicides to activate.

1/2 pound dicamba was not enough on waterhemp.

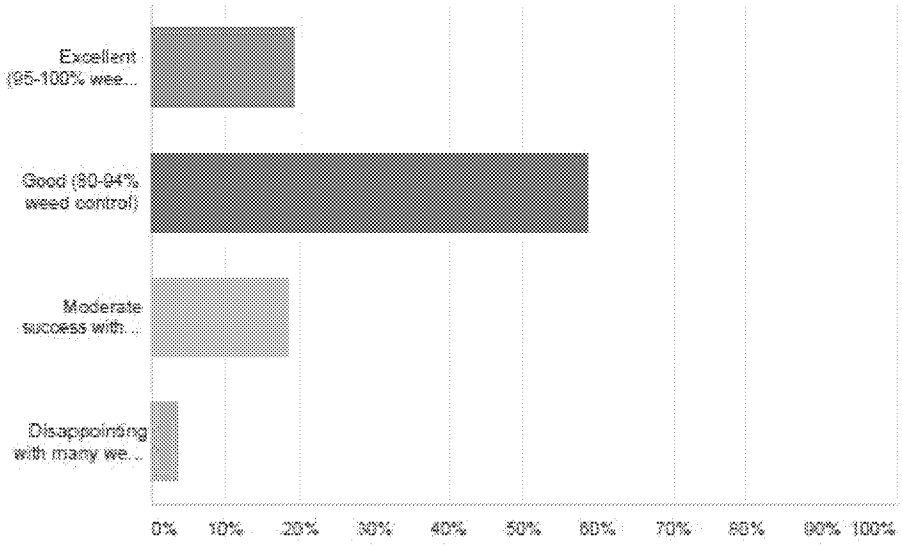
Chemistry is not that great at controlling weeds such as waterhemp and most are often off label in weed height.

Some weeds were larger than 5".

Chemistry doesn't finish weeds.

Q28 Please select the success of weed control in Liberty Linksoybeans this year.

Answered: 108 Skipped: 4



Comments:

1st application didn't completely kill the weeds and they had to be sprayed a 2nd time.

When weather was hot and dry, weed control in LL suffered.

Grass and Velvetleaf escapes.

Grower waited too long to spray = bigger weeds. However, weeds the same size were absolutely smoked with dicamba. In some instances, weeds under stress were not even affected by glufosinate; we resprayed large portions of Liberty acres after a rain.

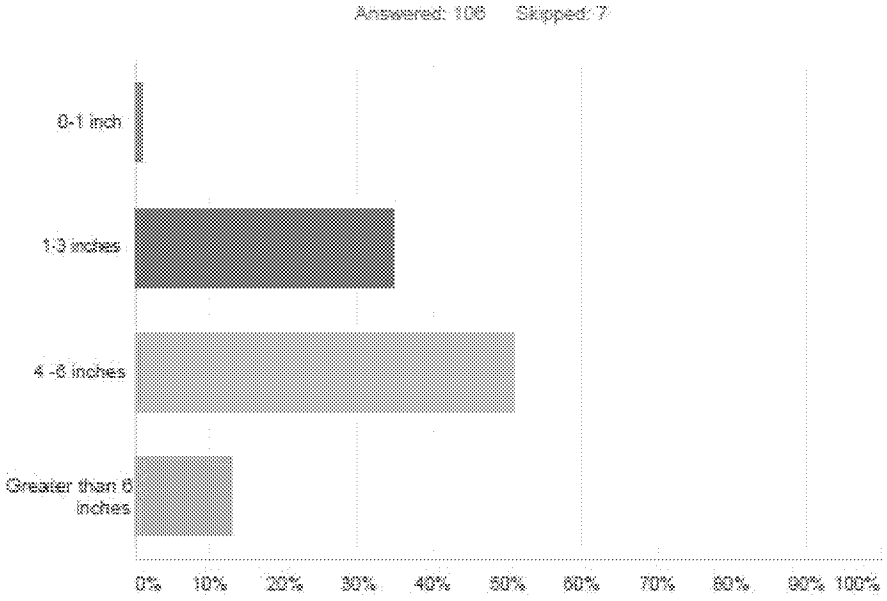
The correct weather conditions are needed for it to work, humidity and temperature play a role. We have to spray on label 4" or less weeds and we may not get the correct weather when application goes on. Liberty is a 2-pass post program, using a preplant herbicide as well. 2 years in a row now, the same experience.

Saw many LL fields that had to be resprayed or have waterhemp starting to poke through the top.

Very temperature dependent. Year after year performance continues to decline. 3 years away from it not working in the south.

Waterhemp control and escapes were due to weed height and coverage.

Q29 On the majority of your POST dicamba applications, what was the average broadleaf height when you made the application?



Comments:

We had good intentions to get them sprayed earlier but with a couple rain events a lot of the weeds got off label.

Most people were more proactive this year opposed to last year.

2-5" is more what I would call average.

Q30 Regarding the required dicamba training prior to this season, what did you feel was the most helpful, and least helpful, aspect of the training?

Comments:

Getting applicators to be more conscious of the wind and their speed and pressure. It's been way to simple for them after years of Roundup spraying.

Most impactful was the inversion videos in the BASF training. Least helpful was not stressing the importance of following growth stage cutoffs and no mentioning use of dicamba in burn down applications. Also there was confusion around the buffers which made many disregard the compliance with the buffers.

Made you more aware that following the label was impossible for Ag Retailers.

The most helpful was creating the awareness to get us started early identifying the crops in the surrounding fields. The least helpful were the inconsistencies in what the training was telling us and what the manufacturers were telling us.

Most helpful was that the training was standardized across industry/growers/retailers. Least helpful was no direct answers to key challenges such as defining the "distance" downwind to sensitive species. Also little recognition of volatility as a potential issue.

Most helpful was getting growers aware of the situation.

There where some good points, however most custom applicators are already aware of the difficulty of application.

Buffer strip setback explanation was the most helpful. Explanation of how far downwind a susceptible needed to be before you can spray was the least helpful.

Most helpful was explaining to farmers that some fields should not be sprayed because of non-dicamba tolerant fields adjacent.

Training was not helpful at all. They pointed out the obvious for particle drift, which we all know how to control. Did not point out vapor drift control and impossibility to accurately predict an inversion. Also, the trainers were extremely vague in regards to buffer requirements when there were DT beans/corn adjacent to DT field followed by non-DT beans. Said it was up to applicators judgement. Simply protecting manufacturers and continuing to put all responsibility on applicators shoulders. They hold no accountability and even our insurance companies do not protect us if we follow the label and have an issue due to shifting winds overnight or inversions.

The training put in doubt that there ever is a time when we are "on label".

Training was not helpful. We sprayed Dicamba in 2017 and learned throughout the season what we needed to change for 2018.

As a commercial applicator who has gone to Xtend and Engenia plots and training for 4 years prior to launch, I was not impressed with training. For farmers or new applicators it was informative.

It helped us better understand the label requirements. Almost scared many people away from spraying it.

Explaining wind direction restrictions was very helpful, inversion time was vague.

The most helpful aspect had to have been the identification of what leads to dicamba drift in our fields. The least helpful aspect was the documentation of in field conditions at the time of application.

We knew ahead of in-season application exactly how it needed to be applied and farmers where trained, that was the most helpful. Least helpful was that retailers already knew a lot of the guidelines.

Truthfully what was most helpful was talking with Dr Bryan Young at IFCA convention about physical drift. From the training, the setbacks and wind direction when and when not to spray was very helpful. What bothered me about the training was I felt it was a passing of the buck by the manufacturers and that anything that goes bad from here on out is the responsibility of the applicator which it is, but we still have to make a living.

Helpful to have a buffer discussion and walk through examples.

Understanding the new restrictions was helpful. Least helpful is Indiana and Illinois are separate training.

Most helpful learning about inversions Least saying there is little too little about vapor drift.

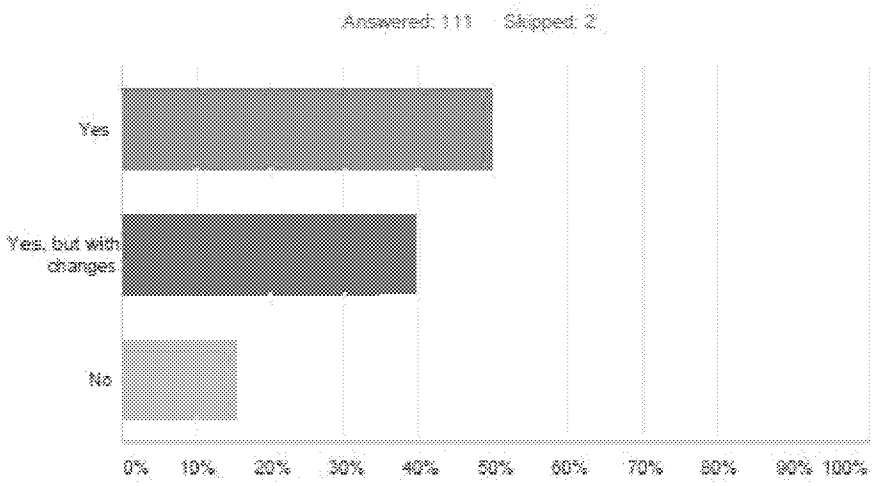
Most helpful was the burden placed on the applicators to respect this volatile product. Least helpful was the chemical manufacturers placing the burden on the applicators to take the heat off of them for their volatile product.

Most helpful was our entire company getting the same message. Least helpful was susceptible crop downwind. If you won't answer question of how far then technically you will always be off label.

Most helpful was it made me more aware of environment when spraying. Glyphosate made us lazy. Least helpful was stressing sensitive areas, most applicators are already aware of them.

Best is giving the operators some refresher. Least helpful was chemical company training because they would try to always make every point to take away any responsibility from them. They will not come out and say watch for volatilization when we all know dicamba always has and always will volatize.

Q31 Do you believe that USEPA should renew the Engenia,Xtendimax and FeXapan labels, as is, for the 2019 crop season?



Comments:

How do you change the label any further for post? As a large company we may decide not to spray this product.

Dicamba applications should end May 31, or just allow in burndown applications.

Absolutely, we need this weapon in our toolbox and has been very safe to use in our operation.

We can not keep current formulations of dicamba where we put them, the same as the old ones. This is the same reason that I quit using dicamba in corn 15 years ago.

Set a date for no more post applications.

Preplant only or preplant with early cutoff dates. We as applicators hold all the responsibility. If they are going to sell the product, and we follow the label but there is still an issue, then the manufacturers need to have skin in the game.

Set a hard date for cut off on spraying. Do away with growth stages. Also no double crop Xtend beans should be treated.

I think it is a great product that does a great job and it is superior to the Liberty and other products.

Not saying it's right, but for in-crop applications, in order to mitigate a lot of the challenges with applying the product wouldn't it be easy to just make it where you cannot spray this product if there is a sensitive crop or area nearby despite wind direction?

Don't spray within ¼ mile of non-DT beans.

The product works good but the volatility somehow needs to be taken out of the product to be able to move forward.

What else are we going to use?

If we ever want to raise a non-DT susceptible crop in Illinois, the label needs to be pulled after April 15. Problems will only get much worse if there are no repercussions for off target movements.

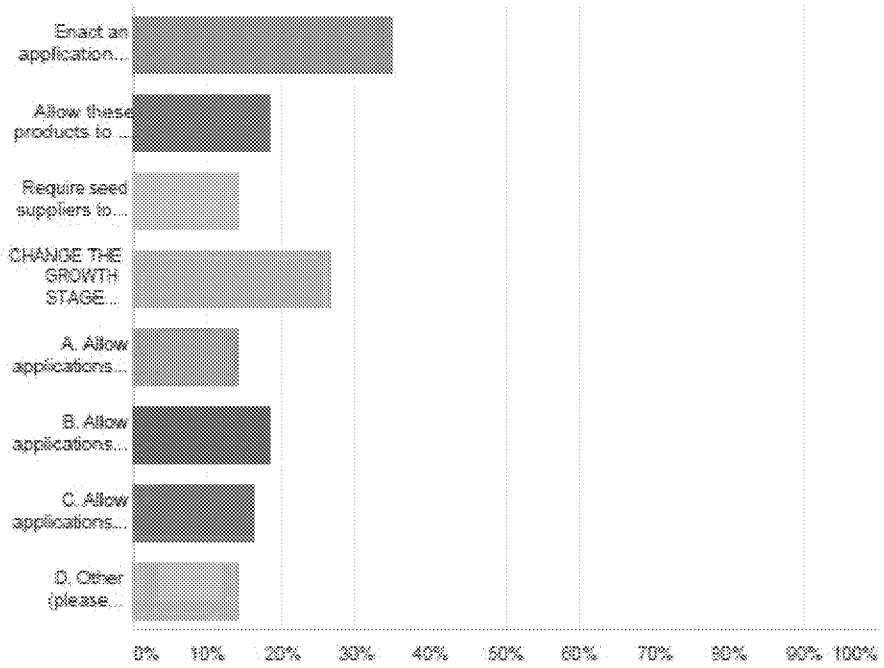
I think growth stage can be later.

I don't think it is right to spray a chemical and have no control over where it might end up at due to vapor drift.

Very successful weed control when managed properly.

Q32 If you answered "YES BUT WITH CHANGES" what do you suggest those changes be? Select one or more of the following or if your preference is not one of the choices, please specify your preference. Check all that you feel are worth considering.

Answered: 49 Skipped: 64



IFCA Note: The options were provided were:

1. Enact an application cut-off date; if you select this option please provide suggestions on a cut-off date.
2. Allow these products to be used only as a burn-down.
3. Require seed suppliers to obtain a grower agreement outlining the conditions for dicamba use; failure of the grower to comply would result in inability to purchase the traits in the future.
4. Change the growth stage for application; if they selected this answer then check one of the following:
   a. Allow the applications only through pre-plant or pre-emerge;
   b. Allow applications only through V3;
   c. Allow applications only through V6;
   d. Other (please describe)

Comments:

End May 31st, early post emergence or in burndown applications

Option B should encourage more use of residual herbicide tank mix with dicamba. Limiting use to pre-emergence greatly reduces the overall effectiveness of the chemistry. A cut-off date would not be effective unless growers all plant the same week of the same month year after year. A seed stewardship agreement is only as effective as the enforcement of the rules...case in point, "how well did that work with planting CRW refuge"?

June 24th

June 20th

June 15th

May 20th

June 20th

Should definitely be before July 1st for cut off date. And beans following wheat should not be allowed to have post dicamba.

June 10th

To me none of these would have effect on the last two years of problems in Southern Illinois. I would say a 1/4-mile buffer to all ultra-sensitive crops if volatilization is not addressed.

Have to stay 1/4 of a mile away from non-DT beans.

Let common sense dictate when an application should be made.

Apply up to R3.

No cut off date. Just make pre-emergence only.

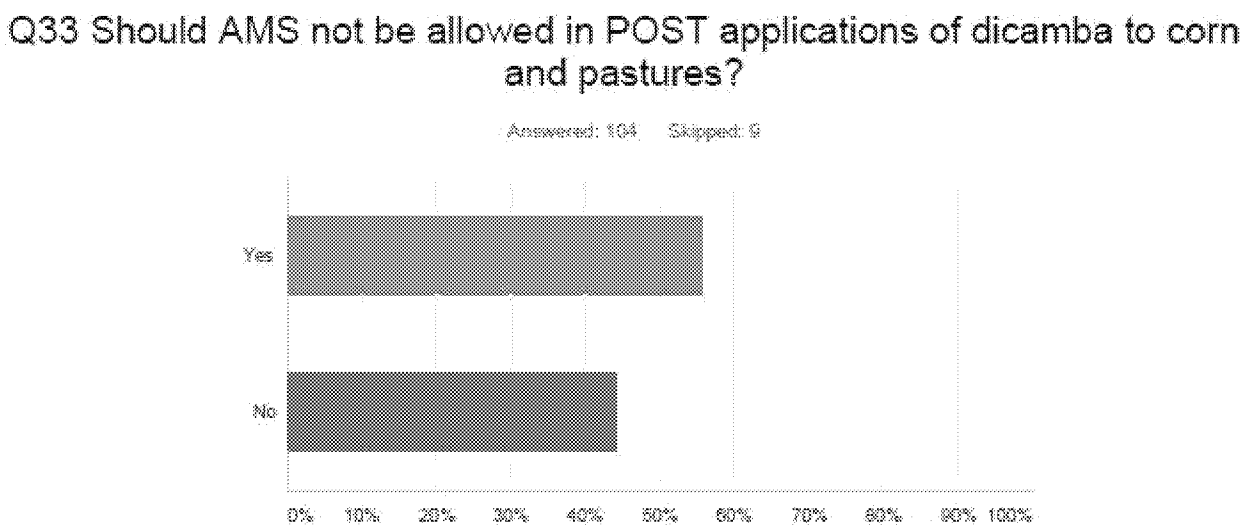
Tennessee has July 15 and I'm good with that date.

April 15. Growth stage will not work.

I think there should be a combination of relative humidity and temperature and if it is over a certain combined number there are no applications.

A cutoff date will not eliminate problems but would help.

Depends on zones and depending on when beans are usually planted.



Comments:

I managed those acres with the same adjuvants as I used in my Xtendimax.

If it makes dicamba volatile as they say it does how do we know that this is not the cause of all of the so-called issues.

Seriously AMS should be in the tank all times to help it kill better. When you are measuring off target movement in portions of miles, a few hundred more feet is not going to matter much. So instead of 1/4 mile of movement if it's 1500 feet at that point who's counting?

Keep it in. AMS helps reduce resistance.

AMS is not the issue.

It AMS is on the label for other dicamba products used in corn, why is it not in Xtendimax, Engenia or FeXapan?

Q34 Where you had successful applications, what were the mainfactors you believe contributed to the success? Please describe.

Comments:

Spraying early in season paying attention to weather.

Earlier in the season post applications. Weather allowed more days to spray as far as wind goes.

Spray early! Small weeds and cooler temps for less volatilization.

Following the labeled requirements and respecting the possibility of off-target movement by going above and beyond the requirements using common-sense measures: Don't spray a field that has a sensitive crop to the north when you have nothing but a NW, N, or NE wind. E and W winds are too risky.

We only sprayed when there were no non-DT crops around.

Correct weed size, residual applied pre-emerge, correct application.

Following the labels, and using our direct injection systems.

Being very picky about where we sprayed it. If a non-DT crop was ½ mile to the north or east of field, we would not spray the field.

We took the stance that we would not apply dicamba to any field that had non-DT beans on the north or east side of them for at least 1/8 of a mile (preferably 1/4 mile). Even if the wind was out of the north we would still not spray them. We kept one sprayer for just for dicamba soybeans to eliminate our risk of contaminations.

There were no non-DT beans around.

Followed the label and extremely picky about what surrounded fields sprayed. Only sprayed 100% isolated fields.

Most all were successful. Wind and water movement were the main factors for any off-target movement. Both of which occurred after application and we shouldn't be held accountable for either.

It all starts with 100% knowledge of neighboring fields. With that, you can have success.

Overall weed height was less than previous years and the new chemistry worked very well on the weeds.

We targeted dicamba post apps early this year and weather cooperated, we were able to manage when and where we applied given our window for application, wind speed, etc.

Timing, Timing, Timing, and we had a great applicator.

Followed the label, and sprayed early in soybean V stages. We used more concentration of product to hit the weeds or the ground, so it would not be retained on the soybean leaves. If it was a questionable application, we didn't spray it.

Unprecedented light winds during this year's post season helped us.

Before going to the field, my operators knew what crops were planted on neighboring fields and what wind direction they had to be applied.

There were no Liberty, non-GMO or RR beans around where we sprayed.

Were there any successful applications near non-DT soybeans?

We made a full commitment to stewardship. The label can be a hammer against you and a shield as well. We need real discussions with our growers about this subject.

The products worked great we used the app from Monsanto a lot for the inversions.

Weeds weren't overly big. Good pre's are a must.

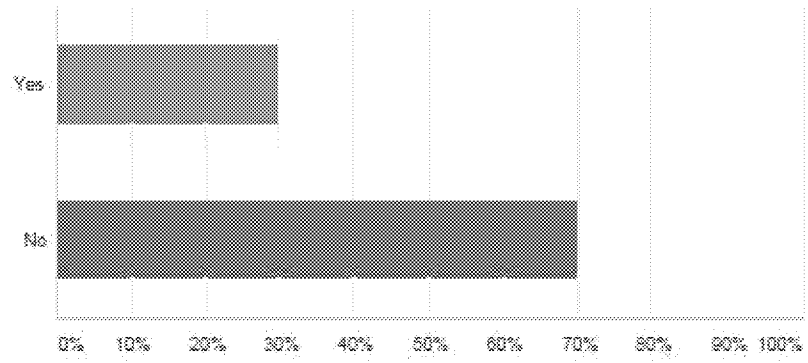
We wait for a series of cooler and lower RH days.

Fields that were isolated on all four sides and quite a distance from gardens and ornamentals.

We did our homework and had a master map of crops planted. Everyone loves the weed control so we followed the rules to avoid losing dicamba for next year.

Q35 Did you experience or observe any off-target movement ofdicamba impacting sensitive areas such as trees, shrubs, gardens, ornamentals, or specialty crops?

Answered: 112 Skipped: 1



Comments:

But it was minor this year.

Have seen several oak trees with dicamba injury (cupped leaves).

Was saw a number of gardens that had cupping in them with different degrees of damage. Saw a few small trees.

Very few. No more than with other products like Gramoxone.

Light cupping of tree leaves. Minor damage.

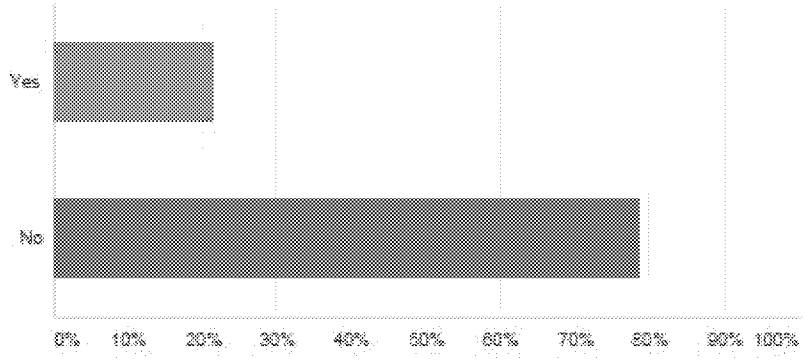
Oak trees really don't like dicamba.

Damage to other plants was not as common as damage to non-DT beans, but I saw damage to all.

Cupped leaves on trees, and cupped plants in gardens.

Q36 Whether or not the dicamba products are approved going forward for POST in soybean, do you feel that growers will accept the possibility that manual removal of weeds will become a necessity to manage future weed seed development?

Answered: 113 Skipped: 0



Comments:

There were more farmers this year walking their beans than in the past.

They should, although larger farm size will make this tough.

Roundup made them forget what walking beans was.

Yes and no. They will not want to accept it because it is a lot of work, but if that is the only option then that is the only option.

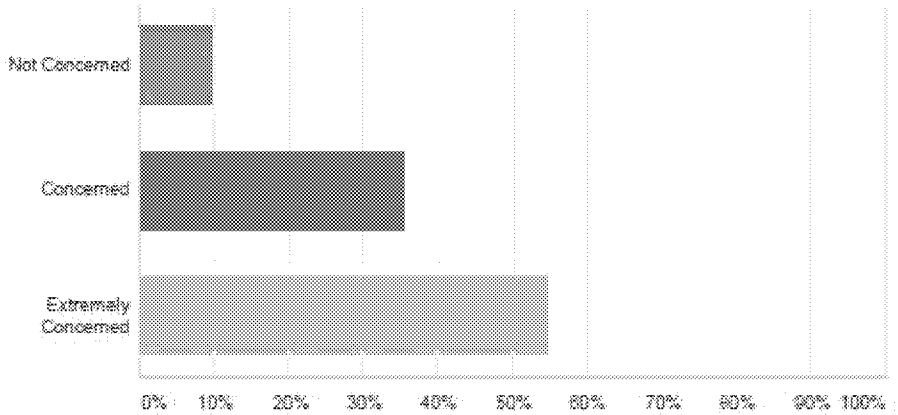
Only as a last resort.

But if that is the only option then we'll adjust to it.

No grower will do manual removal and they won't pay for it as well.

Q37 As a commercial applicator, select the level of your concern regarding the continued utilization of this technology in terms of the label restrictions for applicators, and subsequent findings by the Department of Agriculture against applicators, including warning or violation letters, monetary penalties, and points that accumulate on the applicator and operator's license.

Answered: 110 Skipped: 3



Comments:

If the professional applicators cannot keep this on target, then what does the future hold? The growers want us to accept all the responsibility regardless of where they plant the Xtend beans.

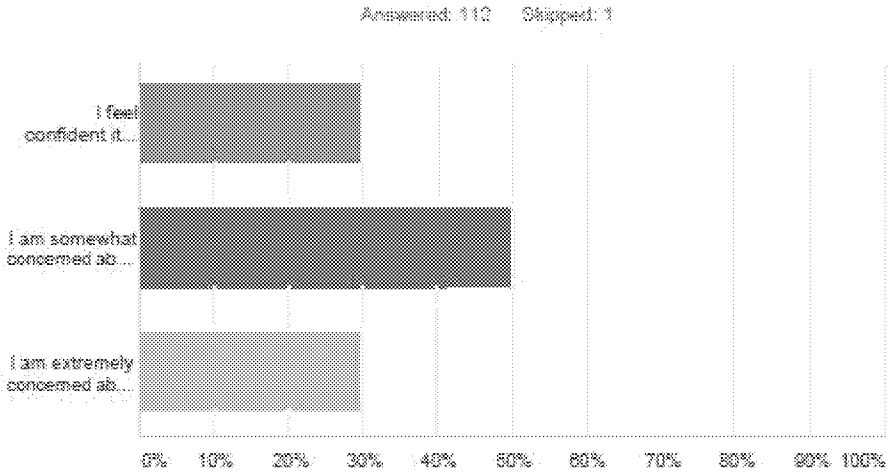
The majority of the issues are from causes out of our control and not due to improper application.

Concern lies in the complaints that are not legitimate, made by uneducated neighbors.

So far, as long as a the recordkeeping is ok, no one has been fined by the State. But affected farmers want to be compensated.

We do not feel that an applicator should be 100% liable for a product that moves when it was applied 100% according to label.

Q38 If you look at the next 5 years, assuming dicamba remains in the POST soybean marketplace, what comfort level do you have in the ability of dicamba to continue to work effectively on weeds?



Comments:

Next five years is good, next ten years there will be problems. Marestail can be managed, but waterhemp is a problem and it is being sprayed way too big.

I think the production of the triple stack soybean will give us the option to rotate products.

We have had waterhemp that got out of hand because of long rainy spell and we did not completely get them.

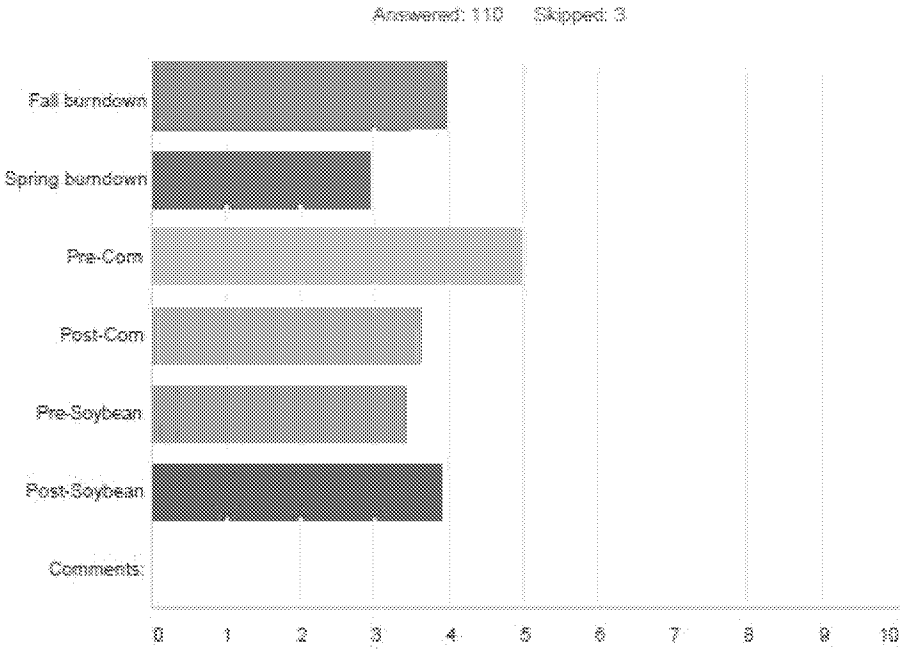
I think in 5 years there will be a lot of waterhemp will be resistant to dicamba if it is still labeled for post treatment soybeans.

I think that keeping different mode of actions out there will help keep this product around longer. With that being said I have already seen something I did not like, such as weeds trying to grow through it.

Beyond 5 years I'm concerned.

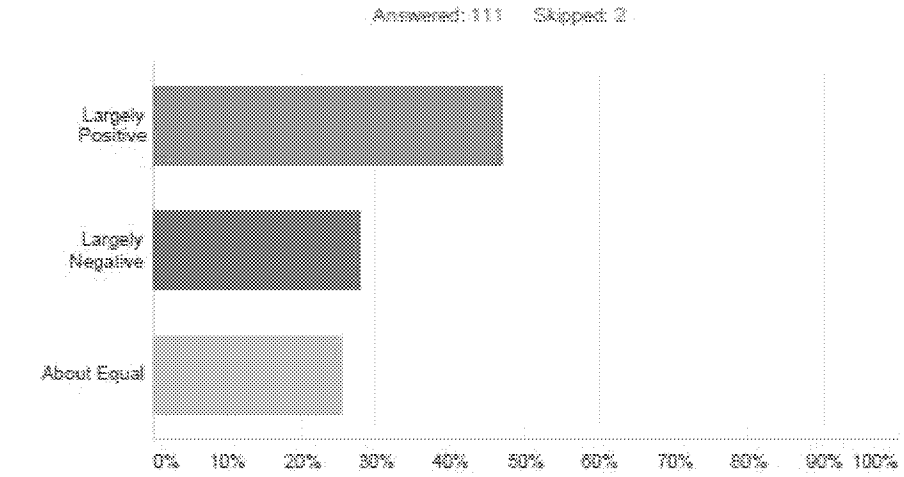
Growers are already pushing the envelope with weed heights, resistance is just a matter of time.

Q39 What use situation do you feel dicamba holds the SINGLE MOST long-term value for the industry? Please use the number "1" to rank the single most important long-term value; use 2,3,4,5,6 from there with "six" being the use that you feel holds the least long-term value.



IFCA NOTE: With "1" being the "most value," the smaller the bar the most value it had. So in the question, spring burndown holds the most value followed by pre-soybean, post-corn, post-soybean, fall burndown and pre-corn.

Q40 Considering all aspects of POST dicamba application (weed control, off target movement, neighbor relations) has the dicamba soybean technology largely been a positive or negative experience for your commercial application business?



Comments:

A lot of problems, but good for weed control.

It's positive for cleaning up a problem field, but from an exposure standpoint to the retailer it is completely opposite.

Cleaner fields and happier customers.

Equal, but it doesn't matter when the risks outweigh the rewards.

It's the only post product that works. A lot of the post products on the market today are only 70- 80% effective.

We have a civil war going on out here. Liberty vs Extend and we are caught in the crossfire.

We need this chemistry for resistant weeds in soybeans.

At issue are the Non GMO, Liberty or organic growers.

It adds another of stress that we really don't want. It is a very emotional topic.

Listening to upset farmers for a month about drift issues not good for anyone and makes for a lot of stress.

Q41 Please provide any additional comments to assist IFCA in our endeavor to ensure sound and effective pesticide policy and pesticide use in Illinois. You may also provide your company name if you desire; it will only be shared with the IFCA leadership. Thank you for participating in this survey and for your membership in the IFCA.

Comments:

Our experience has been much better this year. We went to direct injection or dedicated rigs just to extend beans and we did not put it into our nurse equipment. These factors cut down our complaints by 80%.

This is very difficult for custom applicators but putting it in the hands of more private applicators will be even worse.

I did have a comment from more than one grower that was a little concerning to me: There are a few very large growers in our territory that cover several counties and apply their own chemicals. I have yet to talk to one of their neighbors that have said that these growers had contacted them before spraying dicamba on their fields. I personally contacted all of them before I sprayed next to their fields, but I am concerned that farmer applicators are not doing the same with their neighbors.

I think most of the application problems are caused by cowboy applicators that don't follow the rules. Not sure how you stop that. We had absolutely no problems.

We have to have it, there are little to no other options at this time. If we don't have, we won't have enough Liberty seed to go around.

Make the decision to label or not to relabel dicamba ASAP to allow for seed making decisions.

I believe that dicamba needs to continue to be a tool in post beans. There are only two good options as I write this. If we eliminate one of them Liberty will quickly become the new Roundup and be completely useless in the market place. Diversity of herbicide products is critical to us being able to produce crops.

I think one thing that would help is if everyone had to take the training (growers) even if they were not applying dicamba. There are too many misinformed people.

I strongly believe that a good preplant residual followed by a timely post spray with an overlapping residual still works. Especially when including liberty in the soybean post spray pass. I see too much reliance on the dicamba as a one/two pass chemical as everyone did in the roundup days. The chemistry efficacy on waterhemp will not last long at all. It is now very effective, but without everyone planting DT tolerant crops, it is impossible to control. Especially since there will always be non-gmo varieties, gardens, plants and so forth in our neighboring areas. I spent two weeks driving designated sprayers back and forth between two counties trying to spray fields accordingly depending on wind direction and speed and then drove past fields for three weeks praying that we did not injure any surrounding areas. I don't like it in soybeans post one bit. However, it works. In our industry, it is putting a sour taste not only surrounding farmers mouths, but in our community with all of the publicity. Once again, however, it works!

We need the technology to succeed in controlling waterhemp in soybeans, period. Nothing else works as well. We don't need it to be any more difficult to apply.

The manufacturers need to be responsible for damage to crops that were sprayed by the label.

Farmers should be required to mark their fields according to what technology they are planting, it should not be the responsibility of the retailer to know whether or not a farmer's neighbor planted dicamba tolerant soybeans.

Our company took the approach that if there was a neighboring field adjacent within 360 degrees of the dicamba field that was non-tolerant we would not spray dicamba. This was extremely effective. No known issues to date. Basically in effect this process kept us a quarter to half mile away from sensitive crops. This greatly limited the use of dicamba but we had no negative crop response.

We bent over backwards to follow the label as much as possible and still cupped non-DT beans in the area. Very frustrating! Getting information on what grower is planting what trait where is a nightmare. Our own customers we know—it's the growers we don't do business with but spray next to that is the challenge.

In 43 years of business I have never seen a more divisive product among neighbors both farm and non-farm. I'm not sure the product is worth the headache.

At this point in time we need the dicamba chemistry but no doubt we'll lose the effectiveness over time. We can make this work if we spray early post; it will not stop the movement but seems to not affect the yield of neighboring fields.

It's a product that has put Ag in a very negative spotlight and increased the stress on caring applicators.

We can control weeds without dicamba. But this product makes it more cost effective for the grower. The seed traits will still be available next year. The industry needs to continue with research and education to make sure we don't lose this valuable resource to control weeds economically.

Lengthen the period of application to whatever the manufacturers are ok with. Waterhemp is a late problem here, so dicamba would be good as a rescue type product.

It's a good product but Monsanto and BASF need to stand behind the volatility factor.

I see more value in Liberty/Round Up stacked beans than Dicamba soybeans moving forward.

Liberty is not perfect and weeds will become resistant, but dicamba will not stay in the field. Stacked traits will increase the places it can be used but won't eliminate the risk. Our area has R3 Liberty beans that have dicamba double crop beans being planted next to them. Applications need to end by May 15. Less than 25% of drift get turned in as complaints in our area.

This technology cannot continue as is if we ever wish to raise a susceptible crop or maintain healthy relationships with our residential and environmental neighbors.

We have sprayed less than 150 acres for the last two years. We have too many sensitive crops to really utilize this technology. Its place may be in spring burn down with immediate soybean planting.

One cannot possibly use dicamba products according to the labels. Therefore we will never use these products. Area 1 where we are is fraught with lawsuits and fines waiting to happen.

A pesticide when applied correctly should stay on target and on your property. Dicamba herbicide does not meet that criteria. This is a battle about property rights not a herbicide. No pesticide should be capable of moving onto another property, ever!

This a herbicide we need moving forward. While there are misapplications, blaming the issues on applicators is ignoring the problem. I would like a rep from each manufacturer to be in my shoes for a month.

Right now we only have 2 technologies that work against waterhemp in soybeans: Xtend and Liberty. Neither are a magic bullet. If we lose one it won't be too long before we lose the other. We need both. The answer of course, is stacked traits, where the soybean contains LL/RRxtend.

This is a valuable tool. We can't afford to lose it.

Message

From: Rick Robinson [rrobinson@ifbf.org]
Sent: 8/17/2018 2:51:07 PM
To: Baris, Reuben [Baris.Reuben@epa.gov]; Greg Kruger [greg.kruger@unl.edu]
CC: Jones, Doug [jones.doug@epa.gov]; Gulliford, Jim [gulliford.jim@epa.gov]
Subject: Dicamba 2018 - The Iowa Experience

The latest on Iowa from Dr. Robert Hartzler, Iowa State University, with some survey numbers.

https://crops.extension.iastate.edu/cropnews/2018/08/dicamba-2018-iowa-experience

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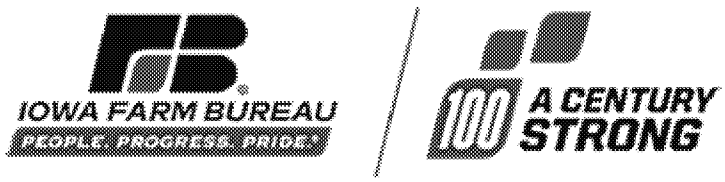

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IOWA STATE UNIVERSITY
Extension and Outreach

Integrated Crop Management

Dicamba 2018 - The Iowa Experience

August 15, 2018

I have been reluctant to provide estimates of soybean acres damaged from dicamba applied to Xtend soybean due to the difficulty in developing a realistic number of affected acres. While there has been a significant number of acres damaged by dicamba, I am sure it is less than five percent of Iowa's nearly 10 million soybean acres. Due to this relatively small number of acres affected (in relation to total soybean acres), dicamba injury will not significantly impact Iowa's productivity in 2018. However, if you are a farmer whose crop has been damaged by dicamba, the fact that the majority of soybean in the state were not affected is of little consolation.

To get a better handle on the extent of dicamba injury across the state, I asked ISU Extension and Outreach field agronomists to complete a brief on-line survey. Half of the agronomists stated the number of soybean acres damaged by dicamba was similar to 2017, whereas the remainder were split between fewer acres and more acres damaged in 2018 than 2017. When I've asked commercial agronomists the same question, the range of responses was similar to those of my extension colleagues.

More than 75% of ISU Extension and Outreach agronomists felt volatility was involved in at least 25% of the drift cases they investigated, while 25% thought movement following application played a role in over 50% of the incidences they investigated.

Complaints to state regulatory agencies is one measure that the Environmental Protection Agency (EPA) will consider in their upcoming decision regarding future use of dicamba on Xtend soybean. We know the reported incidences represent a very small fraction of total drift cases as farmers are reluctant to involve regulatory agencies. The majority of ISU Extension and Outreach agronomists reported that Iowa Department of Agriculture and Land Stewardship (IDALS) was contacted in less than 25% of the dicamba cases, and nobody reported IDALS was contacted in the majority of cases.

The majority of growers using the Xtend system are happy with the increased performance in weed control obtained with dicamba compared to alternatives. However, one ISU Extension and Outreach agronomist stated that farmers planting non-dicamba resistant soybean "are really upset with the continued off-target movement of dicamba". It is my opinion that the new label restrictions placed following the 2017 growing season, and the training required for applicators of the new dicamba products, has failed to reduce off-target problems to an acceptable level.

The EPA recently held two teleconferences with academic weed scientists from states where the new dicamba products are registered. There was near unanimous agreement that the level of off-target injury observed in 2018 is unacceptable. The EPA asked for suggestions on label modifications that could reduce problems in the future. Following are ideas that were put forward:

- All products containing dicamba should be *Restricted Use Products*
- Volatility is viewed as a contributing factor to off-target damage, thus some sort of temperature restriction should be implemented
- Date restrictions are viewed as more 'workable' than the current growth stage restriction, but they would need to be state specific
- There needs to be better clarification of sensitive/susceptible crops
- Buffers need to be 360 degrees rather than downwind

The EPA stated they plan to announce their decision in the near future so that people will know the status of the technology before making 2019 seed purchases. Off-target movement of dicamba is complex, there is no simple solution, and whatever action the EPA takes will not make everyone happy.

Category: Weeds

Crop:

Soybean

Tags: dicamba drift volatility

Author:

Bob Hartzler *Professor of Agronomy*

Dr. Bob Hartzler is a professor of agronomy and an extension weed specialist. He conducts research on weed biology and how it impacts the efficacy of weed management programs in corn and soybean. Dr. Hartzler also teaches undergraduate classes in weed science and weed identificatio...

Message

From: Scott, David E [scottde@purdue.edu]
Sent: 8/2/2018 2:09:45 PM
To: Steve Smith [ssmith@REDGOLD.com]; Keigwin, Richard [Keigwin.Richard@epa.gov]
CC: Waltz, Robert D [rwaltz@purdue.edu]; Ronald Hellenthal, Ph.D. [ronald.a.hellenthal.1@nd.edu]; Johnson, William G. [wgj@purdue.edu]
Subject: RE: Reflections on the dicamba situation

Steve,

Thanks for your comments and observations. We will certainly add dicamba use restrictions, both federally and state, to the 9-28-18 IPRB meeting agenda. Although all of our 2018 dicamba investigations will not be formally finalized by then, I am hopeful that we may have a good feel for how best to proceed before the 2019 season.

Dave Scott
Pesticide Administrator
Office of Indiana State Chemist
scottde@purdue.edu
Personal Matters / Ex. 6

From: Steve Smith [mailto:ssmith@REDGOLD.com]
Sent: Thursday, August 02, 2018 9:55 AM
To: keigwin.richard@epa.gov; Scott, David E <scottde@purdue.edu>
Subject: Reflections on the dicamba situation

Richard and David,

As the two "official" people I've dealt with for a long time about the dicamba situation, I felt compelled today to write and express what I'm seeing out in the real world. I've seen the damage on beans, yields will be affected in some areas, but I also know those damages are affecting our soybean seed producers in the area as it is very likely many of those will be ineligible to be used for seed beans. Beck's Hybrids, a major seed producer for the Midwest, has become quite concerned over their seed crop for next year as I know personally of several seed fields that have been hit and germinations will be compromised. There is no measurement for that in any of your data you receive concerning damages.

But the main reason I am writing today is the realization of what I saw last night our driving through the countryside. For the last few weeks I've been driving down roads and looking at tree injury from "eye level" and certainly it was out there and a real shame. But what I saw last night shocked me. I began to look higher and the picture of what is happening has become clear. While there certainly has been direct drift damage, I am seeing damage high in trees that I hadn't noticed before which would be more of an indication of vapor type movement that doesn't show up quickly on trees but is making itself known extensively now. If you're not looking up, you won't see this phenomenon. Many species are really taking it hard, but I'm seeing oak trees and particularly silver maples really indicating severe injury. This is something I hadn't noticed before but I believe strongly indicates that even though we might have gotten by with not injuring something immediately next door, this stuff has picked up into the atmosphere and is hitting trees like I've never seen. It is sad indeed. No reports will reflect this, few reports will be made to agencies to investigate but it is a real situation.

You all know I have worked this issue sincerely in terms of crop damage for years, what I saw yesterday made me cringe for what is happening in the countryside. This technology will critically harm our rural countryside far beyond crop injury, which is still near and dear to my heart. But this new realization is something I had to write and make known for

you guys. This is not hyperbole, it is real and if we don't get it recognized we'll all pay the penalty with the public once they figure it out.

My own house, soybeans and trees, have taken a hit. I have oak trees and silver maple that simply may not survive. My fruit trees are drying up and shriveling in an environment of almost perfect weather in our area. I will take this up with the offending party and made an official report to the State Chemist, but if my house has been hit, how many others are suffering damage and just have no idea of what's going on.

I know decisions are due out soon. I implore you to "look up" as you are out in the countryside (areas where dicamba has been used), it will shock you. Dave, Indiana needs to do what Arkansas has done even though it hasn't completely prevented injury, it certainly has reduced it. If possible, I would like to make an official proposal at the next PPRB meeting about this. Richard, from an EPA standpoint, this is an issue that needs national attention. In-crop usage is just not working out. The general public will come to distrust agriculture even more than they do now if this continues.

Here's a quote from Ford Baldwin, weed scientist from Arkansas that I think is appropriate.

"We can grow soybeans without dicamba, but you can't grow your crops with it being used". This is insightful indeed and something I hope you consider.

Thanks for allowing me to share my experiences and appreciate your consideration.

Steve Smith

Steve Smith | **Director of Agriculture** | **Red Gold**
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BECK'S

July 27, 2018

Richard P. Keigwin
Director, Office of Pesticide Programs
US Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington,DC 20460

Dear Mr. Keigwin,

On behalf of Beck's Hybrids, I would like to discuss the issue of dicamba drift and volatilization that is occurring on sensitive crops (including non-dicamba tolerant soybeans, high value trees, ornamentals, gardens, vegetable crops, vineyards and organic crops) in 2018. Beck's Hybrids is the fourth largest soybean seed seller in the United States marketing soybeans in eleven Midwestern states that have 60% of the soybean acreage in the US. Beck's is a family owned, Indiana-based company that began in 1937 and has grown dramatically over the last twenty years. We believe in giving farmers choices in soybean herbicide technologies and offer many choices for the industry so farmers can choose the best herbicide system to combat the weed challenges they face including Roundup® resistant weeds. In 2018, Beck's sold over one million bags (units) of soybeans containing Roundup Ready 2 Xtend® technology as well as significant volumes of other technologies such as LibertyLink®, Glyphosate Tolerant, Roundup Ready2Yield® and LibertyLinkGT27®. **We are asking that the dicamba label for XtendiMax®, Fexipan®, and Engenia® be modified to restrict dicamba in its current formulations to pre-plant only.**

The reason for this recommendation is five-fold. The first point is that the Roundup Ready 2 Xtend label was modified for the 2018 crop year to control off target movement, either from drift or volatilization, of dicamba applications on Roundup Ready 2 Xtend soybeans. Secondly, over 96,000 applicators were trained before the start of the 2018 crop year to fully understand the restrictions of the label. It is expected that more than two times (25 million to 50 million acres) the amount of Roundup Ready 2 Xtend crops, soybean and cotton, were planted in 2018 verses 2017. Monsanto reported that 61% of growers in 2018 were planning on using a dicamba herbicide on their Roundup Ready 2 Xtend soybean fields. The remaining percentage of growers are planting Roundup Ready 2 Xtend for reasons other than weed control benefits presumably for performance or protection from dicamba drift/volatilization. Third, there is still a significant amount of dicamba drift/volatilization reports in 2018 as there was in 2017 that precipitated the label change and training. Fourth, with farmers' concern of drifting of dicamba on other non-dicamba soybean technologies, this may limit these technologies' abilities to make an impact on weed resistance. There are newer technologies (Enlist® and MGI) that haven't received full export approvals that may never have a chance to make an impact on weed resistance because they don't contain dicamba tolerance.

6767 E. 276TH ST. ATLANTA, IN 46031 (317) 984.3508 OR (800) 937.2325

Finally, we believe that it is important for the agricultural community to be good stewards of our technology and resources. We are concerned that the non-ag public will see these off target movements as a sign we are not being good stewards. We believe it is better to have good regulations to protect technology proactively than to have bad regulation enforced after the fact.

Beck's SUPPORTS the use of Roundup 2 Xtend technology to help combat resistant weeds, however we urge the EPA to modify the current dicamba label on Roundup Ready 2 Xtend crops to disallow in season usage and focus on usage as a pre-plant option only. This allows all other soybean herbicide system technologies to be available to help combat weed resistance and solves the majority of the off target movement which will reduce the complaint calls from specialty growers and homeowners.

Sincerely,

L. Sonny Beck
Chief Executive Officer
Beck's Superior Hybrids
6767 E. 276th Street
Atlanta, IN 46031

Message

From: Scott, David E [scottde@purdue.edu]
Sent: 7/26/2018 2:16:59 PM
To: Ikley, Joseph T [jikley@purdue.edu]
CC: Waltz, Robert D [rwaltz@purdue.edu]; Baris, Reuben [Baris.Reuben@epa.gov]; Wilkinson, Bruce [wilkinson.bruce@epa.gov]; Becovitz, Joseph David [becovitz@purdue.edu]; Brewer, Robert D [rdbrewer@purdue.edu]; Carter, Elizabeth C [carter14@purdue.edu]; Creason, Garret A [gcreaso@purdue.edu]; Gibson, Kevin W [kwgibson@purdue.edu]; paul kelley [pkelley@purdue.edu]; Kreider, Aaron P [akreider@purdue.edu]; Leach, Carrie A [leach13@purdue.edu]; Martin, Andrew G [martinag@purdue.edu]; Rosch, Melissa D [mrosch@purdue.edu]; Davis, Nathan J [davi1280@purdue.edu]; Neal, Kevin W [nealkw@purdue.edu]; Reed, Leo A [reedla@purdue.edu]; Roth, Andrew R [rotha@purdue.edu]; Saxton, George Norman [saxton@purdue.edu]; Wan, Ping [wanp@purdue.edu]; ewhite@purdue.edu
Subject: RE: June Spray Hours

Thanks Joe. Now that we are making real life weather a critical part of label compliance, it is becoming obvious how unrealistic some of those design standard label restrictions may be. Keep up the good work.

Dave Scott
Pesticide Administrator
Office of Indiana State Chemist
scottde@purdue.edu
765-494-1593

From: Joseph T Ikley [mailto:jikley@purdue.edu]
Sent: Thursday, July 26, 2018 10:10 AM
To: Scott, David E <scottde@purdue.edu>; Whitford, Fred . <fwhitford@purdue.edu>
Cc: Waltz, Robert D <rwaltz@purdue.edu>; Wilkinson, Bruce (wilkinson.bruce@epa.gov) <wilkinson.bruce@epa.gov>; Baris, Reuben (Baris.Reuben@epa.gov) <Baris.Reuben@epa.gov>; Becovitz, Joseph David <becovitz@purdue.edu>; Brewer, Robert D <rdbrewer@purdue.edu>; Carter, Elizabeth C <carter14@purdue.edu>; Creason, Garret A <gcreaso@purdue.edu>; Gibson, Kevin W <kwgibson@purdue.edu>; Kelley, Paul J <pkelley@purdue.edu>; Kreider, Aaron P <akreider@purdue.edu>; Leach, Carrie A <leach13@purdue.edu>; Martin, Andrew G <martinag@purdue.edu>; Rosch, Melissa D <mrosch@purdue.edu>; Davis, Nathan J <davi1280@purdue.edu>; Neal, Kevin W <nealkw@purdue.edu>; Reed, Leo A <reedla@purdue.edu>; Roth, Andrew R <rotha@purdue.edu>; Saxton, George Norman <saxton@purdue.edu>; Wan, Ping <wanp@purdue.edu>; White, Edward M <ewhite@purdue.edu>
Subject: Re: June Spray Hours

Dave,

I also realized I forgot to include one key finding in that article. Any time we had average wind speeds over 5 MPH, we had gusts over 10 MPH. So as long as a wind gust over 10 is a label violation, it looks like average wind speeds of 3 to 5 MPH are the realistic scenario we face for application.

Joe

Joe Ikley
Weed Science Program Specialist
Purdue University
915 West State Street
W. Lafayette, IN 47907
e-mail - jikley@purdue.edu

Personal Matters / Ex. 6
Office - (765) 496-2121

From: Scott, David E <scottde@purdue.edu>
Sent: Thursday, July 26, 2018 10:01 AM
To: Joseph T Ikley; Whitford, Fred .
Cc: Waltz, Robert D; Wilkinson, Bruce (wilkinson.bruce@epa.gov); Baris, Reuben (Baris.Reuben@epa.gov); Becovitz, Joseph David; Brewer, Robert D; Carter, Elizabeth C; Creason, Garret A; Gibson, Kevin W; Kelley, Paul J; Kreider, Aaron P; Leach, Carrie A; Martin, Andrew G; Rosch, Melissa D; Davis, Nathan J; Neal, Kevin W; Reed, Leo A; Roth, Andrew R; Saxton, George Norman; Wan, Ping; White, Edward M
Subject: RE: June Spray Hours

Thanks Joe. This helps drive home the point if we are truly serious about label compliance, and the consequences for failure to do so.

Dave Scott
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scottde@purdue.edu
765-494-1593

From: Joseph T Ikley [mailto:jikley@purdue.edu]
Sent: Friday, July 20, 2018 2:36 PM
To: Scott, David E <scottde@purdue.edu>; Whitford, Fred . <fwhitford@purdue.edu>
Subject: June Spray Hours

FYI,

Just posted on Pest and Crop this morning. Even with our wind gauge located at 3 feet, not much has changed from last year.

https://extension.entm.purdue.edu/newsletters/pestandcrop/article/update-on-wind-speeds-and-the-new-dicamba-labels/

Joe

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Message

From: Joseph T Ikley [jikley@purdue.edu]
Sent: 7/26/2018 2:09:41 PM
To: scottde@purdue.edu; Whitford, Fred . [fwhitford@purdue.edu]
CC: Waltz, Robert D [rwaltz@purdue.edu]; Wilkinson, Bruce [wilkinson.bruce@epa.gov]; Baris, Reuben [Baris.Reuben@epa.gov]; Becovitz, Joseph David [becovitz@purdue.edu]; Brewer, Robert D [rdbrewer@purdue.edu]; Carter, Elizabeth C [carter14@purdue.edu]; Creason, Garret A [gcreaso@purdue.edu]; Gibson, Kevin W [kwgibson@purdue.edu]; paul kelley [pkelley@purdue.edu]; Kreider, Aaron P [akreider@purdue.edu]; Leach, Carrie A [leach13@purdue.edu]; Martin, Andrew G [martinag@purdue.edu]; Rosch, Melissa D [mrosch@purdue.edu]; Davis, Nathan J [davi1280@purdue.edu]; Neal, Kevin W [nealkw@purdue.edu]; Reed, Leo A [reedla@purdue.edu]; Roth, Andrew R [rotha@purdue.edu]; Saxton, George Norman [saxton@purdue.edu]; Wan, Ping [wanp@purdue.edu]; ewhite@purdue.edu
Subject: Re: June Spray Hours

Dave,

I also realized I forgot to include one key finding in that article. Any time we had average wind speeds over 5 MPH, we had gusts over 10 MPH. So as long as a wind gust over 10 is a label violation, it looks like average wind speeds of 3 to 5 MPH are the realistic scenario we face for application.

Joe

Joe Ikley
Weed Science Program Specialist
Purdue University
915 West State Street
W. Lafayette, IN 47907
e-mail - jikley@purdue.edu
Personal Matters / Ex. 6
Office - (765) 496-2121

From: Scott, David E <scottde@purdue.edu>
Sent: Thursday, July 26, 2018 10:01 AM
To: Joseph T Ikley; Whitford, Fred .
Cc: Waltz, Robert D; Wilkinson, Bruce (wilkinson.bruce@epa.gov); Baris, Reuben (Baris.Reuben@epa.gov); Becovitz, Joseph David; Brewer, Robert D; Carter, Elizabeth C; Creason, Garret A; Gibson, Kevin W; Kelley, Paul J; Kreider, Aaron P; Leach, Carrie A; Martin, Andrew G; Rosch, Melissa D; Davis, Nathan J; Neal, Kevin W; Reed, Leo A; Roth, Andrew R; Saxton, George Norman; Wan, Ping; White, Edward M
Subject: RE: June Spray Hours

Thanks Joe. This helps drive home the point if we are truly serious about label compliance, and the consequences for failure to do so.

Dave Scott
Pesticide Administrator
Office of Indiana State Chemist
scottde@purdue.edu
765-494-1593

From: Joseph T Ikley [mailto:jikley@purdue.edu]
Sent: Friday, July 20, 2018 2:36 PM
To: Scott, David E <scottde@purdue.edu>; Whitford, Fred . <fwhitford@purdue.edu>
Subject: June Spray Hours

FYI,

Just posted on Pest and Crop this morning. Even with our wind gauge located at 3 feet, not much has changed from last year.

https://extension.entm.purdue.edu/newsletters/pestandcrop/article/update-on-wind-speeds-and-the-new-dicamba-labels/

Joe

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Message

From: Subramanian, Hema [Subramanian.Hema@epa.gov]
Sent: 7/25/2018 7:35:24 PM
To: Bennett, Tate [Bennett.Tate@epa.gov]
Subject: DTN dicamba report

In case of interest

From: Morning Agriculture [mailto:morningagriculture@politico.com]
Sent: Monday, July 23, 2018 10:05 AM
To: Subramanian, Hema <Subramanian.Hema@epa.gov>
Subject: POLITICO's Morning Agriculture, presented by the Alliance for Fair Sugar Policy: Senate to take up ag appropriations — Farm bill in Senate's court

— **Dicamba damage extends beyond soybeans:** Over two months, DTN conducted dozens of interviews with rural homeowners, business owners and organic and specialty crop farmers about the damage from the drifting herbicide. A South Dakota vegetable farm was destroyed for the second year in a row, and a resort owner in Tennessee is fighting to save his gardens, plants, trees, and a nearby historic state park. State regulators are struggling to keep up with the number of complaints, and justice is hard to come by, according to the report.

https://www.dtnpf.com/agriculture/web/ag/news/crops/article/2018/07/20/dicamba-moves-beyond-bean-fields-eye

When Drift Hits Home

Dicamba Moves Beyond Bean Fields and Into the Public Eye

7/20/2018 | 9:30 AM CDT

By Emily Unglesbee , DTN Staff Reporter

Dicamba injury, such as the damaged squash (left) and maple tree (right) on Little Shire Farm over the past two years has cost its owners thousands of dollars, with no compensation in sight. (Photo courtesy of John Seward)

Dicamba injury, such as the damaged squash (left) and maple tree (right) on Little Shire Farm over the past two years has cost its owners thousands of dollars, with no compensation in sight. (Photo courtesy of John Seward)

Editor's Note: DTN/The Progressive Farmer's reporting on non-soybean dicamba damage uncovered the uneasiness this issue has caused in rural communities as damage pits neighbor against neighbor and farmers and applicators against the non-farming public. Because of that conflict, this article includes an anonymous source, a rare allowance at DTN, as some rural citizens want to share their stories but do not want the community fallout that can occur when someone speaks out against neighbors.

**

ROCKVILLE, Md. (DTN) -- Images of cupped soybean fields have come to symbolize the dicamba injury crisis underway in farm country in the U.S. But what happens when chemicals like dicamba move beyond the soybean fields of commercial farmers onto the property of rural homeowners, business owners and organic and specialty crop farmers?

In South Dakota, a vegetable farm that was destroyed by dicamba in a matter of weeks last year was hit again this June by another cocktail of herbicides, including dicamba.

An elderly Illinois homeowner has watched her carefully landscaped yard wither for two years in a row from dicamba injury.

A resort owner in Tennessee is fighting to save his gardens, plants, trees and a nearby historic state park after the second consecutive year of dicamba damage.

Over the course of two months, DTN conducted dozens of interviews on non-soybean dicamba injury and found that injured property owners like these face an uphill battle to justice.

State departments of forestry, natural resources and agriculture pass responsibility for non-soybean dicamba injury back and forth between each other, like a hot potato. State regulators are struggling to keep up with the pace of complaints, leading to long delays and unresolved investigations. Even state investigations that find a pesticide applicator at fault can only fine the applicator -- not compensate the victim. Laboratories are still learning how to test for dicamba residue effectively, and at what levels. Unless an applicator was flagrantly off label, insurance companies maintain that they are not responsible when dicamba volatilizes and moves off-target. The companies who manufacture the new dicamba herbicides insist that volatility is rare and dicamba injury unusual.

At the end of the day, most of the property owners interviewed face serious financial losses that they will never recover. Some wonder if they will ever be able to grow vegetables or trees in their patch of countryside again if dicamba-tolerant soybean acres and their accompanying dicamba use continues to swell.

"At what point do these rural audiences say I've had enough?" said Bill Johnson, a weed scientist with Purdue University. "This is giving all of agriculture a black eye."

The situation is likely to affect the future registration of the new dicamba herbicides, which are under review by EPA. The agency is watching the situation closely, an EPA spokesperson told DTN.

"EPA is aware of field reports of off-field and non-target crop damage related to the use of dicamba," the agency said in an email. "Past reports claim damage is mostly to non-dicamba-resistant soybean, but also include peaches, melons, tomatoes, cantaloupe, grapes, pumpkins, alfalfa, non-dicamba-resistant cotton, peanuts, peas, organic crops, residential/ ornamental gardens and other non-target crops. We are actively collecting this information from states and EPA regional personnel in order to fully understand the circumstances and scope of the issues."

FINANCIAL LOSSES WITH NO COMPENSATION

In Aurora, South Dakota, John Seward runs Little Shire Farm, a farm that grows 415 varieties of vegetables. The farm sells Community Supported Agriculture (CSA) shares, wherein a customer pays a set amount each season and receives weekly deliveries of vegetables.

Starting in early August last year, Seward noticed his eggplants looked odd. Then the sunflowers and tomato plants started to curl and wilt. Lettuce crinkled up, and sweet pea pods became deformed and inedible.

Samples taken by the South Dakota Department of Agriculture confirmed that his vegetables had been hit by dicamba. Seward estimates he lost more than $11,000 in unharvested crops, destroyed seed, and lost fall and winter CSA crop shares.

With the state's laboratory results, he thought he had a good case with his neighbor's insurance company for full compensation. But Nationwide Mutual Insurance Company found that his neighbor had applied the dicamba product on label and thus was not liable for any damage that occurred -- a common conclusion among damaged soybean claims last year, as well. The volatility that produced that damage is, according to liability insurers, a defect of the product and the fault of the manufacturer, not the applicator. (See a DTN story on this issue here: https://www.dtnpf.com/...)

Seward joined a class-action lawsuit against the dicamba manufacturers last year, but has no expectation of ever recovering his losses. "These lawsuits will drag on for years, and there's no guarantee they'll result in anything," he said.

This year, buoyed by seed and monetary donations from the community, Seward replanted his usual mix of vegetables. By mid-June, the crops started to show signs of chemical damage, once again. Tests run by the South Dakota Department of Agriculture came back positive for a cocktail of dicamba, atrazine, 2,4-D, metolachlor and glyphosate.

Seward's experience is an increasingly common one in soybean-producing states, where 40 million acres of dicamba-tolerant soybeans have been planted this year, university weed scientists told DTN. There is no mandatory reporting system in place for all non-soybean dicamba injury, but at least 10 states in the Midwest, South and West have reported official dicamba injury complaints to non-soybean acres to the Association of American Pesticide Control Officials (AAPCO). Missouri, for example, is reporting dicamba injury to hundreds of acres of peaches, watermelons, grapes, berries, alfalfa, residential trees, fruit trees, personal and commercial gardens, shrubs, flowers and greenhouse vegetables.

In one way, Seward is fortunate to be able to monetize most of his losses, noted Johnson. Damage to other plants, such as trees or ornamentals, aren't as easily measured.

The Illinois homeowner, who spoke on the condition of anonymity to protect her from reprisals in her community, has suffered severe damage to a wide variety of trees -- oak, Bradford pear, blue spruces and catalpas -- as well as ornamental plants, shrubs and a vegetable garden. She sent samples to a private laboratory last year, which found dicamba in them. Between lab testing, dead branch and tree removals, and rescue fertilizer and soil conditioning treatments, she and her husband have spent $10,000 already, she said.

In Tennessee, Mike Hayes runs the Blue Bank Resort on the shores of Reelfoot Lake, a natural wonder formed when a series of massive earthquakes struck at the New Madrid Fault between 1811 and 1812 and temporarily forced the Mississippi River to flow backwards, filling this 15,000-acre lake.

For the past three years, Hayes has spent half-a-million dollars turning his hunting and fishing outfitter business on the lake into a polished, professional resort.

Last year, Hayes experienced wave after wave of dicamba exposure. It wiped out the resort's garden -- which supplies the on-site restaurant -- three times before Hayes gave up. He estimates it killed 20% of the young trees he planted, mostly crape myrtles and conifers, as well as a butterfly garden he built as an added attraction. This year, he estimates he has been hit eight separate times by dicamba. He expects five cypress trees to die this year and worries about the birds that nest in the lake region, namely ospreys and bald eagles.

Nearby, the Reelfoot Lake State Park has experienced two years of similar damage to its cypress trees, many of which grow within the lake itself after they were flooded more than a century ago. Since the trees can't sprout at the current lake depths, replacements aren't an option, Hayes noted.

"Once they die, those trees can't grow back," he said.

The Tennessee Department of Agriculture sampled both Hayes' property and the state park's and produced positive dicamba tests last year. But Hayes will receive no compensation from the state investigation, and neither he nor the state regulators have determined exactly where the dicamba came from. The Blue Bank Resort and state park are surrounded by fertile Mississippi Delta bottomlands, where thousands of acres of soybeans are planted regularly.

Dicamba damage can take anywhere from 10 days to a month to show up, which makes for a murky timeline, Hayes noted.

"And the big problem is that it could have come from anywhere, so how do you prove where the damage came when there are eight different farms using it around you?" he said.

Chemical trespass has always been a problem for professional nurseries, even when tree death doesn't occur, added Becky Thomas, co-owner of Spring Grove Nursery in northern Illinois. Three years ago, Thomas's 90-acre nursery was hit by 2,4-D, a herbicide in the same chemical class as dicamba. Only a handful of trees died, but the damage set her business back years.

"It's a multiple-year crop," she explained. "We plant and don't harvest until five to six years later. Depending on species of tree, I lost one to two years of growth across all 90 acres." This dynamic baffled her neighbor's liability insurer, and Thomas finally had to reach out to a Texas A&M horticultural economist to quantify her losses.

After a year and a half of bitter, exhausting legal battles, Thomas eventually settled with the insurer for an amount that covered only a quarter of her losses.

And the applicator, who was found guilty of breaking pesticide regulations by the state of Illinois?

He was fined $750.

THE EMOTIONAL COST TO CHEMICAL INJURY

The rise in off-target dicamba injury has strained the social fabric of rural communities, said University of Illinois weed scientist Aaron Hager. "It's pitting neighbor against neighbor," he said. "Farmers threatening others farmers. I've never seen this before over the use of technology."

"It is an incredibly divisive topic," added Karen Corrigan, an independent agronomist who works in central Illinois. "Either you're for it or you're against it. You either like the technology and want to use it, or you've been hit by it and hate it."

Nearly every property owner DTN interviewed stressed the emotional toll chemical trespass had taken on them.

The Illinois homeowner said watching the plants and trees she has cultivated for decades slowly die has sunk her into a depression.

"These are 100-year-old oaks," she said. "We're senior citizens and we don't have the time left in our lives to plant new trees and watch them get even halfway to maturity."

Just as painful has been the sense of betrayal she feels from neighboring farmers responsible for the damage.

"We are farmers, too, so I can see both sides of this," she said. "We live in a rural area with generations of families that have been here for years and years. We've known them all our lives. But when we talk to the farmers, they don't seem to care that much. There's no apologies, no offers to help, nothing."

Since filing his complaint with the state, Seward's relationship with his neighbor has deteriorated. Friendly neighborly gestures have vanished and in their place are hostile text messages and mocking signs posted near his property boundaries.

He is furious with every level of the agricultural industry that he believes allowed this situation to unfold.

"There are a whole lot of people responsible," he said. "State agencies for not banning it. Farmers for using it even knowing what it was doing. Scientists for not speaking up, and the companies and the seed dealers."

TO CATCH A HERBICIDE

Although the ag industry has used and studied dicamba for decades, there is a lot we don't know about how the herbicide affects trees and vegetation, said Johnson.

State laboratories are dealing with an overwhelming number of dicamba injury samples, said David Scott, pesticide program manager for the Office of Indiana State Chemist. Last year, the Indiana state lab processed 2,577 herbicide-injury samples, more than four times its normal amount.

There is no uniform methodology in place across laboratories to test for dicamba residue and no official guidance on what levels of exposure to test for, Scott added. That means positive dicamba tests will vary from lab to lab, depending on the screening method used, the detection level used, other chemicals tested for within the sample and the analyst's experience. Even the type of equipment used during the dicamba application in the field can affect what sort of residue results a laboratory will find, Scott said.

Although last year gave the Indiana state lab a good crash course in how to test soybean leaves for dicamba residue, they don't have much experience yet with trees and other vegetation, he added.

"What we do know is it's very hard to find and it's very short-lived in the environment," Scott said. "That short-livedness -- that is one of the reasons a lot of states are just going based on symptomology because they know they're going to be unsuccessful finding residues in the lab."

Scientists from the Universities of Missouri and Georgia have done field trials in recent years testing the sensitivity of numerous tree, vegetable and fruit species to varying amounts dicamba and 2,4-D -- but the research is new and still mostly un-replicated.

"With any type of perennial, especially woody plants, you're dealing with a continued, sub-lethal cumulative effect, and the only way to track that is to track the number of trees that die each year," Johnson said. "Do oaks and redbuds have a higher rate of mortality since dicamba-tolerant soybeans were introduced? Well, no agency will ever pay to do that, so we're never going to know."

The University of Missouri is compiling biweekly surveys from state weed scientists on estimated soybean acreage injured by dicamba, but no such estimates exist for non-soybean vegetation. Moreover, as more soybeans are planted with the dicamba-tolerant trait each year, the number of dicamba-injured soybeans will likely drop, Thomas noted.

"I feel like the complaints for soybean acres might be down, which might lead state regulators to believe this is not a problem," she said.

The Association of American Pesticide Control Officials (AAPCO) is doing weekly surveys for official reports of dicamba injury, including non-soybean, but state responses are voluntary and often inconsistent -- some report acreage numbers, others only the number of complaints.

Most importantly, the AAPCO numbers only present official complaints logged with state agriculture departments -- which rarely give a full picture of damage, Johnson said.

Many cases of dicamba injury go unreported due to the hassle of a state investigation and the fact that it does not result in any compensation for the victim, he said. He estimates that fewer than 20% of dicamba injury cases were actually reported in Indiana last year.

Nor do state departments outside of agriculture seem keen to take responsibility for herbicide-damaged trees and plants. University of Missouri foresters direct all inquiries about dicamba-damaged trees to the state's department of agriculture and do no tracking of it themselves, said Hank Stelzer, a University of Missouri Extension forester. Likewise, in Arkansas, inquiries to the forestry department and forestry industry groups about dicamba-injured trees were redirected to the state's agriculture department.

Various state agencies, such as the Tennessee Department of Agriculture and the Tennessee Wildlife Resources Agency (TWRA), have passed full responsibility for the damage investigation into Reelfoot Lake State Park back and forth for two years now, said Hayes. After TWRA insisted it was not the agency in charge of the lake, Hayes had to step in this year and ferry state agriculture agents out onto the lake in his private boat to examine suspected dicamba injury to the lake's cypress trees and lily pads.

"I personally had to investigate, discover and then provide transportation for the department of agriculture when no one else would take them out," he said. "Right now, no state agency is saying they're officially in charge of dicamba drifting onto Reelfoot Lake. Every agency is putting it on someone else. Everyone is so scared of the political clout of [dicamba manufacturers]."

Hayes worries that this lack of clear authority has given farmers in his state no real incentive to keep dicamba from moving beyond soybean fields.

"The Tennessee Department of Agriculture has put some hard rules about dicamba out there, but they don't have the agents to actually be out there looking," he said. "It's like having a speed limit on a highway but no state troopers."

Corrigan said she has been discouraged by the lack of accountability for dicamba injury in the agricultural industry.

"It's like a hot potato that no one wants to take control over," she said. "The manufacturers say it's not a problem. The applicators say they sprayed on label, so it's not their fault. The liability insurers say that the grower sprayed on label, so it's not their problem either. And the growers who are damaged have no recourse. Even if they file a state complaint, it logs their damage but doesn't get them any recourse for what has happened. No one wants to take responsibility for what's happening."

THE FUTURE OF DICAMBA-TOLERANT TECHNOLOGY

Don Rone, a member of the Missouri House of Representatives representing the state's southeast corner, understands why farmers chose to plant 40 million acres of Xtend soybeans in 2018 -- and spray them.

"I will tell you this -- we need the chemistry," he said. "We've got to find a way to keep it, because it's one of two arsenals that we have -- this and Liberty."

A former farmer himself, Rone has seen how well the new dicamba herbicides -- Monsanto's XtendiMax, BASF's Engenia and DuPont's FeXapan -- can clean up soybean fields infested with herbicide-resistant weeds like Palmer amaranth and waterhemp.

"But we need to learn how to use the chemistry and how to keep it in the field it goes in," he added. "And that's very hard to do when you have 60-degree nights and 90-degree days."

The new dicamba herbicides were designed to have less volatility -- the ability of a chemical to turn into a gas -- than older formulations. However, university scientists have confirmed that the compounds do still have the ability to volatilize, particularly in hot conditions. Last year, in field trials, the University of Missouri found that dicamba remained in the air for up to 96 hours after most applications.

The herbicide could move miles in that timeframe, Hager noted. Both he and other university weed scientists said they have seen many fields with uniform dicamba injury that runs from one end of a soybean field to the other, with no pattern of dilution or drift. "Turn row to turn row," Hager said. "Of course we're talking volatility."

Monsanto has continually denied that volatility is playing a significant role in off-target dicamba injury and has downplayed dicamba injury reports. During a media call, Monsanto representative Ty Witten told DTN that complaints about dicamba injury to non-soybean acres were "really kind of random across the area" this year and sometimes proved to be another type of problem altogether. "We have been on a few non-agricultural crops that have called in, and we really appreciate some of those callers call in," Witten said.

Gary Schmitz, BASF technical service regional manager, told DTN that the company was getting "a few calls" on non-soybean injury, but "probably 99% of our calls are on soybeans."

By refusing to address the off-target dicamba non-soybean damage in a serious way, many farmers and company representatives are jeopardizing the very tool they are fighting so hard to keep, Hager said.

"Is this technology truly worth what it's going to cost agriculture?" he said. "Because if we don't fix this problem, someone will come in and do it for us."

Johnson agreed.

If the companies can't redesign the current dicamba formulations to stay where they are applied, he foresees a future with an even more restrictive label or an outright ban on dicamba use in row crops. Either way, soybean growers will lose out in their battle against herbicide-resistant weeds, he added.

EPA said it is receiving and weighing multiple sources of information on this situation, including "state narrative feedback, grower experiences, incident and acre damage reporting, regulatory compliance review, data from USDA, commodity experts and others."

The agency hopes to make a decision on the dicamba registrations this summer. "With advice from state and industry agriculture experts and university crop scientists, we will use a weight-of-evidence approach to evaluate whether the new restrictions are successfully preventing damage to neighboring crops and other sensitive plants," the agency said. "Our goal is to make a decision in time for growers to make informed seed purchase decisions for the next planting season."

Meanwhile, in Illinois, Thomas is heading into a hot July spray season like a soldier arming for battle.

She has purchased her own weather stations to monitor spray conditions. She has registered her nursery -- once again -- with Driftwatch. She has spoken to every grower who farms near the nursery and purchased and posted large black-and-yellow signs online that state, "SPECIALTY CROP."

But she also wonders if any of it will help.

"We have actively wondered if we wanted to continue in this business if it is going to involve this kind of risk we have no control over," she said.

Seward said he and his wife are seriously reconsidering their dream of farming in the Midwest.

"We are pretty resilient, but there comes a time when the 'dream' is just a 'dream,'" he said.

Message

From: Thostenson, Andrew [andrew.thostenson@ndsu.edu]
Sent: 7/23/2018 6:52:02 PM
To: Baris, Reuben [Baris.Reuben@epa.gov]
Subject: RE: Contemplating 2019 Without Dicamba--Yes, by all means

You are most welcome to share with your people.

I hope it is useful and constructive. That is why I wrote it.

Cheers,

A

****
Andrew A. Thostenson
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Web: http://ndsupesticide.org
https://twitter.com/Thostenson
****
"...with firmness in the right, as God gives us to see
the right, let us strive on to finish the work we are in..."
Quotation from Abraham Lincoln

From: Baris, Reuben <Baris.Reuben@epa.gov>
Sent: Monday, July 23, 2018 1:47 PM
To: Thostenson, Andrew <andrew.thostenson@ndsu.edu>
Subject: RE: Contemplating 2019 Without Dicamba

Hi Andrew.
I appreciate the context and your comments.
As long as you are ok with it, I will be sharing your comments internally. I think your voice is an important one.
Thank you.
Reuben

REUBEN BARIS | PRODUCT MANAGER, TEAM 25 | HERBICIDE BRANCH
U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF PESTICIDE PROGRAMS | (703) 305-7356

From: Thostenson, Andrew [mailto:andrew.thostenson@ndsu.edu]
Sent: Monday, July 23, 2018 2:30 PM
To: Baris, Reuben <Baris.Reuben@epa.gov>
Subject: Contemplating 2019 Without Dicamba

What we now know, in 2018, is that minimizing the off target movement of dicamba to a reasonable level is NOT possible.

If you take 2017, off the board, and only look at what has happened in 2018, I think this level of movement is completely unacceptable.

In ND it is still too early to tell if we will have fewer acres impacted because of the additional restrictions we put into place, but already, our complaints are surpassing 2017.

MN may well be able to claim that they tamed this problem, with a meaningful cutoff date. However, in places like AR, that had an effective ban in place since early May, they still have had way too much damage.

In case you have not seen them, three articles are must read on this issue:

Obviously the Mizzou July 15 report:

https://ipm.missouri.edu/ipcm/2018/7/July-15-Dicamba-injury-update-different-year-same-questions/

The next is from DTN regarding off-target movement to non-ag sites:

https://www.dtnpf.com/agriculture/web/ag/news/crops/article/2018/07/20/dicamba-moves-beyond-bean-fields-eye

The final is from Tennessee:

http://news.utcrops.com/2018/07/dicamba-in-tennessee-year-3/

Steckel's comment is the most devastating: "What also points to the training not working well is how marked up by dicamba many trees appear in and around fields planted to Xtend. The most publicized of these are located at the Reelfoot Lake area and those trees do look bad. Unfortunately, so do many trees near soybean and cotton fields across Tennessee. Indeed I have been called to look at trees in some home owner yards that I could describe with only one word: "Embarrassing".

What I have observed in ND, thus far, has confirmed for me that this technology cannot be used without accepting widespread damage to sensitive plants. On a personal level, my friend from church, that I mentioned to you last fall, who farms NW of Fargo, has over 800 acres damage this year. That is roughly three times the acreage impacted in 2017.

I think it is time to start discussions about what 2019 looks like WITHOUT dicamba sprayed over the top in soybeans and cotton. Even if you do not register these products (or radically restrict them) my guess is that 60% of the seed stock in this country is going to be planted to dicamba tolerant strains. This means that one could have millions of acres of illegal applications made next year. After 2016, 2017, and now 2018, the year 2019 could be terrible for this country.

I am sure you all have contemplated some of these scenarios, but it seems to me those conversations need to start taking place, especially with EPA's State partners.

You have my best as you and your colleagues grapple with this very difficult problem,

Andrew

****

Andrew A. Thostenson
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https://twitter.com/Thostenson
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"...with firmness in the right, as God gives us to see
the right, let us strive on to finish the work we are in..."
Quotation from Abraham Lincoln

When Drift Hits Home

Dicamba Moves Beyond Bean Fields and Into the Public Eye

7/20/2018 | 9:30 AM CDT

By Emily Unglesbee , DTN Staff Reporter

Connect with Emily:

@Emily_Unglesbee

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Dicamba injury, such as the damaged squash (left) and maple tree (right) on Little Shire Farm over the past two years has cost its owners thousands of dollars, with no compensation in sight. (Photo courtesy of John Seward)

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A resort owner in Tennessee is fighting to save his gardens, plants, trees and a nearby historic state park after the second consecutive year of dicamba damage.

Over the course of two months, DTN conducted dozens of interviews on non-soybean dicamba injury and found that injured property owners like these face an uphill battle to justice.

State departments of forestry, natural resources and agriculture pass responsibility for non-soybean dicamba injury back and forth between each other, like a hot potato. State regulators are struggling to keep up with the pace of complaints, leading to long delays and unresolved investigations. Even state investigations that find a pesticide applicator at fault can only fine the applicator -- not compensate the victim. Laboratories are still learning how to test for dicamba residue effectively, and at what levels. Unless an applicator was flagrantly off label, insurance companies maintain that they are not responsible when dicamba volatilizes and moves off-target. The companies who manufacture the new dicamba herbicides insist that volatility is rare and dicamba injury unusual.

At the end of the day, most of the property owners interviewed face serious financial losses that they will never recover. Some wonder if they will ever be able to grow vegetables or trees in their patch of countryside again if dicamba-tolerant soybean acres and their accompanying dicamba use continues to swell.

"At what point do these rural audiences say I've had enough?" said Bill Johnson, a weed scientist with Purdue University. "This is giving all of agriculture a black eye."

The situation is likely to affect the future registration of the new dicamba herbicides, which are under review by EPA. The agency is watching the situation closely, an EPA spokesperson told DTN.

"EPA is aware of field reports of off-field and non-target crop damage related to the use of dicamba," the agency said in an email. "Past reports claim damage is mostly to non-dicamba-resistant soybean, but also include peaches, melons, tomatoes, cantaloupe, grapes, pumpkins, alfalfa, non-dicamba-resistant cotton, peanuts, peas, organic crops, residential/ornamental gardens and other non-target crops. We are actively collecting this information from states and EPA regional personnel in order to fully understand the circumstances and scope of the issues."

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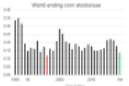

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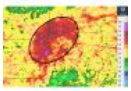

Plan B for Dicamba
Spraying Dicamba? Better Have a Back-Up Plan

Emily Unglesbee

About the Author

Connect with Emily:

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In Aurora, South Dakota, John Seward runs Little Shire Farm, a farm that grows 415 varieties of vegetables. The farm sells Community Supported Agriculture (CSA) shares, wherein a customer pays a set amount each season and receives weekly deliveries of vegetables.

Starting in early August last year, Seward noticed his eggplants looked odd. Then the sunflowers and tomato plants started to curl and wilt. Lettuce crinkled up, and sweet pea pods became deformed and inedible.

Samples taken by the South Dakota Department of Agriculture confirmed that his vegetables had been hit by dicamba. Seward estimates he lost more than $11,000 in unharvested crops, destroyed seed, and lost fall and winter CSA crop shares.

With the state's laboratory results, he thought he had a good case with his neighbor's insurance company for full compensation. But Nationwide Mutual Insurance Company found that his neighbor had applied the dicamba product on label and thus was not liable for any damage that occurred -- a common conclusion among damaged soybean claims last year, as well. The volatility that produced that damage is, according to liability insurers, a defect of the product and the fault of the manufacturer, not the applicator. (See a DTN story on this issue here: https://www.dtnpf.com/...)

Seward joined a class-action lawsuit against the dicamba manufacturers last year, but has no expectation of ever recovering his losses. "These lawsuits will drag on for years, and there's no guarantee they'll result in anything," he said.

This year, buoyed by seed and monetary donations from the community, Seward replanted his usual mix of vegetables. By mid-June, the crops started to show signs of chemical damage, once again. Tests run by the South Dakota Department of Agriculture came back positive for a cocktail of dicamba, atrazine, 2,4-D, metolachlor and glyphosate.

Seward's experience is an increasingly common one in soybean-producing states, where 40 million acres of dicamba-tolerant soybeans have been planted this year, university weed scientists told DTN. There is no mandatory reporting system in place for all non-soybean dicamba injury, but at least 10 states in the Midwest, South and West have reported official dicamba injury complaints to non-soybean acres to the Association of American Pesticide Control Officials (AAPCO). Missouri, for example, is reporting dicamba injury to hundreds of acres of peaches, watermelons, grapes, berries, alfalfa, residential trees, fruit trees, personal and commercial gardens, shrubs, flowers and greenhouse vegetables.

In one way, Seward is fortunate to be able to monetize most of his losses, noted Johnson. Damage to other plants, such as trees or ornamentals, aren't as easily measured.

The Illinois homeowner, who spoke on the condition of anonymity to protect her from reprisals in her community, has suffered severe damage to a wide variety of trees -- oak, Bradford pear, blue spruces and catalpas -- as well as ornamental plants, shrubs and a vegetable garden. She sent samples to a private laboratory last year, which found dicamba in them. Between lab testing, dead branch and tree removals, and rescue fertilizer and soil conditioning treatments, she and her husband have spent $10,000 already, she said.

In Tennessee, Mike Hayes runs the Blue Bank Resort on the shores of Reelfoot Lake, a natural wonder formed when a series of massive earthquakes struck at the New Madrid Fault between 1911 and 1912 and temporarily forced the Mississippi River to flow backwards, filling this 15,000-acre lake.

For the past three years, Hayes has spent half-a-million dollars turning his hunting and fishing outfitter business on the lake into a polished, professional resort.

Last year, Hayes experienced wave after wave of dicamba exposure. It wiped out the resort's garden -- which supplies the on-site restaurant -- three times before Hayes gave up. He estimates it killed 20% of the young trees he planted, mostly crape myrtles and conifers, as well as a butterfly garden he built as an added attraction. This year, he estimates he has been hit eight separate times by dicamba. He expects five cypress trees to die this year and worries about the birds that nest in the lake region, namely ospreys and bald eagles.

Nearby, the Reelfoot Lake State Park has experienced two years of similar damage to its cypress trees, many of which grow within the lake itself after they were flooded more than a century ago. Since the trees can't sprout at the current lake depths, replacements aren't an option, Hayes noted.

"Once they die, those trees can't grow back," he said.

The Tennessee Department of Agriculture sampled both Hayes' property and the state park's and produced positive dicamba tests last year. But Hayes will receive no compensation from the state investigation, and neither he nor the state regulators have determined exactly where the dicamba came from. The Blue Bank Resort and state park are surrounded by fertile Mississippi Delta bottomlands, where thousands of acres of soybeans are planted regularly. Dicamba damage can take anywhere from 10 days to a month to show up, which makes for a murky timeline, Hayes noted.

"And the big problem is that it could have come from anywhere, so how do you prove where the damage came when there are eight different farms using it around you?" he said.

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Chemical trespass has always been a problem for professional nurseries, even when tree death doesn't occur, added Becky Thomas, co-owner of Spring Grove Nursery in northern Illinois. Three years ago, Thomas's 90-acre nursery was hit by 2,4-D, a herbicide in the same chemical class as dicamba. Only a handful of trees died, but the damage set her business back years.

"It's a multiple-year crop," she explained. "We plant and don't harvest until five to six years later. Depending on species of tree, I lost one to two years of growth across all 90 acres." This dynamic baffled her neighbor's liability insurer, and Thomas finally had to reach out to a Texas A&M horticultural economist to quantify her losses.

After a year and a half of bitter, exhausting legal battles, Thomas eventually settled with the insurer for an amount that covered only a quarter of her losses.

And the applicator, who was found guilty of breaking pesticide regulations by the state of Illinois?

He was fined $750.

THE EMOTIONAL COST TO CHEMICAL INJURY

The rise in off-target dicamba injury has strained the social fabric of rural communities, said University of Illinois weed scientist Aaron Hager. "It's pitting neighbor against neighbor," he said. "Farmers threatening others farmers. I've never seen this before over the use of technology."

"It is an incredibly divisive topic," added Karen Corrigan, an independent agronomist who works in central Illinois. "Either you're for it or you're against it. You either like the technology and want to use it, or you've been hit by it and hate it."

Nearly every property owner DTN interviewed stressed the emotional toll chemical trespass had taken on them.

The Illinois homeowner said watching the plants and trees she has cultivated for decades slowly die has sunk her into a depression.

"These are 100-year-old oaks," she said. "We're senior citizens and we don't have the time left in our lives to plant new trees and watch them get even halfway to maturity."

Just as painful has been the sense of betrayal she feels from neighboring farmers responsible for the damage.

"We are farmers, too, so I can see both sides of this," she said. "We live in a rural area with generations of families that have been here for years and years. We've known them all our lives. But when we talk to the farmers, they don't seem to care that much. There's no apologies, no offers to help, nothing."

Since filing his complaint with the state, Seward's relationship with his neighbor has deteriorated. Friendly neighborly gestures have vanished and in their place are hostile text messages and mocking signs posted near his property boundaries.

He is furious with every level of the agricultural industry that he believes allowed this situation to unfold.

"There are a whole lot of people responsible," he said. "State agencies for not banning it. Farmers for using it even knowing what it was doing. Scientists for not speaking up, and the companies and the seed dealers."

TO CATCH A HERBICIDE

Although the ag industry has used and studied dicamba for decades, there is a lot we don't know about how the herbicide affects trees and vegetation, said Johnson.

State laboratories are dealing with an overwhelming number of dicamba injury samples, said David Scott, pesticide program manager for the Office of Indiana State Chemist. Last year, the Indiana state lab processed 2,577 herbicide-injury samples, more than four times its normal amount.

There is no uniform methodology in place across laboratories to test for dicamba residue and no official guidance on what levels of exposure to test for, Scott added. That means positive dicamba tests will vary from lab to lab, depending on the screening method used, the detection level used, other chemicals tested for within the sample and the analyst's experience. Even the type of equipment used during the dicamba application in the field can affect what sort of residue results a laboratory will find, Scott said.

Although last year gave the Indiana state lab a good crash course in how to test soybean leaves for dicamba residue, they don't have much experience yet with trees and other vegetation, he added.

"What we do know is it's very hard to find and it's very short-lived in the environment," Scott said. "That short-livedness -- that is one of the reasons a lot of states are just going based on symptomology because they know they're going to be unsuccessful finding residues in the lab."

Scientists from the Universities of Missouri and Georgia have done field trials in recent years testing the sensitivity of numerous tree, vegetable and fruit species to varying amounts dicamba and 2,4-D -- but the research is new and still mostly un-replicated.

"With any type of perennial, especially woody plants, you're dealing with a continued, sub-lethal cumulative effect, and the only way to track that is to track the number of trees that die each year," Johnson said. "Do oaks and redbuds have a higher rate of mortality since dicamba-tolerant soybeans were introduced? Well, no agency will ever pay to do that, so we're never going to know."

The University of Missouri is compiling biweekly surveys from state weed scientists on estimated soybean acreage

injured by dicamba, but no such estimates exist for non-soybean vegetation. Moreover, as more soybeans are planted with the dicamba-tolerant trait each year, the number of dicamba-injured soybeans will likely drop, Thomas noted.

"I feel like the complaints for soybean acres might be down, which might lead state regulators to believe this is not a problem," she said.

The Association of American Pesticide Control Officials (AAPCO) is doing weekly surveys for official reports of dicamba injury, including non-soybean, but state responses are voluntary and often inconsistent -- some report acreage numbers, others only the number of complaints.

Most importantly, the AAPCO numbers only present official complaints logged with state agriculture departments -- which rarely give a full picture of damage, Johnson said.

Many cases of dicamba injury go unreported due to the hassle of a state investigation and the fact that it does not result in any compensation for the victim, he said. He estimates that fewer than 20% of dicamba injury cases were actually reported in Indiana last year.

Nor do state departments outside of agriculture seem keen to take responsibility for herbicide-damaged trees and plants. University of Missouri foresters direct all inquiries about dicamba-damaged trees to the state's department of agriculture and do no tracking of it themselves, said Hank Stelzer, a University of Missouri Extension forester. Likewise, in Arkansas, inquiries to the forestry department and forestry industry groups about dicamba-injured trees were redirected to the state's agriculture department.

Various state agencies, such as the Tennessee Department of Agriculture and the Tennessee Wildlife Resources Agency (TWRA), have passed full responsibility for the damage investigation into Reelfoot Lake State Park back and forth for two years now, said Hayes. After TWRA insisted it was not the agency in charge of the lake, Hayes had to step in this year and ferry state agriculture agents out onto the lake in his private boat to examine suspected dicamba injury to the lake's cypress trees and lily pads.

"I personally had to investigate, discover and then provide transportation for the department of agriculture when no one else would take them out," he said. "Right now, no state agency is saying they're officially in charge of dicamba drifting onto Reelfoot Lake. Every agency is putting it on someone else. Everyone is so scared of the political clout of [dicamba manufacturers]."

Hayes worries that this lack of clear authority has given farmers in his state no real incentive to keep dicamba from moving beyond soybean fields.

"The Tennessee Department of Agriculture has put some hard rules about dicamba out there, but they don't have the agents to actually be out there looking," he said. "It's like having a speed limit on a highway but no state troopers."

Corrigan said she has been discouraged by the lack of accountability for dicamba injury in the agricultural industry.

"It's like a hot potato that no one wants to take control over," she said. "The manufacturers say it's not a problem. The applicators say they sprayed on label, so it's not their fault. The liability insurers say that the grower sprayed on label, so it's not their problem either. And the growers who are damaged have no recourse. Even if they file a state complaint, it logs their damage but doesn't get them any recourse for what has happened. No one wants to take responsibility for what's happening."

THE FUTURE OF DICAMBA-TOLERANT TECHNOLOGY

Don Rone, a member of the Missouri House of Representatives representing the state's southeast corner, understands why farmers chose to plant 40 million acres of Xtend soybeans in 2018 -- and spray them.

"I will tell you this -- we need the chemistry," he said. "We've got to find a way to keep it, because it's one of two arsenals that we have -- this and Liberty."

A former farmer himself, Rone has seen how well the new dicamba herbicides -- Monsanto's XtendiMax, BASF's Engenia and DuPont's FeXapan -- can clean up soybean fields infested with herbicide-resistant weeds like Palmer amaranth and waterhemp.

"But we need to learn how to use the chemistry and how to keep it in the field it goes in," he added. "And that's very hard to do when you have 60-degree nights and 90-degree days."

The new dicamba herbicides were designed to have less volatility -- the ability of a chemical to turn into a gas -- than older formulations. However, university scientists have confirmed that the compounds do still have the ability to volatilize, particularly in hot conditions. Last year, in field trials, the University of Missouri found that dicamba remained in the air for up to 96 hours after most applications.

The herbicide could move miles in that timeframe, Hager noted. Both he and other university weed scientists said they have seen many fields with uniform dicamba injury that runs from one end of a soybean field to the other, with no pattern of dilution or drift. "Turn row to turn row," Hager said. "Of course we're talking volatility."

Monsanto has continually denied that volatility is playing a significant role in off-target dicamba injury and has downplayed dicamba injury reports. During a media call, Monsanto representative Ty Witten told DTN that complaints about dicamba injury to non-soybean acres were "really kind of random across the area" this year and sometimes proved to be another type of problem altogether. "We have been on a few non-agricultural crops that have called in, and we really appreciate some of those callers call in," Witten said.

Gary Schmitz, BASF technical service regional manager, told DTN that the company was getting "a few calls" on non-soybean injury, but "probably 99% of our calls are on soybeans."

By refusing to address the off-target dicamba non-soybean damage in a serious way, many farmers and company representatives are jeopardizing the very tool they are fighting so hard to keep, Hager said.

"Is this technology truly worth what it's going to cost agriculture?" he said. "Because if we don't fix this problem, someone will come in and do it for us."

Johnson agreed.

If the companies can't redesign the current dicamba formulations to stay where they are applied, he foresees a future with an even more restrictive label or an outright ban on dicamba use in row crops. Either way, soybean growers will lose out in their battle against herbicide-resistant weeds, he added.

EPA said it is receiving and weighing multiple sources of information on this situation, including "state narrative feedback, grower experiences, incident and acre damage reporting, regulatory compliance review, data from USDA, commodity experts and others."

The agency hopes to make a decision on the dicamba registrations this summer. "With advice from state and industry agriculture experts and university crop scientists, we will use a weight-of-evidence approach to evaluate whether the new restrictions are successfully preventing damage to neighboring crops and other sensitive plants," the agency said. "Our goal is to make a decision in time for growers to make informed seed purchase decisions for the next planting season."

Meanwhile, in Illinois, Thomas is heading into a hot July spray season like a soldier arming for battle.

She has purchased her own weather stations to monitor spray conditions. She has registered her nursery -- once again -- with Driftwatch. She has spoken to every grower who farms near the nursery and purchased and posted large black-and-yellow signs online that state, "SPECIALTY CROP."

But she also wonders if any of it will help.

"We have actively wondered if we wanted to continue in this business if it is going to involve this kind of risk we have no control over," she said.

Seward said he and his wife are seriously reconsidering their dream of farming in the Midwest.

"We are pretty resilient, but there comes a time when the 'dream' is just a 'dream,'" he said.

Emily Unglesbee can be reached at Emily.unglesbee@dtn.com

Follow her on Twitter @Emily_Unglesbee

(PS/GH/AG)

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July 15 Dicamba injury update. Different Year, same questions

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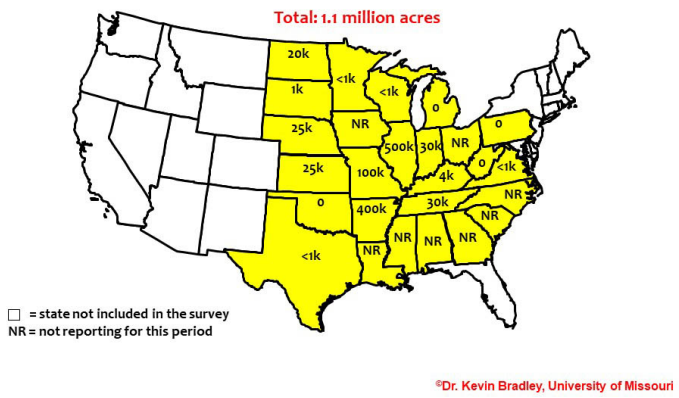
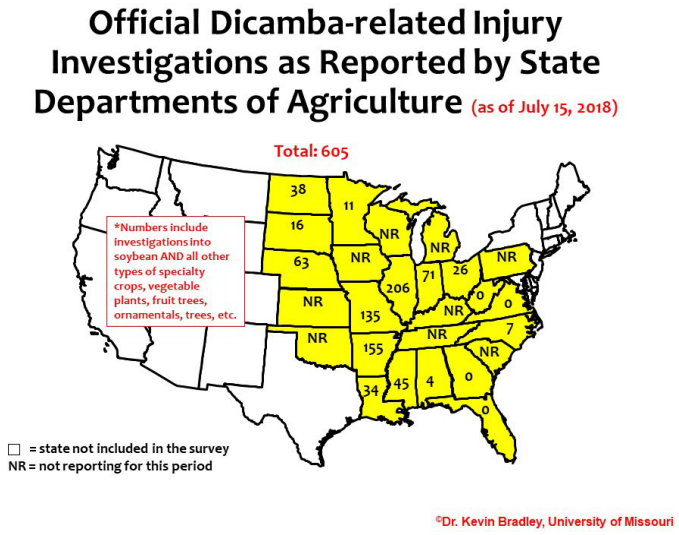
PUBLISHED: JULY 19, 2018

As explained in previous articles from this season (Dicamba Injury Mostly Confined to Specialty Crops, Ornamentals and Trees so Far, Dicamba Injured Crops and Plants Becoming more Evident: June 15th Update), I have attempted to provide updates as to the extent of dicamba injury throughout the United States, either in the form of official dicamba-related cases that are currently under investigation by the state Departments of Agriculture, or as **estimates** of dicamba-injured soybean acreage from university weed scientists. Herein, I provide the maps below as an update of the situation as of July 15th.

Because there seems to be great confusion and/or controversy over the maps, I just want to explain once again what these maps contain. First, university weed scientists estimate to what extent they are seeing dicamba injury in their respective states. It is an estimate. My colleagues use extension agents and other trusted sources throughout their state to generate these estimates just like I do in my own state. Hopefully everyone on all sides of this issue can appreciate that much more happens than what actually gets turned into the state Departments of Agriculture; that is the reason for the map of estimates.



The second map contains the number of actual dicamba-related injury investigations that are being conducted by the various state Departments of Agriculture. These are ongoing investigations and are not final. Given the significant strain that has been placed on these agencies who are now dealing with 2 to 3 times the number of investigations as in the past (usually without any added personnel or funding), I doubt these cases will be able to be finalized any time soon.



As for the information within the maps, as a point of reference, last season the first time we published any U.S.-wide information was on July 25th (Ag Industry, Do we have a problem yet?). At that time, there were 1,411 dicamba-related injury investigations being conducted by the various state Departments of Agriculture while university weed scientists estimated approximately 2.5 million acres of soybean had been injured with dicamba. To date, at about the same time in 2018, we have somewhere around 600 cases being investigated by the state departments of agriculture and approximately 1.1 million acres of soybean estimated with dicamba injury by university weed scientists. This information, of course, is only as good as the source and it should be noted that these totals do not reflect what has happened in those states who were unwilling to participate and provide information for this survey. I would also be

remiss if I did not mention that these numbers are reflective of what has happened after tighter label restrictions, cut-off dates in certain states, and mandatory training which were not in place in 2017.

As I've said from the beginning on this whole issue, there are great differences in perspective about the extent of this problem and what constitutes success with this technology. Unfortunately, one's perspective on this issue within agriculture seems to be closely linked to the company you work for or the type of seed you buy; a fact which I must confess disappoints me greatly and in my opinion is incredibly short-sighted.

In the first draft of this article, I started to go on and "wax eloquent" here about all of those issues again but upon re-reading, I deleted all of it. The truth is, as I was looking back to that first 2017 report (Ag Industry, Do we have a problem yet?), I stumbled onto the last two paragraphs of that article which contained two questions that, for the most part, I had pretty much forgotten about. One year later, I realized the most productive way I could end this article is to leave you with these same (modified) questions:

First, does 605 official dicamba-related injury investigations and/or approximately 1.1 million acres of dicamba-injured soybean constitute a problem for U.S. agriculture?

Second, can you look at the scale and the magnitude of the problem on these maps and really believe that all of this can collectively be explained by some combination of physical drift, sprayer error, failure to follow guidelines, temperature inversions, generic dicamba usage, contaminated herbicides, and improper sprayer clean out, but that volatility is not also a factor?

REVISED: February 21, 2017

Message

From: ONeill, Sandra [ONeill.Sandra@epa.gov]
Sent: 7/2/2018 2:09:00 PM
To: Simon, Duane [KDA] [Duane.Simon@ks.gov]
CC: Baris, Reuben [Baris.Reuben@epa.gov]
Subject: RE: AAPCO and EPA Recurring Call: Personal Matters / Ex. 6

Hi Duane,

Thank you, I've cc'd Reuben so he has this info. when he returns.

Sandra O'Neill
703 347 0141

From: Simon, Duane [KDA] [mailto:Duane.Simon@ks.gov]
Sent: Monday, July 02, 2018 9:54 AM
To: ONeill, Sandra <ONeill.Sandra@epa.gov>
Subject: RE: AAPCO and EPA Recurring Call: Personal Matters / Ex. 6

Sandra,

I do not have a burning topic for discussion. So you know, for the last two weeks we have been over run with dicamba complaints in Kansas. Most of them have been on the Eastern side of the state.

Thanks,
Duane

Duane D. Simon, Supervisor
Kansas Department of Agriculture
Pesticide & Fertilizer Program
Cell: 785-256-3971
Duane.Simon@ks.gov

From: ONeill, Sandra [mailto:ONeill.Sandra@epa.gov]
Sent: Monday, July 02, 2018 8:11 AM
To: Reedla@purdue.edu; Jeffrey Rogers <jeffrey.rogers@vdacs.virginia.gov>; Tim.creger@nebraska.gov; Tom.gere@state.sd.us; scottde@purdue.edu; Miles, James <miles.james@epa.gov>; Kenny, Daniel <Kenny.Dan@epa.gov>; paul.bailey@mda.mo.gov; tdrake@clemson.edu; tony.cofer@agi.alabama.gov; Baris, Reuben <Baris.Reuben@epa.gov>; Goodis, Michael <Goodis.Michael@epa.gov>; Wormell, Lance <Wormell.Lance@epa.gov>; FIFRA Regional Supervisors <FIFRA_Regional_Supervisors@epa.gov>; Bingham, Kimberly <Bingham.Kimberly@epa.gov>; Cobb, Christina <cobb.christina@epa.gov>; Teter, Royan <Teter.Royan@epa.gov>; Dyer, Brian <Dyer.Brian@epa.gov>; Calvo, Estrella <calvo.estrella@epa.gov>; Carroll, Craig <Carroll.Craig@epa.gov>; Toney, Anthony <Toney.Anthony@epa.gov>; R5 LCD CMB PS <R5_LCD_CMB_PS@epa.gov>; Klevs, Mardi <klevs.mardi@epa.gov>; Wood, MelanieL <Wood.MelanieL@epa.gov>; Schmid, Emily <Schmid.Emily@epa.gov>; Hackett, Shawn <hackett.shawn@epa.gov>; Ridnour, Lacey <Ridnour.Lacey@epa.gov>; Taylor, Maren <taylor.maren@epa.gov>; Frizzell, Damon <Frizzell.Damon@epa.gov>; Green, Jamie <Green.Jamie@epa.gov>; Jones, Margaret <jones.margaret@epa.gov>; Grams, Bradley <grams.bradley@epa.gov>; Cobb, David <cobb.david@epa.gov>; Rittenhouse, Susan <Rittenhouse.Susan@epa.gov>; Barth, Carina <barth.carina@epa.gov>; Taylor, Katherine <Taylor.Katherine@epa.gov>; Aapco.sfireg@gmail.com; beal@agri.ohio.gov; Brandi Reynolds <brandi.reynolds@aspb.ar.gov>; Dale.scott@texasagriculture.gov; David.wayne@ky.gov; Dawn.wall@mda.mo.gov; Derrick.lastinger@agr.georgia.gov; Doug.owens@illinois.gov; jdsauter@nd.gov; pruettj@michigan.gov;

James.belt@agri.ohio.gov; booker booker <kathy.booker@tn.gov>; Liza Fleeson <Liza.Fleeson@vdacs.virginia.gov>; Matthew.sunseri@state.mn.us; michaelL1@mdac.ms.gov; Mike.stage@aspb.ar.gov; Patrick.jones@ncmail.net; Robby.personette@Wisconsin.gov; Rose Kachadoorian <rkachadoorian@oda.state.or.us>; Ryan.king@agri.ohio.gov; Susie.nichols@agriculture.arkansas.gov; Suzanne.moss@illinois.gov; Thomas.gray@agr.georgia.gov; Yoko.johnson@state.mn.us; Mike Stage <mike.stage@agriculture.arkansas.gov>; Matthew.Beal@agri.ohio.gov; Brandi Reynolds <brandi.reynolds@agriculture.arkansas.gov>; Gretchen.paluch@iowaagriculture.gov; Leach13@purdue.edu; Spade, Amanda [KDA] <Amanda.K.Spade@ks.gov>; Keigwin, Richard <Keigwin.Richard@epa.gov>; Rosenblatt, Daniel <Rosenblatt.Dan@epa.gov>; TenBrook, Patti <TenBrook.Patti@epa.gov>; Martinez, Hugh <martinez.hugh@epa.gov>; Mysz, Amy <mysz.amy@epa.gov>; Dibblee, Seth <Dibblee.Seth@epa.gov>; Hayes, Sharon <Hayes.Sharon@epa.gov>; Gorman, John <Gorman.John@epa.gov>; Landry, Andrew <landry.andrew@epa.gov>; Davis, Donna <Davis.Donna@epa.gov>; Meyer, Gary <Gary.Meyer@ks.gov>; Plunkett, Shawn [KDA] <Shawn.Plunkett@ks.gov>; Simon, Duane [KDA] <Duane.Simon@ks.gov>; Delzer, Eric T. <delzer@nd.gov>
Cc: Wire, Cindy <Wire.Cindy@epa.gov>; Baumgartner, Donald <baumgartner.donald@epa.gov>; Moore, Audrey <Moore.Audrey@epa.gov>; OPP FEAD GISB <OPP_FEAD_GISB@epa.gov>; Berg, Elizabeth <Berg.Elizabeth@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>; Thilsted, Eugene <Thilsted.Eugene@epa.gov>; Weiler, Gregory <weiler.gregory@epa.gov>; Basu, Bilin <Basu.Bilin@epa.gov>; Hathaway, Margaret <Hathaway.Margaret@epa.gov>; Star, David <star.david@epa.gov>; Andrew Thostenson <andrew.thostenson@ndsu.edu>; Jason Davis <jdavis@uaex.edu>; Meadows, Sarah <Meadows.Sarah@epa.gov>; Kaul, Monisha <Kaul.Monisha@epa.gov>; Becker, Jonathan <Becker.Jonathan@epa.gov>; Chism, William <Chism.Bill@epa.gov>; Hawkins, Caleb <Hawkins.Caleb@epa.gov>; Miller, Robert <Miller.Robert@epa.gov>
Subject: RE: AAPCO and EPA Recurring Call: **Personal Matters / Ex. 6**

Good morning all,

I haven't received any agenda topics for today's call and we have a lot of folks out this week due to the holiday (including Rueben and Dan). I'm considering rescheduling today's meeting to next week. If you have any burning questions or items for discussion, please let me know and we'll hold today's call.

Thanks much,

Sandra O'Neill
Government Liaison
Government and International Services Branch II Field and External Affairs Division II OPP/OCSPP II U.S. EPA II (703) 347-0141

-----Original Appointment-----
From: ONeill, Sandra
Sent: Monday, May 14, 2018 1:43 PM
To: Reedla@purdue.edu; jeffrey.rogers@vdacs.virginia.gov; Tim.creger@nebraska.gov; Tom.gere@state.sd.us; scottde@purdue.edu; Miles, James; Kenny, Daniel; ONeill, Sandra; paul.bailey@mda.mo.gov; tdrake@clemson.edu; tony.cofer@agi.alabama.gov; Baris, Reuben; Goodis, Michael; Wormell, Lance; FIFRA Regional Supervisors; Bingham, Kimberly; Cobb, Christina; Teter, Royan; Dyer, Brian; Calvo, Estrella; Carroll, Craig; Toney, Anthony; R5 LCD CMB PS; Klevs, Mardi; Wood, MelanieL; Schmid, Emily; Hackett, Shawn; Ridnour, Lacey; Taylor, Maren; Frizzell, Damon; Green, Jamie; Jones, Margaret; Grams, Bradley; Cobb, David; Rittenhouse, Susan; Barth, Carina; Taylor, Katherine; Aapco.sfireg@gmail.com; beal@agri.ohio.gov; Brandi.reynolds@aspb.ar.gov; Dale.scott@texasagriculture.gov; David.wayne@ky.gov; Dawn.wall@mda.mo.gov; Derrick.lastinger@agr.georgia.gov; Doug.owens@illinois.gov; jdsauter@nd.gov; pruettj@michigan.gov; James.belt@agri.ohio.gov; Kathy.booker@tn.gov; Liza.fleeson@vdacs.virginia.gov; Matthew.sunseri@state.mn.us; michaelL1@mdac.ms.gov; Mike.stage@aspb.ar.gov; Patrick.jones@ncmail.net; Robby.personette@Wisconsin.gov; rkachadoorian@oda.state.or.us; Ryan.king@agri.ohio.gov; Susie.nichols@agriculture.arkansas.gov; Suzanne.moss@illinois.gov; Thomas.gray@agr.georgia.gov; Yoko.johnson@state.mn.us; Mike Stage; Matthew.Beal@agri.ohio.gov; Brandi Reynolds; Gretchen.paluch@iowaagriculture.gov; Leach13@purdue.edu; Amanda.k.spade@ks.gov; Keigwin, Richard; Rosenblatt, Daniel; TenBrook, Patti; Martinez, Hugh; Mysz, Amy; Dibblee, Seth; Hayes, Sharon; Gorman, John; Landry, Andrew; Davis, Donna; Meyer, Gary [KDA]; Plunkett, Shawn [KDA]; Simon, Duane [KDA]; Delzer, Eric T.

Cc: Wire, Cindy; Baumgartner, Donald; Moore, Audrey; OPP FEAD GISB; Ryan, Emily; Zimmerman, Dea; Keller, Kaitlin; Hopkins, Yvette; Berg, Elizabeth; Kemker, Carol; Emdur, Zoe; Thilsted, Eugene; Weiler, Gregory; Basu, Bilin; Hathaway, Margaret; Star, David; Thostenson, Andrew; Jason Davis; Meadows, Sarah; Kaul, Monisha; Becker, Jonathan; Chism, William; Hawkins, Caleb; Miller, Robert
Subject: AAPCO and EPA Recurring Call: Personal Matters / Ex. 6
When: Monday, July 02, 2018 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: DCRoomPYS8100/Potomac-Yard-One

All,

The purpose of these meetings is to provide an opportunity for states to share feedback/observations with EPA headquarters on dicamba use during the 2018 growing season. This is a recurring call lasting from May through July, updates will be made as necessary.

Information for the call is below:

Draft Agenda
- Introductions
- Discussion: information gathering

Call-in information:

Personal Matters / Ex. 6

Attachment(s) may follow

EPA contacts for additional information:

FEAD: Sandra O'Neill, Government Liaison, 703 347 0151, oneill.sandra@epa.gov
RD: Reuben Baris, Product Manager, 702 305 7356, baris.reuben@epa.gov

Message

From: Miller, Wynne [Miller.Wynne@epa.gov]
Sent: 6/27/2018 3:56:22 PM
To: Keigwin, Richard [Keigwin.Richard@epa.gov]; Goodis, Michael [Goodis.Michael@epa.gov]; Rosenblatt, Daniel [Rosenblatt.Dan@epa.gov]; Davis, Donna [Davis.Donna@epa.gov]; Echeverria, Marietta [Echeverria.Marietta@epa.gov]; Corbin, Mark [Corbin.Mark@epa.gov]; Anderson, Neil [Anderson.Neil@epa.gov]; Baris, Reuben [Baris.Reuben@epa.gov]
CC: Messina, Edward [Messina.Edward@epa.gov]
Subject: RE: Letter from Ford Baldwin to WSSA

http://www.deltafarmpress.com/soybeans/suspected-mid-south-dicamba-drift-cases-picking

From: Keigwin, Richard
Sent: Wednesday, June 27, 2018 8:07 AM
To: Goodis, Michael <Goodis.Michael@epa.gov>; Rosenblatt, Daniel <Rosenblatt.Dan@epa.gov>; Davis, Donna <Davis.Donna@epa.gov>; Echeverria, Marietta <Echeverria.Marietta@epa.gov>; Corbin, Mark <Corbin.Mark@epa.gov>; Miller, Wynne <Miller.Wynne@epa.gov>; Anderson, Neil <Anderson.Neil@epa.gov>; Baris, Reuben <Baris.Reuben@epa.gov>
Cc: Messina, Edward <Messina.Edward@epa.gov>
Subject: Letter from Ford Baldwin to WSSA

https://gmwatch.org/en/news/latest-news/18324-weed-science-society-slammed-by-member-for-inaction-over-dicamba-damage

Rick Keigwin
Director, Office of Pesticide Programs
U.S. Environmental Protection Agency
Phone: 703-305-7090
Website: www.epa.gov/pesticides
Sent from my iPhone

* Several thousand acres of Mid-South soybeans have been affected by either drift, volatility, temperature inversions or tank contamination from dicamba herbicide applications. *

Suspected Mid-South dicamba drift cases picking up

Will incidents continue into July?

David Bennett 1 | Jun 26, 2018

It is late June and, once again, dicamba drift is showing up in many Mid-South fields.

“We saw a little bit of dicamba damage back in May,” says Jason Bond, Mississippi State University weed specialist. “For us, the situation then blew up two or three weekends ago. For the last two weeks, calls about dicamba are about all I’ve gotten.

“The damage is in the Delta counties, for sure. We have a lower percentage of Xtend soybeans outside the Delta and, therefore, a lower percentage of treated Xtend soybeans outside the Delta. A few guys have called from farms in the Mississippi Hills. But the majority of my interactions on this have been from the Delta.”

And there are a lot of incidents, says Bond. “At this point, it’s different from last year. Last year, in many cases, I thought you could say, ‘Okay, in this situation, the drift came from north, south, east or west.’ The damaged fields I’m looking at this year involve larger blocks of soybeans with no obvious pattern of what direction the drift came from.

“It seems we’re seeing these big blocks with the majority of the field with the same level of injury. We saw that later in the growing season last year.”

The Bootheel

In a June 21 report (*https://ipm.missouri.edu/IPCM/2018/6/dicambaInjuryUpdate/*), Kevin Bradley said the Missouri Bootheel had an estimated 25,000 acres of soybeans that had drift damage.

Bradley, University of Missouri weed specialist, was in the Bootheel “about a week ago and I’ve been getting phone calls and messages from the area. I’d say the percentage of Xtend crops there is probably higher than anywhere else in the

country. I doubt there's been such an adoption of Xtend soybean and cotton in such a small geography.

See also: Monsanto responds to increased dicamba drift reports

"From what I can tell, though, if you don't have Xtend soybean, your crop is going to be cupped up from one end to the other. That's not a surprise because we've seen that for the past two seasons."

It doesn't take a "super-trained eye to see the tree injury from dicamba. It's kind of shocking to me to see so much damage to trees."

Bradley's views on dicamba drift haven't changed. "I said it all winter: it's rarely one thing, but a combination of factors. One of those factors is physical drift. I'm sure there have also been some tank-mix/tank contamination situations. We also have volatility. All the data in front of me says we still have a problem that hasn't been addressed. It isn't all operator error like some claim, no way."

Bradley receives "drift calls from folks who are incredulous and surprised at what's happened. I'm not — this is the third year of this and I haven't seen anything that's worked to keep these products from moving off-site."

Arkansas

Bradley's report had Arkansas drift damage estimated at 100,000 acres, says Jeremy Ross, Arkansas soybean specialist.

However, "there are estimates right now that we're at about 400,000 acres with drift damage."

See also: Does agriculture need reset key on herbicides?

Bradley's report "opened some folks' eyes … but there was at least a week's lag time between when that number was given (to Bradley) and the report. That means we've

seen a bunch of damage since then."

Outside the Delta, Ross is "hearing reports out of Iowa, Illinois, and Missouri. The damage seems to be picking up steam. It's a shame because we seem to be going the same direction with this we traveled last year.

"Nobody knows what the EPA is going to do with (new dicamba formulation) registration," which is expected in August. "This is just another black eye for ag — especially in Arkansas. With the (April 15 spraying) ban, the regulations and restrictions we had in place, I figured (the state) wouldn't see so much drift."

Louisiana

There are some issues with dicamba drift in Louisiana — although not nearly to the extent as in Arkansas and Mississippi, says Daniel Stephenson, LSU AgCenter weed specialist.

"It started as long as a month ago. For the most part I don't think it will be yield-reducing. There's always a danger, though, if there aren't good growing conditions going forward. Most of the soybeans hit have still been in a vegetative stage.

"Starting last week, though, our soybeans are in reproductive stages and if those are drifted on we'll be dealing with a different animal. Dicamba on reproductive soybeans is quite damaging even at low doses. That's the scary possibility going into July."

There was "a big pocket of off-target damage in the northeast part of the state earlier this season. It's now begun to occur in the east-central region — east of Marksville down towards Point Coupee Parish."

There's also been drift damage in the northwest, north of Shreveport, says Stephenson. "But that's been 2,4-D damage to cotton. As of (the week of June 18), there were three official complaints about 2,4-D drift. I visited with a farmer last Thursday who was in that situation, but it appears his cotton will grow out of it.

"We've also had seven official complaints about Loyant drift. But Loyant isn't being sprayed on rice anymore. I hypothesize that drift was due to temperature inversions.

"We're researching low-dose concentrations of Loyant on soybean yields. It's tough because we're putting out these low-dose concentrations in 15 gallons of water. That isn't where drift is — the drift is in much less water and the droplets are more concentrated."

Tennessee

"We've been so darn wet around the state, we're still replanting," says Larry Steckel, University of Tennessee weed specialist. "But in the last week, or so, we've begun to get reports on drift. After last year, I was hoping we'd be unscathed, but it doesn't appear that'll be the case.

"Last week, I was thinking we had something like 2,500 non-Xtend soybeans that had been drifted on. By now, just from talking to county agents and consultants the last few days, I believe that acreage is now up considerably to 9,000 or 10,000."

The Tennessee Department of Agriculture says "we're on pace with the number of complaints made last year. The big difference is the majority of complaints are coming from homeowners — cypress trees, tomatoes, gardens, a vineyard. That makes sense because, first, our soybeans are planted later. Second, we're planting a lot of Xtend soybeans."

Tennessee has also had some 2,4-D drift on Xtend cotton. "In the last five days, the calls I'm getting have switched from 2,4-D worries to dicamba."

Going forward

What advice is Bond giving affected growers?

"It's tough to say what to do. There are three things you have to consider. One is the growth stage the beans are in when they're hit. Two is the rate that hits the crop.

Three is what the weather does for the remainder of the growing season.

“Out of those three, two we have no idea about. Therefore, I can’t say what will happen with the damaged beans.”

Ross says tough economic conditions in farm country are playing a part in the incidents. “Look at everything (growers) are facing. Having this technology in the crop and not spraying dicamba on it is too hard to pass up, I guess. Some of the growers won’t use dicamba but others will. This year, with the weather conditions we’ve had, this is probably the most grown-up mess of weeds I’ve seen. You know, pigweeds are blowing up because they couldn’t get pres activated or getting too many beans planted before the sprayer came across the field.”

It doesn’t help that commodity prices have dropped. “Everyone is trying to do whatever they can to preserve what yield they have. That includes spraying illegally for too many.”

Ross has talked to several seed companies and “they’ve already got their production in for next year. A lot of it is in Xtend varieties. So, will we be right back here next year? What will the EPA say? Will we have the beans and not the herbicide formulations? Those questions have folks responsible for seed production scratching their heads.”

In Louisiana, Stephenson suggests reluctant growers call the Louisiana Department of Agriculture and Forestry (LDAF) and report drift incidents. “I encourage the growers to call, but the last I heard, the (Louisiana) Department of Agriculture hasn’t had any official complaints about dicamba drift. That doesn’t mean it hasn’t happened, but farmers aren’t signing for an official complaint and until they sign, records can’t legally be pulled and investigated from that end.

“I’m told farmers are handling it amongst themselves. I’ve visited fields and helped growers. In Louisiana, (weed specialists) don’t actually investigate drift like they do in other states. The LDAF does that here.

A lot of the calls I'm getting are coming from consultants — 'Hey, one of my farmers has some dicamba on his beans.' Then, they'll send a picture and we'll talk about the growth stage, what's happening in the field. Typically, they tell me they haven't called the (LDAF) and are handling it amongst themselves. 'They're marking the damaged areas and are planning on running a yield monitor at harvest. They'll see if the area that's damaged yields less than the areas that aren't and go from there.'"

Steckel says farmers he speaks with aren't treating dicamba spraying in a nonchalant manner. "The sense I've gotten is farmers *are* worried about drifting dicamba on their neighbors. One call sticks out in my mind. A farmer had pigweed in his Xtend soybeans and he started looking around. He has a number of homes to the east and west of the field and on the north side is cypress trees. He's got a prevailing southerly wind and after we talked he said he was going to disk the field up and plant LibertyLink beans. He figured the risk of drift was too great."

PRACTICAL WEED CONSULTANTS, LLC.

Ford L. Baldwin Ph.D.
412 Webber Lane
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Personal Matters / Ex. 6

Open Letter to the WSSA Board of Directors and Other Interested Parties

R.E. Auxin Herbicides

As a WSSA Fellow, I must ask my Society "where are we going, and what are we thinking?" Are we truly a body of scientists that make ourselves available and contribute science in decision making processes; or are we the Herbicide Science Society of America, the Chemical Company Society of America; or are we trying to be a lobby group? From the beginning, there has been plenty of published science and plenty of experience among our members to know dicamba could not be sprayed on large acreages in summer temperatures without a train wreck. However, science aside, we have gone down the road of vigorously supporting the dicamba-tolerant technology and even lobbying for the technology. Quite frankly I am embarrassed.

I am an applied weed scientist in the heart of Palmer amaranth country and fully understand the need for new herbicides and technologies. I am also fully aware that dicamba will kill a pigweed that is resistant to other herbicides. However, as weed scientists we have an environmental responsibility to be good stewards. Once again in 2018, large acreages of non-dicamba-tolerant soybeans in eastern Arkansas are affected by this herbicide as well as many vegetables. In addition, most trees in the countryside and towns are cupping and even dying following multiple years of exposure. Gardens are being destroyed and commercial vegetable producers are fearful that their crop may be condemned because of no tolerances for dicamba residues. Reports from bordering states are similar to those in Arkansas. In all likelihood, this widespread damage will move north as the season progresses. All the while there are those acting like everything is fine and in some cases attempting to shield people of influence from coming to see things for themselves. I am appalled when key influencers who view from afar make flippant statements such as "the benefits of this technology clearly outweigh the risks" with no environmental impact data to back up the statements. Those are similar to farmer's statements like "we have to kill our weeds and whatever happens as a result just happens."

As a Board of Directors, I challenge you to tour the areas and people most impacted by this technology. Visit a farmer who would like to grow an alternative soybean technology for diversity or a price premium. Visit a peach grower who has gone from 900 acres to 500 acres because half the trees have been killed over the past 4 seasons and is on the verge of being out of business. Visit a person whose stand of 200-year old oak trees has been affected. Visit an elderly lady who is crying because her garden in the middle of town has been destroyed. Visit a truck crop grower who has been put out of business or an organic farmer who cannot sell his crop. Visit a large- scale bee farmer and honey producer whose production in high dicamba use areas is half what it is in other areas. Are we environmental stewards or is it all about weed control regardless of the costs and environmental impact? Protective buffers are an ineffective tool as vegetation is often damaged a mile or more from the nearest sprayed field. Some will say this cannot be right as the number of complaints do not reflect it. Most by nature do not complain. A vegetable producer won't complain because the crop will be condemned and can't be sold. An organic farmer who complains could lose their certification. Soybean growers have grown weary of complaining as nothing ever seems to come from it. If anything it will be a token fine. In many cases, the state regulatory agencies can't work complaints in a timely manner due to the sheer number of fields with damage. Likewise, reports are often not finished until a year later. Most home owners do not even know who to complain to.

PRACTICAL WEED CONSULTANTS, LLC.

I began my weed science career as a graduate student in 1969. I have been in some way a part of every major herbicide development since that time and even those developed earlier were in major use during my career. Every game changing herbicide or technology sold itself. While the dicamba-tolerant crops have been touted by some as the next revolutionary technology, the current use of dicamba has been the most divisive issue in my career- both within and outside of agriculture. It has taken extensive lobbying and in some cases even lawsuits to get it registered and available for use. Weed scientists in some states have been muzzled by their administrators or have had their jobs threatened just for standing on sound science or trying to report the true situations in their states. Others are fearful of losing grant funds needed to support their programs. The price for that is we are losing our integrity and our industry. How as a Society can we possibly condone the use of a herbicide that cannot be kept on target and can be so damaging when it moves off target. This will absolutely destroy the credibility of agriculture in the eyes of the public and it has tarnished the integrity of WSSA as a science-based society because of a lack of vocal leadership. In fact, the damage done to the credibility of an entire agricultural industry could exceed the real monetary damages.

I have no monetary reason to question the use of this technology. I have simply known from the beginning that a volatile auxin could not be kept on target. Everyone has their own opinions on the exact reasons for the huge off target issues. In the big picture it doesn't really matter what the causes are. Dicamba has a chemistry problem that likely cannot be fixed, or at least no evidence has been provided that it can be successfully applied. If it can, it will only be through advances in chemistry. As the technology currently exists, renewing the cotton and soybean registrations will leave the industry no choice but to plant 100% of the soybean acreage to this technology. This defies historical lessons and everything we stand for on resistance management. Will we have "Take Action" only within the confines of this one technology? No other trait or technology for soybean can be grown in areas where dicamba is extensively used, preventing diversity in weed control options. Furthermore, contamination of air with an auxin herbicide defies environmental stewardship responsibilities. Dicamba floating in the air is inflicting sub-lethal damage to all sorts of dicot plants in agricultural ecosystems, natural ecosystems, parks, gardens, wildlife refuges, timber stands, home sites, and etc. People outside agriculture, who are already distrustful of agricultural chemicals, can now see visual evidence to confirm this distrust. In short, ignoring the significant scientific data regarding the off target movement of dicamba will be the biggest environmental disaster agriculture has ever seen, and much of that responsibility is square on the backs of agriculture- including WSSA. This travesty will affect the development and registration of new technologies for many years to come.

As the leaders of our Society, I challenge each of you to get the Society back on the course of making sound recommendations to the EPA rather than responding to lobbyist and other monetary influences.

Respectfully Submitted

Ford Baldwin, Ph.D.
WSSA Fellow, 1996

Professional Agricultural Consulting and Contract Research

Message

From: Thostenson, Andrew [andrew.thostenson@ndsu.edu]
Sent: 6/25/2018 4:06:21 PM
To: Baris, Reuben [Baris.Reuben@epa.gov]
Subject: Dicamba issues
Attachments: Baldwin-OpenLetter-WSSA-6-25-2018.pdf

Things have gotten more serious of late.

If you have not seen the 6/15 Bradley survey, here is a link to it.

https://ipm.missouri.edu/IPCM/2018/6/dicambaInjuryUpdate/

Also attached is letter from Ford Baldwin, WSSA Fellow, regarding his concerns, especially from AR.

I had several credible reports of problems in ND but it is way too soon to know how this will play out here. However, weed scientists are on record as reporting major problems in the I States as well as in the Mid and even Deep South. Trees are especially impacted this year.

All the best,

A

****

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"...with firmness in the right, as God gives us to see
the right, let us strive on to finish the work we are in..."
Quotation from Abraham Lincoln

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Open Letter to the WSSA Board of Directors and Other Interested Parties

R.E. Auxin Herbicides

As a WSSA Fellow, I must ask my Society "where are we going, and what are we thinking?" Are we truly a body of scientists that make ourselves available and contribute science in decision making processes; or are we the Herbicide Science Society of America, the Chemical Company Society of America; or are we trying to be a lobby group? From the beginning, there has been plenty of published science and plenty of experience among our members to know dicamba could not be sprayed on large acreages in summer temperatures without a train wreck. However, science aside, we have gone down the road of vigorously supporting the dicamba-tolerant technology and even lobbying for the technology. Quite frankly I am embarrassed.

I am an applied weed scientist in the heart of Palmer amaranth country and fully understand the need for new herbicides and technologies. I am also fully aware that dicamba will kill a pigweed that is resistant to other herbicides. However, as weed scientists we have an environmental responsibility to be good stewards. Once again in 2018, large acreages of non-dicamba-tolerant soybeans in eastern Arkansas are affected by this herbicide as well as many vegetables. In addition, most trees in the countryside and towns are cupping and even dying following multiple years of exposure. Gardens are being destroyed and commercial vegetable producers are fearful that their crop may be condemned because of no tolerances for dicamba residues. Reports from bordering states are similar to those in Arkansas. In all likelihood, this widespread damage will move north as the season progresses. All the while there are those acting like everything is fine and in some cases attempting to shield people of influence from coming to see things for themselves. I am appalled when key influencers who view from afar make flippant statements such as "the benefits of this technology clearly outweigh the risks" with no environmental impact data to back up the statements. Those are similar to farmer's statements like "we have to kill our weeds and whatever happens as a result just happens."

As a Board of Directors, I challenge you to tour the areas and people most impacted by this technology. Visit a farmer who would like to grow an alternative soybean technology for diversity or a price premium. Visit a peach grower who has gone from 900 acres to 500 acres because half the trees have been killed over the past 4 seasons and is on the verge of being out of business. Visit a person whose stand of 200-year old oak trees has been affected. Visit an elderly lady who is crying because her garden in the middle of town has been destroyed. Visit a truck crop grower who has been put out of business or an organic farmer who cannot sell his crop. Visit a large- scale bee farmer and honey producer whose production in high dicamba use areas is half what it is in other areas. Are we environmental stewards or is it all about weed control regardless of the costs and environmental impact? Protective buffers are an ineffective tool as vegetation is often damaged a mile or more from the nearest sprayed field. Some will say this cannot be right as the number of complaints do not reflect it. Most by nature do not complain. A vegetable producer won't complain because the crop will be condemned and can't be sold. An organic farmer who complains could lose their certification. Soybean growers have grown weary of complaining as nothing ever seems to come from it. If anything it will be a token fine. In many cases, the state regulatory agencies can't work complaints in a timely manner due to the sheer number of fields with damage. Likewise, reports are often not finished until a year later. Most home owners do not even know who to complain to.

PRACTICAL WEED CONSULTANTS, LLC.

I began my weed science career as a graduate student in 1969. I have been in some way a part of every major herbicide development since that time and even those developed earlier were in major use during my career. Every game changing herbicide or technology sold itself. While the dicamba-tolerant crops have been touted by some as the next revolutionary technology, the current use of dicamba has been the most divisive issue in my career- both within and outside of agriculture. It has taken extensive lobbying and in some cases even lawsuits to get it registered and available for use. Weed scientists in some states have been muzzled by their administrators or have had their jobs threatened just for standing on sound science or trying to report the true situations in their states. Others are fearful of losing grant funds needed to support their programs. The price for that is we are losing our integrity and our industry. How as a Society can we possibly condone the use of a herbicide that cannot be kept on target and can be so damaging when it moves off target. This will absolutely destroy the credibility of agriculture in the eyes of the public and it has tarnished the integrity of WSSA as a science-based society because of a lack of vocal leadership. In fact, the damage done to the credibility of an entire agricultural industry could exceed the real monetary damages.

I have no monetary reason to question the use of this technology. I have simply known from the beginning that a volatile auxin could not be kept on target. Everyone has their own opinions on the exact reasons for the huge off target issues. In the big picture it doesn't really matter what the causes are. Dicamba has a chemistry problem that likely cannot be fixed, or at least no evidence has been provided that it can be successfully applied. If it can, it will only be through advances in chemistry. As the technology currently exists, renewing the cotton and soybean registrations will leave the industry no choice but to plant 100% of the soybean acreage to this technology. This defies historical lessons and everything we stand for on resistance management. Will we have "Take Action" only within the confines of this one technology? No other trait or technology for soybean can be grown in areas where dicamba is extensively used, preventing diversity in weed control options. Furthermore, contamination of air with an auxin herbicide defies environmental stewardship responsibilities. Dicamba floating in the air is inflicting sub-lethal damage to all sorts of dicot plants in agricultural ecosystems, natural ecosystems, parks, gardens, wildlife refuges, timber stands, home sites, and etc. People outside agriculture, who are already distrustful of agricultural chemicals, can now see visual evidence to confirm this distrust. In short, ignoring the significant scientific data regarding the off target movement of dicamba will be the biggest environmental disaster agriculture has ever seen, and much of that responsibility is square on the backs of agriculture- including WSSA. This travesty will affect the development and registration of new technologies for many years to come.

As the leaders of our Society, I challenge each of you to get the Society back on the course of making sound recommendations to the EPA rather than responding to lobbyist and other monetary influences.

Respectfully Submitted

Ford Baldwin, Ph.D.
WSSA Fellow, 1996

Professional Agricultural Consulting and Contract Research

Message

From: Keigwin, Richard [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=151BAABB6A2246A3A312F12A706C0A05-RICHARD P KEIGWIN JR]
Sent: 6/22/2018 2:55:25 PM
To: Richard Coy [Personal Matters / Ex. 6]
Subject: RE: [SPAM-Sender] Effects of the herbicide dicamba on non-target plants and...

Thank you. I'll have someone look into this article. Thank you for reaching out to me. I'm sure Reuben Baris will be in contact with you shortly.

From: Richard Coy [Personal Matters / Ex. 6]
Sent: Friday, June 22, 2018 10:49 AM
To: Keigwin, Richard <Keigwin.Richard@epa.gov>
Subject: [SPAM-Sender] Effects of the herbicide dicamba on non-target plants and...

https://www.researchgate.net/

Effects of the herbicide dicamba on non-target plants and pollinator visitation

Nearly 80% of all pesticides applied to row crops are herbicides, and these applications pose potentially significant ecotoxicological risks to non-target plants and associated pollinators. In response to the widespread occurrence of weed species resistant to glyphosate, biotechnology companies have developed crops resistant to the synthetic-auxin herbicides dicamba or 2,4-D, and once commercialized, adoption of these crops is likely to change herbicide-use patterns. Despite current limited use, dicamba and 2,4-D are often responsible for injury to non-target plants, but effects of these herbicides on insect communities are poorly understood. To understand the influence of dicamba on pollinators, we applied several sub-lethal, drift-level rates of dicamba to alfalfa (Medicago sativa L.), and Eupatorium perfoliatum L. and evaluated plant flowering and floral visitation by pollinators. We found that dicamba doses simulating particle drift (≈ 1% of the field application rate) delayed onset of flowering and reduced the number of flowers of each plant species; however, plants that did flower produced similar quality pollen in terms of protein concentrations. Further, plants affected by particle drift rates were visited less often by pollinators. Because plants exposed to sub-lethal levels of dicamba may produce fewer floral resources and be less frequently visited by pollinators, use of dicamba or other synthetic-auxin herbicides with widespread planting of herbicide-resistant crops will need to be carefully stewarded to prevent potential disturbances of plant and beneficial insect communities in agricultural landscapes. This article is protected by copyright. All rights reserved.

Sent from my iPhone

Message

From: Hawkins, Caleb [Hawkins.Caleb@epa.gov]
Sent: 6/14/2018 1:36:03 PM
To: Kaul, Monisha [Kaul.Monisha@epa.gov]; Chism, William [Chism.Bill@epa.gov]; Becker, Jonathan [Becker.Jonathan@epa.gov]; Jones, Arnet [Jones.Arnet@epa.gov]; Anderson, Neil [Anderson.Neil@epa.gov]; Baris, Reuben [Baris.Reuben@epa.gov]; Kiely, Timothy [Kiely.Timothy@epa.gov]
CC: Meadows, Sarah [Meadows.Sarah@epa.gov]
Subject: FYI: Dicamba Injury Mostly Confined to Specialty Crops, Ornamentals and Trees so Far

From Kevin Bradley at the first of the month:

Last year we attempted to provide updates as to the extent of dicamba-injured soybean throughout the United States. We finished the season with approximately 2,700 cases under investigation by the various state Departments of Agriculture, and approximately 3.6 million acres of dicamba-injured soybean acres as reported by university weed scientists. Many have asked us to keep track of this information in 2018, and so we start here with a June 1st update.

As of June 1st, the reports we received from university weed scientists and state Department of Agriculture representatives indicate that almost all of the dicamba injury that has occurred thus far has occurred to specialty crops, vegetables, and ornamental, fruit, and shade trees. Only Arkansas, Mississippi, Missouri, Nebraska, and Texas have reported probable injury to soybean (approximately 800 acres) as a result of off-target movement of dicamba, while Tennessee has reported 100 acres of cotton with dicamba injury. Arkansas, Mississippi, Missouri, Nebraska, Tennessee, and Virginia have each reported injury to various types of trees, ornamental species, garden plants, flowers and berries. With specialty crops and homeowners, these cases are usually reported by total number of plants injured rather than by acreage, but it can vary by state and by individual situation. As of June 1st, approximately 200 tomato plants, 150 ornamental trees, 30 fruit trees, 250 vegetable plants, and 150 berry species were reported with probable dicamba injury in these six states, along with approximately 50 acres of hardwood/shade trees. The states of Alabama, Florida, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Michigan, North Carolina, North Dakota, Ohio, Pennsylvania, and South Dakota have not reported any incidents of off-target movement of dicamba so far.

As of June 1st, dicamba injury to cucumber, tomato, and blackberry plants, as well as a variety of other specialty crops and ornamental, vegetable, and tree species has been more common than injury to soybean.

https://ipm.missouri.edu/IPCM/2018/6/dicambaInjuryConfined/

Message

From: Google Alerts [googlealerts-noreply@google.com]
Sent: 5/4/2018 2:04:19 AM
To: Baris, Reuben [Baris.Reuben@epa.gov]
Subject: Google Alert - Dicamba

Dicamba

Daily update - May 4, 2018

NEWS

Dicamba training became monumental task in Illinois

Delta Farm Press

Arkansan, Missouri and West Tennessee attracted most of the media coverage on off-target applications of **dicamba** last year. But the misapplications were also a problem in Midwest soybean states like Illinois. The Illinois Fertilizer and Chemical Association's Jean Payne discussed Illinois' efforts to ...

Flag as irrelevant

Get Set Now if You Plan to Apply **Dicamba** in 2018

Agriculture.com

Planning on applying **dicamba** to **dicamba**-tolerant soybeans in 2018? Here are some thoughts that Andrew Thostenson, North Dakota State University (NDSU) pesticide program specialist, has on the subject. In 35-plus years in my professional agricultural career, I have never observed so much ...

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Daily **Dicamba** Update: Top **Dicamba** News of the Week

CropLife

From regulation and compliance updates, to new mobile apps and spray tank cleaners, one of the biggest challenges ag retailers face is not only staying on top of the latest **dicamba** information but getting ahead of the game. To get you caught up, here's a recap of the most recent **dicamba** news:.

Flag as irrelevant

Dicamba volatility causes anxiety as new season nears

Western Producer

A record number of off-target spray drift incidents with **dicamba** last year on U.S. soybean acres has the industry on edge as a new growing season approaches. "It's an anxious time for anybody in pesticides down here in the States, especially in the Midwest or the mid-south," said spray applications ...

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Marketing plans can help farmers capitalize on grain markets

Southwest Farm Press

Dr. Scott Nolte, AgriLife Extension state weed specialist in College Station, advises farmers how important it will be to use proper stewardship and spray sanitation practices when using **dicamba** herbicides. Nolte, speaking at the recent Central Texas Small Grain Field Day at the McGregor Research ...

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Arkansas Supreme Court Halts Judge's **Dicamba** Ban Exemptions

Insurance Journal

The Arkansas Supreme Court has halted a fourth judge's ruling exempting some farmers from an herbicide ban that took effect last week. Justices has stayed a Clay County judge's order prohibiting the state Plant Board from enforcing its ban on **dicamba** against a group of farmers in that county.

 Flag as irrelevant

2018-2023 Global **Dicamba** Herbicide Market Production, Sales and Consumption Status and ...

E-Buzz Community (blog)

Dicamba Herbicide market size will grow from USD XXX Billion in 2017 to USD XXX Billion by 2023, at an estimated CAGR of xx%. Global **Dicamba** Herbicide market 2018 report has been compiled by industry experts, analyzing the **Dicamba** Herbicide market in each of its geographical segments and ...

 Flag as irrelevant

Nation briefs

Post-Bulletin

Court asked to halt 2 **dicamba** rulings. LITTLE ROCK, Ark. — Arkansas' attorney general has asked the state's highest court to halt two judges' rulings exempting some farmers from the ban of an herbicide that took effect in mid-April. Attorney General Leslie Rutledge asked the state Supreme Court to ...

 Flag as irrelevant

Dicamba Herbicide Market to Exhibit 6.69% CAGR Globally by 2023

Business Services

The global **Dicamba** Herbicide market anticipated around USD 1.17 Billion in 2017 and is predicted to reach USD 1.72 Billion by 2023, at a growing CAGR of 6.69% by 2018-2023. This report is equipped on the basis of various standards through several ways of **Dicamba** Herbicide research methods.

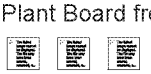
 Flag as irrelevant

WEB

Dicamba Exemption Halted Again in Arkansas

Greenbook.net

LITTLE ROCK, Ark. (AP) - The Arkansas Supreme Court has halted a fourth judge's ruling exempting some farmers from an herbicide ban that took effect last week. Justices on Monday stayed a Clay County judge's order prohibiting the state Plant Board from enforcing its ban on **dicamba** against a group ...

 Flag as irrelevant

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Dicamba volatility causes anxiety as new season nears

By Robin Booker

Published: May 3, 2018
Crops

A record number of off-target spray drift incidents with dicamba last year on U.S. soybean acres has the industry on edge as a new growing season approaches.

"It's an anxious time for anybody in pesticides down here in the States, especially in the Midwest or the mid-south," said spray applications expert Andrew Thostenson from North Dakota State University.

"Nothing like it has ever happened in the history of pesticide use in this country and we're fixing to double the number of acres treated (with dicamba) this year. Everybody is apprehensive about the whole thing."

Last fall the Environmental Protection Agency (EPA) reached an agreement with BASF, DuPont and Monsanto on stricter label requirements for dicamba applications:

- Only certified applicators with dicamba-specific training can apply the herbicide.
- Records of dicamba use must be maintained by farmers, including field-level weather measurements.
- The maximum wind speed where dicamba can be applied has been dropped to 10 m.p.h. from 15 m.p.h.
- Dicamba can be applied only during daytime hours.
- Labels carry specific language about tank cleanout.
- There is also increased emphasis on the risk to nearby sensitive crops, including that applicators may not apply the product when wind is blowing toward adjacent susceptible crops.

Thostenson said the new requirements will be difficult to follow.

"I frankly don't see how people will be able to apply it within the label requirements, but I guess we'll find out," he said.

There are two ways dicamba can drift off-target and cause damage. There is physical drift during spray application, and drift from volatilization following an on-target application.

Physical drift can be avoided by following the application requirements on the label, including not spraying when there is a temperature inversion.

It is much more difficult to prevent damage from dicamba volatility, especially when a temperature inversion occurs.

“We can hit crop or we can hit the weeds or hit the soil with the chemical, and then sometime after the application, the chemical starts to gasify. It vaporizes off the plant surfaces or the soil surfaces and when it gets into an inversion situation, the reverse happens. It literally suspends the gas molecules in the air,” Thostenson said.

The gas molecules do not dissipate in an inversion and they can be moved on a light wind to a neighbouring field, which can cause problems when they land on a susceptible plant.

Thostenson has been studying dicamba drift since 2010, and he said the chemical can volatilize off a field up to 96 hours after application.

“This is how we believe a significant amount of 3.6 million acres of injured soybeans occurred in the United States last year, as a combination of physical drift and volatility drift that was exacerbated by an air temperature inversion,” Thostenson said.

Pesticides have the potential to drift a considerable distance.

“We know that in studies with Washington State University that the movement of these things can be tens of miles, upwards of 60 or 70 miles of movement. We’ve observed that with things like 2,4-D and grape production in Washington State,” Thostenson said.

He said 2,4-D formulations caused serious issues in Australian cotton fields during the last cropping season.

“There are indications there (Australia) where it has been observed to move up to 60 miles down range,” Thostenson said.

“I think those are fairly extreme situations. I don’t think that’s something that is a normal situation. But I can tell you from what I’ve observed and what I’ve read that it’s not outside of the realm of reasonable that the off-target movement could certainly move 10 miles down range in an inversion,” Thostenson said.

Message

From: David McKnight [david@aradc.org]
Sent: 4/10/2018 1:32:41 PM
To: Keigwin, Richard [Keigwin.Richard@epa.gov]; stanley@uga.edu
CC: Donnie Taylor [dtaylor@aradc.org]; Baris, Reuben [Baris.Reuben@epa.gov]
Subject: RE: ARA Dicamba Webinars

Also, below are the questions submitted by the attendees. Please review and keep these in mind for the presentation.

Thank you!

David

Question 1

1)Sensitive Crop Registries. One section of the label says ""field survey"" or ""consult sensitive crop registries"". Another section says ""AND"". What is the legal requirement?

2)Some of the recommendations say every field requires a buffer. Yet, if susceptible crop is downwind, it is a ""DO NOT SPRAY"" event and there is no buffer. Some recommendations talk about endangered species but there is no mention of endangered species in the label. Can you clear the confusion on buffers?

3)The label now says ""adjacent"" fields when describing downwind susceptible crops. Some states are saying not just ""adjacent"" but any downwind susceptible crop regardless of distance. What's the correct interpreting for the ""DO NOT SPRAY"" rule?

4) Sprayer cleanout only refers to the triple rinse system on the label. What about moving from a prior Xtend soybean field to the next Xtend soybean field. Is cleanout required? Same for a tolerant cornfield to an Xtend soybean field. Is cleanout required if chemical used are compatible? Some clarification here would be appreciated.

5) There are over 20 items for record keeping required with the new labels plus the additional equipment requirements like boom height, speed, and weed height. Plus days and hours legal to spray have dropped considerably from last year. If any one item is not quite correct, the entire application is considered ""off label"" and the applicator is liable. There doesn't appear to be any way for an applicator to be 100% legal in their application. What is an applicator to do in this no-win situation?"

Question 2

Can PWM - pulsing Systems be used and approved quickly as they do a better job of droplet size management throughout a wider speed and rate range than a conventional Sprayer using TTI AI nozzles? If not how soon will they be approved what work is being done to approve it's use?

Question 3

Can you help growers/user/applicators/retailers understand that the states conduct investigations and the company's selling the products (dicamba) are not responsible for applications or applicators decisions. Thanks!

Question 4

For 2018, does EPA plan to increase dicamba "Use Inspections", "Certified Applicator Inspections", and "Restricted Use Pesticide Dealer Inspections" under its Compliance Monitoring Strategy for FIFRA?

Question 5

I am concerned that online vendors such as FBN care only about selling the Dicamba brand and not stewarding the application of the product by making sure the proper adjuvant and DRA are used. How can we control this?

Question 6

I heard MON recently presented new volatility data at the Western Weed Science Meeting. are you aware and can you elaborate on the results??

Question 7

MIXING INSTRUCTIONS.

Question 8

My primary question is about volatilization after the AI has hit the target and what can occur after that point:

- Can it occur?
- what will likely trigger the volatilization?
- what can be done to prevent volatilization?
- How long after application, target hit, and drying time can re-volatilization occur?

Question 9

What are the rules for a grower who attended the Dicamba applicator training in their state but their hired employee runs the sprayer did not attend. Can the hired applicator employee spray Dicamba since he is under the direction of the grower?

Question 10

Will Dr. Culpepper conduct additional testing this year with synthetic auxins to create a new and renewed "susceptible crop" list with rating buckets?

David W. McKnight
Director of Member Services
Agricultural Retailers Association
Suppliers to America's Farmers
1156 15th Street, NW | Suite 500 | Washington, D.C. 20005
Direct: (202) 595-1710
www.aradc.org | David@aradc.org
Connect on Ag Retail Exchange, the ARA online community.

From: David McKnight
Sent: Tuesday, April 10, 2018 9:22 AM
To: Keigwin, Richard <Keigwin.Richard@epa.gov>; stanley@uga.edu
Cc: Donnie Taylor <dtaylor@aradc.org>; Baris, Reuben <Baris.Reuben@epa.gov>
Subject: RE: ARA Dicamba Webinars

Rick-

No worries. Stanley and I plan to jump on for about 5 min. at 1:00 today if you happen be free. Please click the links below to make sure you don't need a prior software download. You can always try it on your phone if you need a backup. We'll use the same link and call in info below for tomorrow. Please plan on jumping on around 2:50 tomorrow. Need to share screen? Download the app

Join the meeting: join.me/AgRetailers

Personal Matters / Ex. 6

David W. McKnight
Director of Member Services
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Suppliers to America's Farmers
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www.aradc.org | David@aradc.org
Connect on Ag Retail Exchange, the ARA online community.

From: Keigwin, Richard [mailto:Keigwin.Richard@epa.gov]
Sent: Monday, April 9, 2018 3:25 PM
To: David McKnight <david@aradc.org>; stanley@uga.edu
Cc: Donnie Taylor <dtaylor@aradc.org>; Baris, Reuben <Baris.Reuben@epa.gov>
Subject: RE: ARA Dicamba Webinars

I'm pretty booked solid tomorrow beginning before 8am for the entire day; Wednesday is looking to be the same. Sorry.

From: David McKnight [mailto:david@aradc.org]
Sent: Monday, April 09, 2018 3:12 PM
To: Keigwin, Richard <Keigwin.Richard@epa.gov>; stanley@uga.edu
Cc: Donnie Taylor <dtaylor@aradc.org>
Subject: ARA Dicamba Webinars

Good Afternoon-

Just a reminder that the second Dicamba webinar will take place this Wed, April 11 at 3:00PM. Do you want to schedule a run through to verify everything works? I'm open most of tomorrow and Wed. morning.

Thanks!

David

David W. McKnight
Director of Member Services

Agricultural Retailers Association
Suppliers to America's Farmers
1156 15th Street, NW | Suite 500 | Washington, D.C. 20005
Direct: (202) 595-1710
www.aradc.org | David@aradc.org
Connect on Ag Retail Exchange, the ARA online community.

Message

From: Google Alerts [googlealerts-noreply@google.com]
Sent: 2/22/2018 2:06:31 AM
To: Baris, Reuben [Baris.Reuben@epa.gov]
Subject: Google Alert - Dicamba

Dicamba

Daily update - February 22, 2018

NEWS

Monsanto's **dicamba** lawsuit dismissed in Arkansas

St. Louis Business Journal

A judge last week dismissed a lawsuit brought by St. Louis-based Monsanto that aimed to stop Arkansas from blocking the use of the weed killer **dicamba**. According to Reuters, Monsanto filed the suit last year in an effort to eliminate the state's ban on sprayings of **dicamba** from April 16 to Oct. 31.

Judge Dismisses Arkansas **Dicamba** Suit, and Crop Insurance by Bob Larson, click here for bio - Aginfo.net (press release) (blog)

Full Coverage

Flag as irrelevant

Online certification for Arkansas **dicamba**, Enlist 2, 4-D applicators available

Log Cabin Democrat

LITTLE ROCK – Online training is open for Arkansas farmers seeking the mandatory license for ground applications of any **dicamba** or Enlist 2, 4-D formulations in 2018. There are two separate online modules: One module covers **dicamba**, the other covers both Enlist One and Enlist DuoTM. Applicators ...

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Dicamba Market Overview, Growth Opportunities, Rising Market Demands, Market Analysis ...

Facts of Week

Dicamba market is forecasted to grow at CAGR of 7.95% from 2018-2022. **Dicamba** Market report analyses key performing regions and manufactures in the global market, to fully and deeply research and reveal the market situation and future forecast. **Dicamba** Market Report Focus on: – Market Drivers, ...

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Tennessee scientists receive Outstanding Paper Awards

EurekAlert (press release)

The three-year study evaluated various agricultural spray hoses to determine if hose type impacts **dicamba** retention. Results suggest that the chemical makeup of the hose itself can impact levels of **dicamba** residue remaining in the hose even after cleanout. According to the study, a polyethylene hose ...

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Do not give marestail the chance to determine postemergence herbicide selection in soybeans

Ohio's Country Journal and Ohio Ag Net

Postemergence tools available for control of these broadleaf weeds vary with the type of soybean trait being used, but can include glyphosate, PPO inhibitors (fomesafen, Cobra), glufosinate, **dicamba**, and soon 2,4-D choline. ALS inhibitors have become somewhat irrelevant on these weeds due to ...

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Judge Dismisses Challenge to Arkansas Ban on Monsanto Weed Killer

Manufacturing.net

According to a report from the Associated Press on Tuesday, Arkansas Pulaski County Circuit Judge Chris Piazza dismissed a challenge in which Monsanto sought to block a state Plant Board ban on **dicamba**, a type of herbicide. Piazza dismissed the challenge because, he said, an Arkansas state ...

 Flag as irrelevant

WEB

Soybean research lost to **dicamba** drift damage

Brownfield Ag News

A year of Missouri soybean breeding research was lost as a result of **dicamba** drift damage at the Fisher Delta Research Center near Portageville. Tom Steever spoke to John Kelley, Chairman, Missouri Soybean Merchandising Council, who says ten checkoff-funded breeding blocks showed herbicide ...

 Flag as irrelevant

Judge Dismisses Arkansas **Dicamba** Lawsuit

KFEQ

A judge in Arkansas has dismissed a lawsuit by Monsanto seeking to block the state's ban of **dicamba** herbicides from April 16th through October 31st. Arkansas enacted the ban after receiving nearly 1,000 complaints last year about the weed killer drifting onto fields and damaging crops not resistant to ...

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POST

SOYBEAN RESEARCH LOST TO DICAMBA DRIFT DAMAGE

February 19, 2018 By Sydney Kaiser (https://brownfieldagnews.com/author/skaiser/) Filed Under: Spotlight on Soybeans (https://brownfieldagnews.com/spotlight-on-soybeans/)

00:00 00:00

A year of Missouri soybean breeding research was lost as a result of dicamba drift damage at the Fisher Delta Research Center near Portageville. Tom Steever spoke to John Kelley, Chairman, Missouri Soybean Merchandising Council, who says ten checkoff-funded breeding blocks showed herbicide injury about two weeks after planting. To find out more, visit mosoy.org (http://mosoy.org/). Brought to you by Missouri's soybean farmers and their checkoff.

0 comments (https://brownfieldagnews.com/2018/02/soybean-research-lost-dicamba-drift-damage/#respond)
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Add Comment (https://brownfieldagnews.com/2018/02/soybean-research-lost-dicamba-drift-damage/#respond)

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FUTURE PRICES

CROPS LIVESTOCK FINANCE ENERGY METALS

Name	Contract	Last	Change
Corn	ZCU19 (Sep '19)	377-2	-8-0
Corn	ZCZ19 (Dec '19)	386-6	-6-0
Corn	ZCH20 (Mar '20)	399-0	-4-2
Soybean	ZSQ19 (Aug '19)	861-4s	-12-2
Soybean	ZSU19 (Sep '19)	877-0	+10-2
Soybean	ZSX19 (Nov '19)	889-6	+10-4
Wheat	ZWU19 (Sep '19)	472-0	+0-2
Wheat	ZWZ19 (Dec '19)	477-2	+1-0
Wheat	ZWH20 (Mar '20)	484-4	+0-4
CME Cotton #2	KGV19 (Oct '19)	0.5803s	-0.0102
CME Cotton #2	KGZ19 (Dec '19)	0.5814s	-0.0076
CME Cotton #2	KGH20 (Mar '20)	0.5890s	-0.0096
Rough Rice	ZRU19 (Sep '19)	11.555	-0.015
Rough Rice	ZRX19 (Nov '19)	11.860	-0.005
Rough Rice	ZRF20 (Jan '20)	12.025s	+0.185

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Soybeans hit with dicamba damage have "cupped" and "blistered" leaves, and reduced production from blossoms that die on top, and blossoms that produce two pods instead of three. Photo taken Aug. 14, 2017, near Harwood, N.D. (Forum News Service/Agweek/Mikkel Pates)

Ubiquitous: Will dicamba beans take off in 2018?

By **Mikkel Pates / Agweek Staff Writer** on Feb 9, 2018 at 3:00 p.m.

BISMARCK, N.D. — There will be a significant increase in dicamba-soybean production in 2018, says a North Dakota State University Extension Service economist who wonders if that was the strategy from the start.

"The farmers I talk to are almost all going to grow dicamba soybeans this year because they don't want to be exposed to the risk," said David Ripplinger, an NDSU assistant professor of agricultural economics and bioenergy and bioproducts economist, speaking in a recent Farm and Ranch Economic Summit in Bismarck, N.D., hosted by the NDSU Extension Service and the North Dakota Farmers Union. "I'm hesitant to think that someone in St. Louis (the home of Monsanto) did not think of this."

Monsanto, BASF and Dupont all came out with dicamba-resistant soybeans in 2017. Farmers in the Upper Midwest saw widespread leaf cupping of non-dicamba beans that were highly sensitive to the chemical, but August rains made losses hard to quantify. The situation led to changes in state labels for the chemical in 2018.

"I've heard claims like these by lawyers filing lawsuits but I'm not hearing them from farmers. The reason farmers tell us they're buying our soybeans is because our seeds produce the highest yielding soybeans on their farm," said Scott Partridge, vice president of global strategy for Monsanto.

Ripplinger thinks dicamba beans will "become nearly ubiquitous, absolutely" in 2018 and said it seems possible that that was the strategy.

"What we're hearing is that most producers are interested in producing dicamba soybeans, not necessarily because of the inherent benefits of dicamba, but to protect against dicamba drift," he said.

With the "extremely high adoption" rate it's "almost logical to think that this is a natural result of introducing this technology, where the easiest risk management for non-dicamba producers initially is to adopt it and avoid that risk," he said.

Many of the developers and promoters of the technologies were "very thoughtful and forward-thinking" and "realized that if you introduce a technology where you can impose losses to your neighbor — but not yourself, at least in the short term — you're going to create a strategic gain where your technology is going to take over all of these acres very quickly. I think it was very thoughtful on behalf of the 'culprits,' depending on what side of the table you're sitting," he said.

BASF is holding special training for farmers and others to help avoid drift losses in North Dakota and surrounding states. The training is being overseen by the NDSU Extension Service in North Dakota.

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