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17
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22
23
24
25

INDEX

DEFENDANT BASF'S EVIDENCE

GUIDO SCHNABEL

Direct Examination (Cont'd) By Mr. Anderson2175
Cross-Examination By Mr. Randles2210
Cross-Examination By Mr. Miller2262
Redirect Examination By Mr. Anderson2265
Recross Examination By Mr. Randles2269
Further Redirect Examination By Mr. Anderson2273
Reporter's Certificate2284

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1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
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FEBRUARY 12, 2020

(The proceedings resumed at 10:50 a.m.)

(The following proceedings were held in the courtroom in the presence of the jury:)

DIRECT EXAMINATION CONTINUED

BY MR. ANDERSON:

Q. Ready, Dr. Schnabel?

A. Yes, I am ready.

Q. We talked about your 2018, 2019 DNA testing. Let's switch gears a little bit. Did you do any investigation to determine whether or not Bader Farms was experiencing tree loss from Armillaria in years earlier than 2015?

A. Yes.

Q. What did you do?

A. I looked at photographs by Mr. Bader.

Q. B-6, please, which is already in evidence.

Is this one of those pictures, Dr. Schnabel?

A. Yes.

Q. Explain to the jury, if you would, the significance of this photograph to your opinion regarding Armillaria.

A. On this photograph, I see what I would consider infection centers. Over here, over here, tree death along the row right here. There's infection centers right there, right here. There's infection centers right here, here, there. There's a few trees, there's one row.

1 Those are the ones that I can see from up close.

2 Q. And if this photograph was taken in 2015, as is indicated
3 on the document, what does that suggest to you about when that
4 Armillaria started impacting this farm at Bader Farms?

5 A. It suggests to me that Armillaria root rot was there
6 before 2015.

7 Q. You inspected this field in 2018 and your 2019
8 inspections; correct?

9 A. Yes.

10 Q. Did you visually confirm Armillaria root rot in this
11 field?

12 A. Yes.

13 Q. Do you have DNA testing showing a DNA positive for
14 Armillaria tabescens in this field?

15 A. Yes.

16 Q. Let's go to B-9, please, also already been admitted.

17 Is this another one of those photographs,
18 Dr. Schnabel?

19 A. Yes.

20 Q. What is the significance to your opinion?

21 A. There's infection centers right here and there's
22 infection centers right here, but the water stream that looks
23 like a waterway right here, there's an infection center right
24 there. There's an infection center over here. Right here.
25 Right there. Here, a little one.

1 Q. When you inspected Bader Farms, did you visually confirm
2 Armillaria root rot in these fields?

3 A. Yes.

4 Q. Do you have positive DNA testing for Armillaria tabescens
5 in these fields?

6 A. Yes.

7 Q. In light of the evidence in this case, what is the most
8 likely explanation for what was occurring in this field prior
9 to 2015?

10 A. Armillaria root rot.

11 Q. Other than the photographs, these photographs of
12 Mr. Bader, did you do anything else to look if Armillaria root
13 rot was impacting Bader Farms prior to 2015?

14 A. I looked at satellite images.

15 Q. If we can pull up B-5, please, which is also already in
16 evidence.

17 Are these the satellite photography you are
18 referencing, Dr. Schnabel?

19 A. Yes.

20 **MR. ANDERSON:** Trial Exhibit B-1050, please, which
21 is a subset of B-5. Do you have any objections to these
22 photos shown to the jury?

23 **MR. RANGLES:** I don't have an objection.

24 **MR. ANDERSON:** It is a little bit different, so we
25 would offer B-1050 only because it's extracted.

1 **THE COURT:** It's admitted.

2 Q. (By Mr. Anderson) All right, Dr. Schnabel, I believe the
3 jury has seen these before; so we don't need to belabor the
4 point. So let's hit it in a kind of high-level fashion. But
5 if you would, please explain the significance of these
6 photographs to your opinion.

7 A. It really shows how devastating this disease can be for a
8 peach grower because the orchard to the left, 2010, was
9 significantly impacted by Armillaria root rot. You can see
10 those big gaps, those big infection centers right here, right
11 there, right there, right there.

12 And then between 2010 and 2014, that was replanted,
13 that field, and the new field aged. And in 2018 you can see
14 the same pattern reemerging in the new field. So the old
15 field was infested with Armillaria root rot is what it looks
16 like and the new field, you know, those infection centers
17 emerged at the same spots right there, right here and right
18 here.

19 Q. Is that usually what happens when you replant peaches
20 into a field that has Armillaria tabescens?

21 A. That's what happens because there's accumulation of roots
22 that are infected in those infection centers. So there's a
23 greater chance for those trees to actually get to the roots
24 and be immediately attacked by the fungus. That's why it
25 reemerges so quickly.

1 Q. We talked about the top block on the first page of
2 B-1050. What is the significance of that bottom block on
3 B-1050?

4 A. The bottom block is not a replant. It's the same
5 orchard. In 2010 those are, you know, fairly old trees. I
6 don't know how old they are, but you can see that the trees
7 are -- you can see the trees clearly and there are some gaps
8 right there, right there already emerging, and so there's no
9 replant going on. It's the same field. Those gaps are
10 basically enlarging and even more enlarging. So over time,
11 the fungus just is expanding and the disease is expanding.

12 Q. Is that a pattern you have seen over the years with your
13 experience in Armillaria?

14 A. Yes.

15 Q. You inspected these fields in your inspections in 2018
16 and 2019?

17 A. Yes.

18 Q. Did you visually confirm the presence of Armillaria in
19 these fields?

20 A. Yes.

21 Q. Do you have DNA tests with positive Armillaria tabescens
22 for these fields?

23 A. Yes.

24 Q. Let's go to the next page. So this is another set of
25 fields. If you could, again, just explain to the jury the

1 significance of these photographs.

2 A. So those are -- let's see, is that a replant here? Yeah,
3 that's the same thing. So this on the left-hand side, 2010,
4 is an old orchard, what I think is an old orchard with gaps.
5 Lots of gaps. Maybe more than 50 percent of the trees are
6 basically not there anymore.

7 And then between 2010 and 2014, there was some
8 replanting. And in 2018, those very same gaps emerge and you
9 can see the consistent pattern even better if you just focus
10 on the trees that are still alive. So right here, those trees
11 are alive. Then over here, those trees are alive. Right
12 there. And everything else is pretty much gone. So the same
13 pattern reemerges.

14 Q. You inspected these fields in 2018 and 2019?

15 A. Yes.

16 Q. Did you visually confirm the presence of Armillaria root
17 rot?

18 A. Yes.

19 Q. Do you have DNA testing samples for these positive for
20 Armillaria tabescens?

21 A. Yes.

22 Q. Let's go to the next field, please.

23 Same thing. If you would, please, explain to the
24 jury the significance of these photographs to your opinion.

25 A. So that would be a field in 2010 progressing into 2014

1 and then 2018. In 2010, you can see an infection center right
2 here that enlarges and enlarges even more. So that is
3 consistent with what I would expect for Armillaria root rot.

4 Also, here is a pretty good example where basically,
5 you know, 50 percent, maybe 40 percent of the trees have died
6 already in this block in 2010. And then over here, more trees
7 have died and then over here there's just nothing left
8 anymore.

9 Q. You inspected these fields in 2018, Dr. Schnabel?

10 A. Yes.

11 Q. Did you visually confirm Armillaria root rot?

12 A. Yes.

13 Q. And you have DNA samples for these with a positive DNA
14 for Armillaria tabescens?

15 A. Yes.

16 Q. Let's move to just one more.

17 And again, quickly if you could, Dr. Schnabel,
18 explain the significance of this to the jury to your opinion,
19 please.

20 A. So that is a 2010 orchard with Armillaria root rot, what
21 appears to be Armillaria root rot infection centers right
22 there. And those infection centers widen and -- over here.
23 And at some point that block was just pushed up in 2015, some
24 point between -- yeah. Next year, I guess.

25 Q. And we've -- we've gone through a couple examples here

1 from B-5. Are there other examples of these type of
2 Armillaria infection centers going on at Bader Farms?

3 A. Yes.

4 Q. Based on the evidence, what is your opinion as to whether
5 or not Armillaria root rot was impacting these fields at Bader
6 Farms prior to 2015?

7 A. It definitely impacted Bader Farms prior to 2015, long
8 before.

9 Q. Does Armillaria impact twig length?

10 A. Yes.

11 Q. Does it impact bud counts?

12 A. Yes.

13 Q. Dr. Baldwin believes these are signs of dicamba damage.
14 Do you agree with that?

15 A. No.

16 Q. Did you do any investigation to document how Armillaria
17 impacts twig length or bud count?

18 A. Yes.

19 Q. If we could have Exhibit 780 for the Court, counsel and
20 the witness, please.

21 Dr. Schnabel, what is Exhibit 780?

22 A. Those are my twig length data and bud count data.

23 Q. Is this from some investigation that you did as part of
24 this case?

25 A. Yes.

1 **MR. ANDERSON:** BASF offers B-780, Your Honor.

2 **THE COURT:** Admitted.

3 Q. (By Mr. Anderson) All right. Dr. Schnabel, why don't
4 you tell the jury what you were intending to do with this
5 work.

6 A. I was trying to show how Armillaria infection can impact
7 twig length and bud count. So what I did is went out to our
8 research station and I found a tree that was impacted by
9 Armillaria root rot and I confirmed that by hacking into the
10 bark. And very fine on the left-hand side -- can you see
11 this? Very fine right there, that this -- yeah, that mycelium
12 is actually in the bark. So that tree is going down from
13 Armillaria tabescens.

14 The fungus has already curdled the lower crown. And
15 by doing so, it has severely impacted the vigor of this tree.
16 And I can't see the tree. Oh, here you go. So that would be
17 the left one.

18 And on the right-hand side there's a tree that
19 wasn't impacted by Armillaria tabescens, at least not to the
20 various degree. It might be already infected, I don't know,
21 but it looked like there was nothing there. So that's what I
22 used as a comparison.

23 Q. Let's go to the next page of this, please. And just tell
24 the jury what you are trying to show with these photographs.

25 A. So that control tree has long twigs and I just visually

1 used my knife to illustrate how long those twigs were.

2 Q. And then the next slide?

3 A. So those are the twigs that I would observe in the
4 Armillaria root rot infected tree.

5 Q. So we've seen so far some pictures. Did you collect any
6 data, take any measurements?

7 A. I did.

8 Q. What did you do?

9 A. I measured twig length and bud counts.

10 Q. Did you measure twig lengths with your knife or did you
11 actually use a ruler or a tape measurer?

12 A. I was tempted to use my knife, but I used the tape
13 measurer and I measured the length of the twigs, of ten twigs
14 from each tree. And I did the statistics and found that the
15 twig length of the healthy tree is significantly bigger than
16 the twig length of the Armillaria root rot tree.

17 Q. Is that consistent with your observations of what
18 Armillaria does to peach trees over the last 20 years?

19 A. Yes.

20 Q. Earlier we talked about things that you observed causing
21 damage at Bader Farms. You talked about Armillaria root rot
22 and planting issues. Let's turn to planting issues. What
23 planting issues are causing damage at Bader Farm's young
24 orchards?

25 A. A lot of the young trees were planted just too deep.

1 Q. What is the optimal planting depth for peach trees?

2 A. For peach trees it's recommended that you go not by the
3 graft union but by actually the first lateral roots that come
4 out of the peach tree. So if you've got -- you've heard about
5 the graft union, already, right? So you have your graft union
6 over here and you have your root initiation right there and
7 where the roots initiate, that should be about 2 inches below
8 the soil line. So it doesn't -- the graft union doesn't
9 really matter. You should go by the lateral roots and have
10 them 2 inches below the soil line.

11 Q. In the young orchards at Bader Farms, how deep were the
12 crown roots planted?

13 A. They were planted way too deep on the trees that had
14 died.

15 Q. If you could pull up Exhibit B-802.002 for Court, counsel
16 and the witness, please.

17 Dr. Schnabel, what is B-802.002?

18 A. So that's a peach tree where I tried to find the first
19 lateral roots.

20 Q. At Bader Farms?

21 A. At Bader Farms.

22 **MR. ANDERSON:** BASF offers B-802.002, Your Honor.

23 **MR. RANGLES:** No objection.

24 **THE COURT:** Admitted.

25 Q. (By Mr. Anderson) Dr. Schnabel, the jury can now see the

1 exhibit. Can you explain to them what's being depicted here,
2 please?

3 A. So that -- basically I dug around the tree and observed
4 that the lateral roots were, in this case, about 12, 13 inches
5 below the soil line. That shovel is 11 inches right here from
6 top to bottom, from the edge to the tip is 11 inches. So add
7 maybe 3. 14 inches.

8 Q. And this photograph was taken in May of 2019?

9 A. Yes.

10 Q. How many of Bader Farms' young orchards had these types
11 of planting depth issues?

12 A. All of them.

13 Q. What happens if crown roots are planted deeper than
14 4 inches below the soil line?

15 A. The roots are deprived of oxygen. Roots need oxygen in
16 order to do their thing, take up water, metabolism and so on.
17 If the plant is planted too deep, then the roots wouldn't have
18 oxygen that's needed to do their job.

19 Q. Can it cause a young peach tree to die?

20 A. Yes.

21 Q. Did you observe young trees that had died at Bader Farms
22 that were planted too deep?

23 A. Yes.

24 Q. What is your understanding of how Bader Farms instructed
25 his crew to plant his peach trees?

1 A. My understanding is that Mr. Bader likes to see the soil
2 line at -- I'm sorry, the graft union at the soil line.

3 Q. If -- while I believe you already testified you shouldn't
4 recommend planting based on the graft union, just so we can
5 get this in relative sense, if you were recommending the graft
6 union as a point of reference, what would the recommended
7 planting depth be as it relates to the graft union?

8 A. Typically the graft union would stick out of the soil.

9 Q. For the young trees that you observed at Bader Farms,
10 were they planted with the graft union at the soil line?

11 A. No.

12 Q. Where was the graft union?

13 A. They were buried.

14 Q. Underneath the soil line?

15 A. Yes.

16 Q. Is that too deep?

17 A. That's too deep.

18 Q. Were the trees that you observed at Bader Farms in the
19 young orchards planted at a consistent depth with the
20 instructions that you understand Mr. Bader gave?

21 A. No.

22 Q. They were variable?

23 A. They were variable.

24 Q. You've been working on peach trees for over 20 years. In
25 that time have you seen various pesticide symptomology on

1 peach trees?

2 A. I have.

3 Q. When you see a peach tree that has some chemical damages
4 to it, you are able to identify it as chemical damage;
5 correct?

6 A. Yes.

7 Q. Do you do anything at that point yourself or you refer it
8 out to someone else?

9 A. If I go to a commercial farm and I see something that
10 looks like chemical damage, I would refer it to our expert,
11 Wayne Mitchem.

12 Q. That's the same Mr. Mitchem that was on the stand
13 yesterday or two days ago?

14 A. Same guy.

15 Q. Time is a little fuzzy right now. Same guy?

16 A. Yep.

17 Q. Have you seen peach trees to which some form of dicamba
18 was directly applied?

19 A. Yes.

20 Q. In photographs or in --

21 A. In photographs. In a photograph.

22 Q. And you are not here claiming to be a dicamba expert, are
23 you?

24 A. No, I am not a dicamba expert.

25 Q. Plaintiffs' expert, Dr. Baldwin, provided his opinion

1 that he observed widespread symptoms of what he believed to be
2 auxin herbicides, specifically dicamba, at Bader Farms. Did
3 you observe symptoms at Bader Farms' peach orchards that you
4 would attribute to chemical damage?

5 A. I did not.

6 Q. What in your opinion is causing the symptomology on
7 Bader's peach trees that Dr. Baldwin believes is caused by
8 dicamba?

9 A. I think those are just normal symptoms of water stress
10 or -- I usually refer to drought stress, but it's water
11 stress. That usually is appearing in June, July, August in
12 peach orchards. It's just what they do.

13 Q. So you -- when you use the term "drought stress," are you
14 implying there's actually a drought?

15 A. No, there's -- that's not what I'm implying. I'm
16 implying that the tree does not have enough water to support
17 its growing canopy and its growing fruit because there's a lot
18 of demand on the canopy. And so if that demand is not met,
19 then the tree has a mechanism to actually reduce the
20 evaporation of water.

21 Q. Have you seen this type of water stress symptoms on
22 peaches before?

23 A. Oh, yes.

24 Q. Every year of your 20 years you've been working on
25 peaches?

1 A. Yes.

2 Q. Have you seen these drought stress or water stress
3 symptoms in peach trees in areas where dicamba was not being
4 used?

5 A. Yes.

6 Q. When did you first see drought stress symptoms on peach
7 trees?

8 A. Basically the first year I started.

9 Q. So you have generally observed these symptoms on peach
10 trees well before Xtend seeds were released in 2015?

11 A. Yeah, like when I started in 2000.

12 Q. Generally are peach trees sensitive to water stress?

13 A. They are sensitive. I wouldn't say they are like super
14 sensitive because it's not like if there's a little bit of
15 water stress, they drop the leaves and everything, but they
16 are sensitive and they will react to it.

17 Part of the reason is that they are shallow rooted.
18 A lot of the roots are in the first 2 feet. 40 percent of the
19 roots are in the first foot of soil; so they experience water
20 stress often and frequently.

21 Q. And if the roots are buried deeper, are they going to
22 experience more water stress?

23 A. Well, the roots will find their way where they need to
24 be.

25 Q. If they survive?

1 A. If they survive.

2 Q. Do symptoms of water stress usually start at the top of
3 the tree?

4 A. It usually starts at the top of the tree because that's
5 where -- that's where the wind blows. That's where things get
6 dried out very rapidly. And so that's where -- you know, it's
7 also the longest way up for the water to go and that's where
8 you would see first symptoms of water stress, yes.

9 Q. How did you determine that Bader Farms' trees were water
10 stressed?

11 A. I looked at them.

12 Q. Let's pull up Plaintiffs' Exhibit 2127, please. It's
13 already been admitted. I'm sorry. Yes. Thank you.

14 Dr. Schnabel, this is an exhibit that Dr. Baldwin
15 talked about and he attributed the symptomology in this
16 photograph to dicamba. In your opinion, is the symptomology
17 in this exhibit caused by dicamba?

18 A. They look like water stress to me.

19 Q. This is the stereotypical symptoms of water stress?

20 A. Yes.

21 Q. And this is what peach trees do in June and July of every
22 year?

23 A. Yes.

24 Q. There's some yellowing leaves in this Exhibit 2127. Are
25 those drought stress symptoms?

1 A. No. This is symptomatic for bacterial spot, which is a
2 bacterial disease of peaches.

3 Q. And that's something you've observed in the course of
4 your career?

5 A. Yes.

6 Q. Let's pull up Exhibit Plaintiffs' 2128, please, also
7 already in evidence.

8 This again, Dr. Schnabel, is a picture that
9 Dr. Baldwin told this jury was auxin symptomology. In your
10 opinion, what is causing this symptomology?

11 A. There's a combination of things going on, actually.
12 You've got drought stress, I think -- you know, what I
13 consider drought stress symptoms in the top and there's leaf
14 defoliation caused by bacterial spot. So you see that yellow
15 leaf right here, that's -- that leaf is going to drop soon.
16 All of those leaves were probably infected by bacterial spot.

17 Q. If we can go to Plaintiffs' 2129, also already in
18 evidence.

19 Same questions. Is this drought stress?

20 A. Yes.

21 Q. And Plaintiffs' 2137. Does this look like drought stress
22 to you, Dr. Schnabel?

23 A. Yes. Yes, it does.

24 Q. Based on your 20 years of dealing with peaches, is
25 drought stress what you were seeing at Bader Farms?

1 A. Yes.

2 Q. Did you look at data to analyze whether drought stress
3 was likely to be occurring at Bader Farms?

4 A. Yes.

5 Q. What did you look at?

6 A. I looked at drought stress trees at Musser Farm.

7 Q. Did you look at any weather data?

8 A. I looked at weather data as well, yes.

9 Q. Was there anything in that weather data that suggested to
10 you what you were seeing was anything other than drought
11 stress?

12 A. Yes. So there was insufficient rain in 2018 for the
13 drought stress symptoms to appear. Did I say that correctly?

14 Q. So let me start over.

15 A. Yeah, start over.

16 Q. Was there anything in that weather data to suggest to you
17 that it was something other than drought stress that you saw?

18 A. Repeat that. I'm losing --

19 Q. You reviewed the weather data?

20 A. Yes.

21 Q. Did that support your conclusion --

22 A. Yes.

23 Q. -- that it was water stress?

24 A. Yes. There was -- there were periods of times where the
25 tree wouldn't get enough water to avoid getting symptoms for

1 drought stress.

2 Q. In your opinion, did Bader Farms' orchards, each
3 individual orchard have proper weed management?

4 A. Depends on what you say proper. I mean, there was --
5 he's got some weed management, but the weeds were competing
6 with -- for water underneath the canopy of the trees.

7 Q. Did some of his orchards have better weed management than
8 others?

9 A. Yes.

10 Q. Was there a wide spectrum of weed management kind of
11 practices implemented that you observed at Bader Farms?

12 A. Yes.

13 Q. How does weed management impact the amount of water
14 needed by a peach tree?

15 A. It increases the need for water. It increases the need
16 for precipitation if there are competitors. The weeds compete
17 with the trees for water.

18 Q. So the more weeds around a peach tree, the more water
19 that peach tree will need?

20 A. Correct.

21 Q. Let's go to 2019. You talked about you were on the farm,
22 you observed drought stress symptoms. You looked at weather
23 data that supported your conclusions. Did you do anything
24 else when you were there in 2019 related to gathering evidence
25 regarding drought stress?

1 A. Yeah. Before I went to Bader Farms in 2019 in July, the
2 day before I actually went to my research farm and took
3 pictures of trees with drought stress.

4 Q. Let's go to B-890, please, for Court, counsel and the
5 witness.

6 What is B-890, Dr. Schnabel?

7 A. That's one of those pictures.

8 Q. From Musser Farms in 2019?

9 A. Musser Farm, yes.

10 Q. I told you I would say it wrong again. So I'm going to
11 apologize because I'll do it again.

12 **MR. ANDERSON:** BASF offers B-890.

13 **THE COURT:** Admitted.

14 Q. (By Mr. Anderson) Dr. Schnabel, the jury can see B-890.
15 This was a photograph you took on your research farm in 2019;
16 correct?

17 A. Yes.

18 Q. Is there any dicamba used anywhere near your research
19 station?

20 A. No.

21 Q. And explain to the jury the symptomology that you are
22 seeing in Musser Farms in 2019, July 2019.

23 A. Yeah, so that's what basically our peach trees look like
24 in June/July. The leaves curl around the midrib and they curl
25 around it and they get crinkled, rolled. And what they do is

1 they try to reduce the surface of the leaf. If you reduce the
2 surface, then you reduce the transpiration. It's just one way
3 how a tree can cope with water deficit.

4 Q. Other than Musser Farms, did you take photographs from
5 anywhere else as a comparison?

6 A. Yes. From a commercial farm in New York State.

7 Q. B-895, please, for Court, counsel and the witness.

8 Is this one of those photographs, Dr. Schnabel?

9 A. Yes.

10 **MR. ANDERSON:** BASF offers B-895.

11 **THE COURT:** Admitted.

12 Q. (By Mr. Anderson) Dr. Schnabel, was dicamba used
13 anywhere around this farm?

14 A. No, not that I know of.

15 Q. And the symptomology, describe what you are seeing here.

16 A. It's the same thing. So this is a different location.

17 The Musser Farm is on sandy loam, so it's a little bit
18 different soil. This one is on mostly clay soil with a little
19 bit of loam and you see that the orchard is overgrown also
20 with weeds. So that particular grower has a weed problem as
21 well. So they compete with water and you would see those
22 drought stress symptoms in the summertime.

23 Q. Is this consistent with the type of symptomology you were
24 seeing at Bader Farms?

25 A. Yes.

1 Q. Let's go back to your visit to Bader Farms in 2019. Was
2 there any other symptoms there that suggested to you that
3 there was maybe a lack of water?

4 A. Yes. There were soil cracks, for example.

5 Q. B-855 for Court, counsel and the witness, please.

6 What is 855, Dr. Schnabel?

7 A. Those are just soil cracks that I saw at Bader Farms
8 which suggested to me that the soil was very dry. It was
9 July 31.

10 **MR. ANDERSON:** BASF offers B-855, Your Honor.

11 **THE COURT:** It's admitted.

12 Q. (By Mr. Anderson) We have a couple photos here of dry
13 soil. These are both taken from Bader Farms in July of 2019?

14 A. Yes.

15 Q. Other than looking at dry cracks in the soil would
16 suggest there's some water stress, did you do anything else?

17 A. Yeah, I dug a hole.

18 Q. Go to Exhibit B-878.003, please.

19 **THE CLERK:** Admitted?

20 **MR. ANDERSON:** For Court, counsel and the witness.

21 Q. (By Mr. Anderson) Dr. Schnabel, what is B-878.003?

22 A. That's the hole I dug in order to figure out how deep the
23 dry soil goes.

24 Q. At Bader Farms in --

25 A. At Bader Farms, yes.

1 **MR. ANDERSON:** BASF offers B-878.003, Your Honor.

2 **THE COURT:** Admitted.

3 Q. (By Mr. Anderson) All right. Dr. Schnabel, explain the
4 significance of this photograph to your opinion, if you would,
5 please.

6 A. So the -- you know, I looked at several inches down. I
7 dug 16 inches down, and up to 12 inches there was -- the soil
8 was dry. It was powdery. It was dry, very easy -- there was
9 no holding capacity if you rubbed it through your fingers.
10 The color was the same from the top to 12 inches. So no
11 evidence really of moisture.

12 But I did find moisture, though, somewhere between
13 12 and 14 inches. It's hard to say exactly where the moisture
14 began. But at 14 inches, there was certainly soil that was --
15 that held its consistency when you had it in your hand. There
16 was some moisture in there.

17 Q. And let's put up 802.002 side by side with this photo, if
18 you would, please. Thank you.

19 Now, we talked earlier about the photo on the left.
20 The photo on the left is from May of 2019 and the photo on the
21 right is from July of 2019; correct?

22 A. Correct.

23 Q. Explain to the jury what the difference is of what they
24 are seeing here.

25 A. Well, on the left is a photo from my visit in May, end of

1 May, and it had rained quite a bit. And the soil is nice and
2 moist. We used this earlier to illustrate the low planting of
3 the tree. And in comparison on the right is the soil that is
4 very dry.

5 Q. And to be clear, it's not your testimony that you want to
6 see water or soil moisture on the left, do you? That's not
7 your testimony? That isn't what you hoped to see from a
8 drought stress perspective? It doesn't need that much water?

9 A. Oh, yeah, so -- I am not getting it.

10 Q. I'm sorry. We have a picture of a really dry soil root
11 on the right.

12 A. Yes.

13 Q. And we have the picture of a pretty wet soil on the left.

14 A. Yes, yes.

15 Q. What would you like to see?

16 A. Oh, well, so the significance of this is that basically
17 in the first foot of soil, there was -- I couldn't see any
18 moisture and that's where 40 percent of the roots are. So I
19 would expect for the trees to actually have some sort of
20 response to that. If 40 percent of your roots don't have any
21 moisture, there ought to be some water deficit in the plant.
22 So that explains to me the symptomology that I saw on the
23 trees when I was there.

24 Q. And when you were there in May of 2019, did you see lots
25 of symptoms of drought stress?

1 A. In May?

2 Q. In May.

3 A. Barely any.

4 Q. Let's go back to -- you took some photos, I think you
5 said, on July 30th at Musser Farms, 2019; is that right?

6 A. Yes, I think that's right.

7 Q. And then your visit to Bader Farms was the next day,
8 July 31?

9 A. The next day.

10 Q. If we can pull up B-1051, please.

11 What are we showing here? The jury can't see it
12 yet, but let's explain what this exhibit is.

13 A. This is a comparison of drought stress symptoms between
14 Musser Farm and Bader Farms.

15 **MR. ANDERSON:** BASF offers B-1051.

16 **THE COURT:** Admitted.

17 Q. (By Mr. Anderson) All right. Dr. Schnabel, explain to
18 the jury what is being shown in B-1051, please.

19 A. I took pictures of the terminals up in the tree and at
20 both locations, 24 hours apart, and this is what I would
21 consider very light response to water stress or drought
22 stress. The leaves are a little bit curled. Look a little
23 bit like peas. A little crinkled there. And to me they look
24 the same.

25 Q. Let's go to the next photograph. And again, one of these

1 is from your research station and one is from Bader Farms?

2 A. Correct.

3 Q. And there's no dicamba applied anywhere near or around
4 your research station?

5 A. No. We are isolated at Musser Farm.

6 Q. What's the significance of these --

7 **MR. ANDERSON:** This has already been admitted,
8 sorry.

9 Q. (By Mr. Anderson) All right. Now that we are on the
10 second page, if you could, Dr. Schnabel, explain to the jury
11 the significance of this photograph.

12 A. It's the same thing. One of those pictures is from Bader
13 Farms and one of those pictures is from Musser Farm and I
14 can't tell the difference between symptomology.

15 Q. And let's go to the next page of 1051, please. Same
16 thing?

17 A. Same thing. Maybe a little bit more severe of symptoms.

18 Q. And the last page finally.

19 A. Same thing. Maybe a little bit more severe of symptoms.

20 Q. And for 1051, all the photographs in the left-hand side
21 are from Musser Farms and all of them on the right are from
22 Bader Farms?

23 A. Yes.

24 Q. When you were at -- inspecting Bader Farms, did you see
25 any evidence that the orchards were irrigated?

1 A. No.

2 Q. Earlier we talked about some things that were causing
3 damage at Bader Farms. You mentioned bacterial spot. Could
4 you tell the jury what bacterial spot is, please?

5 A. Bacterial spot of peach is a disease of peach, a very
6 significant and devastating disease that has to be controlled
7 with chemicals, unfortunately, and it is caused by a
8 bacterium.

9 Q. I think we have already -- you have already explained to
10 the jury some of the leaf symptoms from bacterial spot on some
11 of the photos we looked at.

12 A. Yes.

13 Q. Are there fruit symptoms as well?

14 A. Yes.

15 Q. And what are those fruit symptoms?

16 A. The early infections result in big crater-like lesions on
17 the fruit. The later infections result in speckling of the
18 fruit. But the early infections are those that make the fruit
19 unmarketable.

20 Q. What does bacterial spot do to a peach tree?

21 A. It can defoliate the peach tree early. We have seen
22 before some pictures where the leaves were missing on the
23 terminals. Those were infected by bacterial spot. And if
24 trees are defoliated early, then they don't perform as well.

25 Q. Can it make fruit unmarketable?

1 A. Yes.

2 Q. So it can reduce the amount of fruit sold from the peach
3 trees?

4 A. Yes.

5 Q. How did you determine bacterial spot was present at Bader
6 Farms?

7 A. By observation.

8 Q. If we could pull up 727 and 728 side by side.

9 Dr. Schnabel, what are these exhibits, B-727 and
10 B-728?

11 A. That's bacterial spot of peach at Bader Farms.

12 **MR. ANDERSON:** BASF offers B-727 and B-728, Your
13 Honor.

14 **THE COURT:** Admitted.

15 Q. (By Mr. Anderson) Is this consistent with the symptoms
16 you've previously explained to the jury that are bacterial
17 spot?

18 A. Yes.

19 Q. How many orchards -- how many Bader Farms orchards did
20 you observe bacterial spot in in 2019?

21 A. In the majority of Bader Farms orchard.

22 Q. Other than leaf symptoms, did you observe any other
23 bacterial spot symptoms?

24 A. I observed fruit symptoms.

25 Q. If we could pull up B-813, please.

1 Dr. Schnabel, what is B-813?

2 A. That's bacterial spot of peach. See the crater-like
3 lesions?

4 Q. We have to let it get to the jury.

5 **MR. ANDERSON:** BASF offers B-813.

6 **THE COURT:** Admitted.

7 Q. (By Mr. Anderson) Dr. Schnabel, if you would explain to
8 the jury what is being shown in this exhibit.

9 A. So that would be typical symptomology for bacterial spot
10 of peach, the crater-like lesions, the dark ones on the fruit.

11 Q. If we could pull up B-852 for Court, counsel and the
12 jury, please -- I'm sorry, Court, counsel and the witness.

13 What is B-852, Dr. Schnabel?

14 A. That's bacterial spot of peach.

15 Q. At Bader Farms?

16 A. At Bader Farm.

17 **MR. ANDERSON:** BASF offers B-852, Your Honor.

18 **THE COURT:** Admitted.

19 **MR. ANDERSON:** Go to the next page, if you would,
20 please. And one more page, please.

21 Q. (By Mr. Anderson) Explain to the jury what's being shown
22 here. This looks a little different than the dots we saw
23 earlier.

24 A. Yeah. So that would be a mature -- more mature fruit and
25 it's riddled with bacteria symptoms.

1 Q. Would this peach be rendered unmarketable by bacterial
2 spot?

3 A. Yes.

4 Q. In the worst field that you saw in Bader Farms at 2019,
5 what percent of his crop was lost due to bacterial spot?

6 A. In the worst field, more than 50 percent.

7 Q. And he had other fields that lost marketable crop from
8 bacterial spot?

9 A. Yes.

10 Q. Did you do any investigation to see how, if at all, Bader
11 Farms was managing for bacterial spot in 2019?

12 A. Yes. I looked at his spray records.

13 Q. What did you see when you looked at his spray records?

14 A. He did not control bacterial spot during the season.

15 Q. Is bacterial spot something common for peach orchards to
16 manage?

17 A. Yes.

18 Q. Is there something Bader Farms could have done to
19 mitigate against the damage from bacterial spot?

20 A. Yes.

21 Q. So Bader Farms lost peach production in 2019 because of
22 bacterial spot that likely could have been produced [sic] with
23 a proper bacterial spot management plan?

24 A. Yes.

25 Q. Earlier we talked about the things you observed causing

1 damage at Bader Farms. You mentioned other fungal infections.
2 What did you observe regarding fungal infections at Bader
3 Farms' orchards?

4 **MR. MILLER:** Your Honor, could we -- I'm sorry to
5 interrupt. It's a personal matter. Can we approach, please?

6 **THE COURT:** Yes.

7 (Counsel approached the bench and the following
8 proceedings were held:)

9 **MR. MILLER:** Is there any way I can go out for five
10 minutes? I need to go to the restroom.

11 **THE COURT:** Yeah, go. You have plenty of people to
12 cover you. Listen, you can come and go as you please, so long
13 as we have one person.

14 **MR. MILLER:** Okay. Thank you.

15 (The proceedings returned to open court.)

16 Q. (By Mr. Anderson) Fungal infections.

17 A. Fungal infections.

18 Q. What did you observe regarding fungal infections at Bader
19 Farms' orchards?

20 A. I observed scaffold limb dieback that was fungal
21 infections and I observed twig dieback.

22 Q. How did you identify the fungal infections?

23 A. On the twig dieback, I identified it with pycnidia or
24 fruiting bodies on the twigs.

25 Q. Exhibit B-801, please.

1 What is Exhibit B-801, Dr. Schnabel?

2 A. That is twig dieback on the twigs and you can see the
3 dark spots right here.

4 Q. Hold on. Is this at Bader Farms?

5 A. Bader Farms.

6 **MR. ANDERSON:** BASF offers B-801, Your Honor.

7 **THE COURT:** Admitted.

8 Q. (By Mr. Anderson) All right. So you were talking about
9 twig dieback from fungal infections. Explain to the jury what
10 you were --

11 A. So that was a twig that was infected with a fungus, maybe
12 phomopsis, maybe cytospora. They both produce fruiting bodies
13 that look like this called. They're called pycnidia.

14 Q. And this causes twig dieback?

15 A. Yes.

16 Q. So you observed twig dieback from fungal infections at
17 Bader Farms?

18 A. Yes.

19 Q. And you observed limb dieback at Bader Farms; correct?

20 A. Yes.

21 Q. Are the limb dieback and the twig dieback that you
22 observed at Bader Farms different from the terminal dieback on
23 peach trees from dicamba that Mr. Mitchem described?

24 A. Yes.

25 Q. Did you see any terminal dieback on peach trees of the

1 type that Mr. Mitchem described and as showed claimed to be
2 caused by dicamba?

3 A. No.

4 Q. Did you see any terminal dieback on peach trees at Bader
5 Farms?

6 A. No.

7 Q. So any suggestion, argument or implication that you saw
8 the type of dieback associated with dicamba exposure to
9 peaches would be false and misleading?

10 A. Correct.

11 **MR. RANGLES:** Leading.

12 **THE COURT:** Sustained. Do you want to rephrase your
13 question?

14 Q. (By Mr. Anderson) You didn't -- did you see any dieback
15 of the type associated with dicamba?

16 A. No.

17 Q. When you were at Bader Farms in 2019, did you -- what did
18 you observe regarding its peach crop?

19 A. I saw that he had crop on many cultivars.

20 Q. How was the fruit set?

21 A. It was good depending on the cultivar.

22 Q. If we could do B-824.009 and B-825.007.

23 What are these photos, Dr. Schnabel?

24 A. Those are examples of good fruit set.

25 Q. At Bader Farms in May of 2019?

1 A. Yes.

2 **MR. ANDERSON:** BASF offers B-824.009 and B-825.007.

3 **THE COURT:** Admitted.

4 Q. (By Mr. Anderson) So you saw this type of fruit set at
5 Bader Farms in May of 2019?

6 A. Yes.

7 Q. And then to take this type of fruit set and maximize your
8 yield, what things would you need to do as it relates to
9 thinning and treating for bacterial spot to maximize yield?

10 A. Growers typically thin their crop, and I think Mr. Bader
11 has alluded to this as well. You thin the crop in order to
12 get the desired size of the fruit. So you -- you know,
13 90 percent of the fruit is stripped off. Depending on what
14 size you want, you let the -- you target the fruit to be
15 anywhere between 4 and 6 inches or so on the limb.

16 Q. If we could pull up B-847.005 and B-839.0010, please, for
17 Court, counsel and the witness.

18 What are these photographs, Dr. Schnabel?

19 A. This is fruit from Bader Farms.

20 **MR. ANDERSON:** BASF offers B-847.0025 and
21 B-839.0010, Your Honor.

22 **THE COURT:** Admitted.

23 Q. (By Mr. Anderson) These are additional examples of good
24 fruit set at Bader Farms?

25 A. Yes.

1 Q. All right. One last exhibit, Dr. Schnabel.

2 If we could have B-847.0033, please.

3 What is this photograph, Dr. Schnabel?

4 A. Again, good fruit set of peaches at Bader Farms.

5 **MR. ANDERSON:** We offer B-847.0033.

6 **THE COURT:** Admitted.

7 Q. (By Mr. Anderson) All right. If you would,
8 Dr. Schnabel, talk to the jury about this photo and thinning.

9 A. Well, typically we thin as early as possible to make sure
10 we get the size we want and we would leave probably one fruit
11 per 4 inches or 6 inches of twig. And this particular branch
12 has not been thinned.

13 Q. And when you were at Bader Farms, if Bader Farms had done
14 more thinning and treated for bacterial spot, would it have
15 produced more marketable peaches in 2019?

16 A. I think so, yes.

17 **MR. ANDERSON:** Thank you, Dr. Schnabel.

18 **THE COURT:** Mr. Randles.

19 **MR. RANGLES:** May it please the Court.

20 Good afternoon.

21 **CROSS-EXAMINATION**

22 **BY MR. RANGLES:**

23 Q. Good morning, Doctor.

24 A. Good morning.

25 Q. We met during a break, didn't we?

1 A. We did.

2 Q. I'm Billy Randles. You've met my wife Bev before. She
3 took your deposition; right?

4 A. Yep.

5 Q. Okay. A lot of what I ask you is going to be familiar.
6 And then some of it won't. I want to start with your
7 knowledge of dicamba. All right.

8 Now, you've never seen dicamba damage yourself in
9 person, have you?

10 A. No.

11 Q. You've only looked at pictures -- one picture of dicamba
12 damage was it?

13 A. Yes.

14 Q. So that's your whole personal experience with dicamba is
15 looking at one photograph?

16 A. Correct.

17 Q. So every juror in our box has more experience with
18 dicamba than you have, given that they have looked at tons of
19 photos; right?

20 **MR. ANDERSON:** Objection, Your Honor. Assumes facts
21 not in evidence.

22 **THE COURT:** Well, I am going to sustain the
23 objection. Ask your next question.

24 Q. (By Mr. Randles) So one photo total?

25 A. One photo.

1 Q. Okay. But you ruled out dicamba as a cause repeatedly in
2 response to Mr. Anderson's questions, didn't you?

3 A. I didn't see any chemical damage in his orchards.

4 Q. So his orchards didn't look like the one photograph you
5 saw; right?

6 A. That is true. Actually, on the highest rate, it didn't
7 look like anything like that.

8 Q. It didn't look anything like the one photograph you saw
9 of dicamba damage; right?

10 A. Correct.

11 Q. Now, you are aware that Dr. Baldwin testified he has been
12 diagnosing dicamba damage in the field since the mid 1980s.
13 You're aware of that, aren't you?

14 A. I can't talk -- I can't talk intelligently about what
15 Mr. Baldwin has done.

16 Q. But weren't you here during his testimony?

17 A. Every once and a while I nodded off.

18 Q. Oh, okay. Well, I'm sorry we couldn't keep your
19 attention.

20 But why don't you assume, since I was awake through
21 the entire testimony, that he testified he had been diagnosing
22 dicamba injury on the field since the mid '80s. Would you
23 assume that for me? Would you assume that was his testimony?
24 Maybe you were napping. Would you assume he testified that?

25 A. Okay.

1 Q. All right. And I want you to assume he's testified he
2 has diagnosed dicamba injury repeatedly since the mid '80s.
3 Can you assume that?

4 A. I have no opinion on this. I'm a plant pathologist.

5 Q. I understand that. But you rendered many opinions in
6 your direct about what dicamba couldn't do, didn't you?

7 A. I rendered an opinion that I didn't see chemical damage.

8 Q. Well, again, I am testing your knowledge of the chemical
9 at issue. Do you understand that?

10 A. Sure.

11 Q. Okay. Now, you have never diagnosed dicamba injury in
12 the field, have you?

13 A. No, I have not.

14 Q. But are you telling our jury you are more qualified to
15 rule out dicamba than Dr. Ford Baldwin who has been doing it
16 for decades?

17 A. I am saying that I have seen chemical damage in my
18 research station and I have not seen any chemical damage that
19 I'm familiar with in Bader Farm.

20 Q. Doctor, you keep substituting a word I'm not using. I
21 hope we are communicating. I'm not asking you about chemicals
22 in general. You understand that, don't you? I am asking you
23 about dicamba. Do you understand that?

24 A. Yes.

25 Q. And you've seen -- you -- I don't care what else you say

1 you have seen with chemicals. You have seen one photo of
2 dicamba and that was after you were retained in this case;
3 right?

4 A. Correct.

5 Q. And that's your whole experience with dicamba; correct?

6 A. Correct.

7 Q. My question to you is: Are you asking our jury to take
8 your expertise with dicamba over someone that's been dealing
9 with it for decades?

10 A. All I can say is that I went to Mr. Bader's farm and I
11 didn't see any chemical damage.

12 Q. Was that my question? Do you remember my question?

13 A. Would you re- -- you can repeat the question if you would
14 like.

15 Q. My question was: Given that your sole experience with
16 dicamba is looking at one photograph since you were retained
17 as an expert in this case by BASF, are you asking our jury to
18 assume you have more expertise with dicamba than Dr. Ford
19 Baldwin who has been diagnosing it in the field for decades?

20 A. There's some assumption in there that I don't know if
21 it's true.

22 Q. What assumption is that?

23 A. That Mr. Baldwin has experienced identifying dicamba in
24 peach trees for decades.

25 Q. Was that my question?

1 A. It sounded like it to me.

2 Q. Well, maybe we are having a barrier because of my accent;
3 so I'm going to slow down. Okay.

4 Are you telling our jurors that your one experience
5 looking at a photo of dicamba makes you more qualified to rule
6 dicamba out than someone who has been diagnosing dicamba
7 damage in the field for decades? Is that what you are telling
8 our jury?

9 A. I did not see any chemical damage in Mr. Bader's farm.
10 Sorry.

11 Q. Are you just not going to answer this question? Because
12 I asked you three times. If you are not going to answer it,
13 tell me and I will move on.

14 A. That's my answer.

15 Q. You are not going to give me another answer?

16 A. Say it again, please.

17 Q. You are not going to give me another answer? The jury is
18 just going to have to live with that answer. Is that what you
19 are telling me?

20 A. Correct.

21 Q. All right. Fine.

22 Now, you didn't inquire as to how many Xtend cotton
23 or soybean fields were near Bader Farms, did you?

24 A. Not -- I didn't inquire about the number, no.

25 Q. You just weren't interested in that, were you?

1 A. No, no, no. I went there and I asked for the nearest
2 fields.

3 Q. The nearest cotton and soybean Xtend fields?

4 A. Yes.

5 Q. Oh, okay. And you would have been able to evaluate the
6 dicamba damage from those fields?

7 A. I was interested in trying to find out if there might be
8 any drift or some sort of a pesticide source that I could use
9 to, in detail, look in that area for pesticide chemical
10 damage.

11 Q. Oh, okay. So from your one photo, you would have been
12 able to diagnose drift damage at Bader Farms of dicamba?

13 A. I have experience in chemical damage at the -- our
14 research farm and I was looking for any signs of chemical
15 damage.

16 Q. You keep substituting the word "chemical" in your answer
17 when the word "dicamba" is in my question. Can we stick with
18 dicamba or are you just going to run back to the chemical
19 discussion every time I ask you about dicamba?

20 A. I have not seen dicamba other than in the picture.

21 Q. So you know this case is about dicamba, don't you?

22 A. Yes.

23 Q. Okay. And you knew that when you went to Bader Farms;
24 right?

25 A. Say again, please.

1 Q. You knew it was about dicamba when you went to Bader
2 Farms, didn't you?

3 A. Yes.

4 Q. The fact is even on peach trees, you know very little
5 about the effect of dicamba, don't you?

6 A. Correct.

7 Q. Okay. Now, Armillaria root rot can be a weak pathogen,
8 can't it?

9 A. In certain circumstances.

10 Q. I want you to pull --

11 A. I'm sorry.

12 Q. Oh, I'm sorry.

13 A. Armillaria root rot is the disease; so Armillaria root
14 rot is not the pathogen. Armillaria root rot is the disease.

15 Q. Okay. Fair enough. Does that make a difference for our
16 purposes?

17 A. I wanted to just clarify.

18 Q. Okay. Does that make a difference?

19 A. Could you rephrase the question, please, the first one?

20 Q. Armillaria can be a weak pathogen, can't it?

21 A. The question doesn't make sense to me.

22 Q. All right. Fair enough. Let's pull up for the witness,
23 Court and counsel Plaintiff 2214.

24 While we are pulling that up, let me ask you. Is
25 there a reason you and I are having much more difficulty

1 communicating than you and Mr. Anderson had? Because I would
2 like to fix it if I can.

3 A. Go ahead.

4 Q. I mean, is there a reason? Am I doing something that's
5 making this vague that Mr. Anderson didn't do? Because I
6 would like to be clear with you.

7 A. You are doing fine.

8 Q. Oh, okay. Good.

9 Just give the cover page here so he can recognize
10 what it is.

11 Okay. I want you to look at what's on your screen.
12 This is an article entitled "White Root Rot: a threat to the
13 Missouri peach industry" by Paul Steiner. Do you see that?

14 A. Yes.

15 Q. Are you familiar with this article?

16 A. Yes.

17 Q. Do you regard this as a useful article in the field?

18 A. It's useful in some respect, yes.

19 **MR. RANGLES:** Your Honor, I would like to move the
20 introduction of 2214.

21 **THE COURT:** It's admitted.

22 **MR. RANGLES:** Has it? I didn't have that down. I
23 apologize, Your Honor. I'm sorry.

24 Q. (By Mr. Randles) Could we go to just the first
25 line there. Okay.

1 Now, by the way, you know this article is written in
2 1976; right?

3 A. Yes.

4 Q. Coincidentally, did you know 1976 was the year Bill Bader
5 started growing peaches full time?

6 A. Okay. I didn't know that.

7 Q. You didn't know that?

8 A. That he started peaches?

9 Q. Yeah. He started growing peaches full time in 1976. Did
10 you hear that when he testified?

11 A. I did.

12 Q. All right. So the same year is all I'm saying.

13 All right. I want to start with this first
14 sentence. "White root rot" -- now, what is white root rot
15 sort of the old name for?

16 A. White root rot?

17 Q. Uh-huh.

18 A. Well, it's different from phytophthora root rot.
19 Phytophthora would be brown root rot and white root rot is
20 basically a dry root rot.

21 Q. It says, "is a serious disease of peaches which is
22 currently threatening the survival of many orchards in
23 southeast Missouri."

24 Did I read that correctly?

25 A. You read that correctly.

1 Q. So the fact that this condition has been threatening
2 peach orchards and discussed in the scientific literature
3 since at least 1976 is not news to anyone, is it?

4 A. Correct.

5 Q. Matter of fact, I believe you testified in your
6 deposition that Armillaria has been in the soil of southeast
7 Missouri for at least a thousand years; right?

8 A. Probably.

9 Q. If we went outside in the lawn of the courthouse and
10 could avoid being arrested by the marshals and started
11 digging, we would probably find some Armillaria, wouldn't we?

12 A. Unlikely.

13 Q. You don't think so?

14 A. I don't think so.

15 Q. Oh, is it just located at Bader Farms?

16 A. No. It can't survive that long in root pieces.

17 Q. In what?

18 A. In root pieces.

19 Q. Root pieces. You know we do have trees around here?

20 A. It needs the appropriate host.

21 Q. Uh-huh. Okay. Let's go to page -- listed page 26. Of
22 this article, page 26.

23 All right. No. Twenty-six up at the top. Tree
24 stress factors. One more back. All right.

25 You see down here at the bottom where it says, "Tree

1 stress factors"?

2 A. Yes.

3 Q. I want to give you the first couple of paragraphs or so
4 here, the first couple sentences. "Under some conditions" --
5 and excuse my pronunciation here, clitocybe?

6 A. Clitocybe.

7 Q. I wasn't even close. "And Armillaria appear to be
8 aggressive pathogens capable of attacking and killing healthy,
9 vigorously growing trees."

10 Did I read that correctly?

11 A. You read that correctly.

12 Q. Next sentence. "For the most part, however, they are
13 weak pathogens which attack trees weakened by some stress
14 factor(s)."

15 Did I read that correctly?

16 A. You read that correctly.

17 Q. Okay. You can't say what percentage of trees at Bader
18 Farms are affected by Armillaria, can you?

19 A. The percentage?

20 Q. Yes.

21 A. No.

22 Q. Now, you have spent your entire lifetime working in
23 academia; correct?

24 A. Yes.

25 Q. And the peach trees you are most familiar with are in

1 South Carolina; correct?

2 A. Yes.

3 Q. And you would agree there are differences between South
4 Carolina and the Missouri bootheel, wouldn't you?

5 A. With regard to --

6 Q. Well, just, first of all, umbrella questions, there are
7 differences, aren't there?

8 A. We certainly have different soils, for example.

9 Q. Uh-huh.

10 A. Sure.

11 Q. Yeah. This is known as the delta region; right?

12 Mississippi delta; correct? Different topsoils as you said;
13 right?

14 A. Yes.

15 Q. Different weather conditions?

16 A. Yes, slightly different.

17 Q. Well, fairly different. You get hurricanes; we get the
18 Mississippi flooding. Right? Fairly different?

19 A. Yeah.

20 **MR. RANGLES:** Your Honor, I am at a good stopping
21 point if you would like to take lunch at this point.

22 **THE COURT:** That's fine. We will take our lunch
23 recess at this time.

24 Remember the admonition I have given you not to
25 discuss the case. Thanks for your patience and we will -- can

1 you be back at 1:10? Is that all right then?

2 We will reconvene at 1:10. Court is in recess.

3 (The following proceedings were held in the
4 courtroom out of the presence of the jury:)

5 **THE COURT:** Any preliminary matters?

6 **MR. MANDLER:** Just one heads up. Once we finish
7 with this witness, before we rest, we will have to have some
8 time outside of the hearing of the jury for us to make our
9 offer of proof and then we will be able to rest.

10 **THE COURT:** Okay.

11 **MR. MANDLER:** It will be short. I just want to put
12 it on the record.

13 **THE COURT:** Okay.

14 (The following proceedings were held in the
15 courtroom in the presence of the jury:)

16 **THE COURT:** Mr. Randles, you may proceed.

17 **MR. RANGLES:** May it please the Court.

18 Good afternoon.

19 Q. (By Mr. Randles) Good afternoon, Doctor.

20 A. Good afternoon.

21 Q. Let's try to pick back up where we were and move along as
22 expeditiously as we can. Now, you don't know what effect
23 multiple herbicide injuries would have over a number of years,
24 do you?

25 A. No.

1 Q. You don't know if several years of dicamba exposure would
2 weaken a tree's root system, do you?

3 A. I have no information about that.

4 Q. You remember talking about bacteria some on your direct?
5 You have to answer out loud. For the court reporter --

6 A. Oh, yes.

7 Q. -- you have to say yes or no.

8 A. Yes.

9 Q. You remember that testimony?

10 A. Of bacterial spot?

11 Q. About bacteria.

12 A. Bacterial spot, yes.

13 Q. Yes. But it's your opinion that bacteria spotting is a
14 minor issue at Bader Farms; correct?

15 A. Bacterial spot?

16 Q. Yes.

17 A. No.

18 Q. Do you recall having your deposition taken in this case
19 by Mrs. Randles?

20 A. Yes.

21 Q. All right. Let's pull up page 54, line 15 through 55,
22 line 2.

23 I want to ask you if you recall having these
24 questions asked and if you gave these answers. All right?

25 "QUESTION: Okay. Did you observe that bacteria or

1 any evidence of that bacteria while you were at Bader Farms?

2 "ANSWER: I did.

3 "QUESTION: Okay. On approximately how many trees
4 did you observe this?

5 "ANSWER: I did not count the trees.

6 "QUESTION: Okay. Did you observe it on a
7 significant number of trees?

8 "ANSWER: I would not say this was significant issue
9 at Bader Farms."

10 Did I read those questions and answers correctly?

11 A. That was in reference to bacterial canker.

12 Q. Oh, a different bacteria?

13 A. Different bacteria.

14 Q. Okay. So I want to be clear. You have no -- prior to
15 this litigation, you have no prior experience in the bootheel
16 of Missouri; correct?

17 A. Correct.

18 Q. Never been here before, have you?

19 A. I don't think so.

20 Q. Okay.

21 A. Airport.

22 Q. Now, you testified about drought stress on Bader Farms in
23 2019. Do you remember that?

24 A. Yes.

25 Q. And you showed photos that you said showed drought stress

1 in 2019. Do you recall that?

2 A. Yes.

3 Q. Now, do you know that 2019 was one of the wettest springs
4 on record in the Missouri bootheel?

5 A. On record, yes.

6 Q. You think the rain stopped in February?

7 A. The rain didn't stop in February, but in February you --
8 the bootheel received a lot of rain.

9 Q. And is it your testimony -- you don't live here, so maybe
10 you don't know. If you don't know, that's okay.

11 You don't know that throughout the entire spring, we
12 received a lot of rain down in the bootheel?

13 A. There was definitely more rain in Missouri compared to
14 2018.

15 Q. Well, did you know so much rain was received in the
16 bootheel that the planting of soybeans was delayed about a
17 month from when it usually occurs?

18 A. I do know that.

19 Q. Okay. But is it your testimony that despite all that
20 rain in the spring, that somehow we were suffering drought
21 conditions by July in the bootheel? Is that your testimony?

22 A. No, that's not my testimony.

23 Q. I thought you used the word "drought" repeatedly. Am I
24 mistaken?

25 A. I clarified in the beginning that I interchangeably use

1 "drought stress" and "water stress."

2 Q. Okay. So we had both drought stress from too little
3 water and water stress from too much water at the same time?

4 A. There was no drought stress in the bootheel. There was
5 water stress in the trees. That's what I was referring to.

6 Q. But weren't you showing us a bunch of photos of the tops
7 of trees that were supposedly showing you the drought stress?

8 A. The water stress.

9 Q. Oh, that's water -- too much water stress?

10 A. Yes.

11 Q. Oh, okay. So your testimony is -- and I just want to be
12 clear -- that in 2019 we had too much water?

13 A. No. There was water stress in the trees.

14 Q. Well, I understood that. My question was: Is it your
15 testimony we had -- let me make it narrower.

16 Did the bootheel have too much or too little water
17 in 2019?

18 A. There was a lot of water, yes.

19 Q. Wasn't quite my question. You brought up water. I'm
20 just trying to drill down to find out what your opinion is.

21 A. Okay. Great.

22 Q. That's all.

23 A. Yes.

24 Q. Let me ask another question.

25 Was there a water problem in your opinion at 2019 at

1 Bader Farms?

2 A. At the very beginning there was a few spots of
3 waterlogging at his farm.

4 Q. And maybe I am completely mistaken. But didn't you also
5 go through this thing with the photo about digging a hole in
6 July and you said, look at all that dry soil? Didn't you do
7 that on your direct?

8 A. I did.

9 Q. Okay. So was there too much or too little water for
10 ideal peach growing conditions in 2019 at Bader Farms?

11 A. In order to answer this question, I need to explain a few
12 things.

13 Q. Well, let me try to break it down. We had a wet spring;
14 correct?

15 A. Correct.

16 Q. Okay. And then as is often the case in this part of the
17 country, and maybe you don't know this, but do you know it's
18 common down here to have a wet spring and a dry summer? Do
19 you know that's common in this part of the country?

20 A. It might be.

21 Q. If you don't know, just say you don't know.

22 A. It's likely.

23 Q. Okay. Okay. So do you know whether it was unusual in
24 July to have a wet spring and a dry summer at Bader Farms? Do
25 you know whether that's unusual for this part of the country?

1 A. I haven't studied the history of weather over the last
2 20 years in the bootheels.

3 Q. So you don't know whether the weather conditions you saw
4 at Bader Farms in 2019 were typical or unusual, do you?

5 A. I think they were unusually wet.

6 Q. Okay. And was the summer unusually dry?

7 A. In the summertime there were two significant dry periods,
8 yes.

9 Q. And I am asking you -- and again, maybe you don't know --
10 is that uncommon down here to have dry periods in the summer?

11 A. I don't think so.

12 Q. Okay. Do you believe it's more likely than not that
13 Bader Farms has been dealing with dry conditions in the summer
14 for at least the last 50 years?

15 A. I am sure he had dry conditions in the summertime over
16 the last 50 years.

17 Q. Okay. I want to switch gears here and show you some
18 photos. Now, these photos were admitted before we started; so
19 we can move with some rapidity through them. I will represent
20 to you and you will see at the bottom of them that these are
21 photos -- they are your photos. They have your name on the
22 bottom. And they were produced to us by BASF counsel. All
23 right? You follow me?

24 A. Yes.

25 Q. Okay. Let's pull up the first one. It's B-745.0007.

1 And we are going to move these with some rapidity, all right,
2 Doctor?

3 Give us just a moment so we can stop tilting our
4 heads. Well, that's not a lot better. We will get there. We
5 are getting it around. There you go. All right.

6 Doctor, and I don't know if you caught it during its
7 round-the-world rotation, but did you see your name at what
8 was either the bottom or the side? I lost track.

9 A. Yes.

10 Q. You saw that?

11 A. Uh-huh.

12 Q. Okay. We can go up bigger now.

13 Is this a photo that you took where you were at
14 Bader Farms?

15 A. Looks familiar. Yep. I think it is.

16 Q. Okay. Do you see your name there? It's now on the
17 left-hand side.

18 A. Yes, sir.

19 Q. Does that ring a bell with you?

20 A. That's my picture.

21 Q. It's your picture?

22 A. Yeah, looks familiar.

23 Q. Is this a fair and accurate representation of what you
24 saw when you were there?

25 A. Yes.

1 Q. I would like to pull up the next one, B-817.0001.

2 Okay. Once again, we have your name off to the left
3 there, you see. And is this a picture you took when you were
4 at Bader Farms?

5 A. Yes.

6 Q. Okay. Let's look at B-833.0013.

7 833.0013.

8 Okay. Is this a photo you took when you were at
9 Bader Farms?

10 A. Yes.

11 Q. And is this a fair and accurate representation of what
12 you saw when you were there?

13 A. Yes.

14 Q. Do you notice the weed-free area under the trees there?

15 A. Yes.

16 Q. Okay. Let's do B-847.0018.

17 Is this a photo you took when you were at Bader
18 Farms?

19 A. Yes.

20 Q. Is this a fair and accurate representation of what you
21 saw?

22 A. Yes.

23 Q. Okay. Let's do in order the -- B-893 is the composite
24 exhibit. Let's do those four in order. The first one is --
25 the last two numbers is 1-4.

1 Is this a photo you took when you were at Bader
2 Farms?

3 A. Yes.

4 Q. And is that a fair and accurate representation of what
5 you saw?

6 A. Yes.

7 Q. Let's do the one that ends in 1-6. Is this a photo you
8 took when you were at Bader Farms?

9 A. No.

10 Q. Is this somewhere else?

11 A. Yes.

12 Q. I couldn't tell from how it was produced to us. This is
13 somewhere else?

14 A. That's my research farm.

15 Q. That's your research farm. Okay. Well, then let's go to
16 2-6. Is this a photo of Bader Farms?

17 A. Yes.

18 Q. Is this a fair and accurate representation of what you
19 saw when you were there?

20 A. Yes.

21 Q. Let's go to 2-7.

22 Is that 2-7? I'm sorry, I was looking down. Is
23 that it?

24 All right. Is this a picture you took when you were
25 at Bader Farms?

1 A. Is it the 926?

2 Q. I'm sorry?

3 A. Is it photo 2926?

4 Q. Let me see. Yes, it is. Yes, it is.

5 A. Yes.

6 Q. Okay. And is this a fair and accurate representation of
7 what you saw when you were at Bader Farms?

8 A. Yes.

9 Q. Okay. Let's do Plaintiff 1380.

10 And you know what, I am going to show you the photos
11 and I'm going to try to speed this up. If any of them are not
12 of Bader Farms or are not a fair and accurate representation
13 of what you saw, would you please stop me? Okay?

14 A. Okay.

15 Q. Okay. We have this photo. You took that one, right, at
16 Bader Farms?

17 A. Yes.

18 Q. Okay. 1381, Bader Farms again; right?

19 A. Yes.

20 Q. 1382, Bader Farms again?

21 A. Yes.

22 Q. 1383, Bader Farms again?

23 A. Yes.

24 Q. 1384, Bader Farms again?

25 A. Yes.

1 Q. 1385, Bader Farms again?

2 A. Yes.

3 Q. And 1386, Bader Farms again?

4 A. Yes.

5 Q. Okay. Thank you. That's all we need with the photos at
6 the moment.

7 Doctor, you mentioned you had an experimental farm.
8 How many peach trees do you have on your experimental farm?

9 A. 7-acres.

10 Q. About 7 acres of peach trees. All right. Now, is your
11 experimental farm surrounded by dicamba-tolerant crops?

12 A. By dicamba -- there's no field crops there.

13 Q. So there's no field crops near your --

14 A. No.

15 Q. Okay. And so I suppose the trees on your farm have not
16 been hit by dicamba over the years; correct?

17 A. No.

18 Q. Okay. Now, briefly I want to ask you about the DNA
19 testing that you did for Armillaria. All right? Now, you
20 tested for Armillaria several times; right?

21 A. Yes.

22 Q. Okay. And were you requested to test for Armillaria by
23 anyone?

24 A. Yes.

25 Q. Who asked you to test?

1 A. BASF.

2 Q. Okay. Through their lawyers?

3 A. Yes.

4 Q. Okay. During -- is that testing expensive?

5 A. It is expensive. \$250 we charge.

6 Q. How many separate tests did you do?

7 A. Fifty-some.

8 Q. My math isn't great, but that gets you to about how much
9 in terms of the expense?

10 A. Fifty-some times 250.

11 Q. So around 12,000, give or take?

12 A. Sure.

13 Q. Okay. Did they ever ask you to test for dicamba in all
14 of that testing?

15 A. They did not.

16 Q. Okay. Did you suggest testing for dicamba in all of that
17 testing?

18 A. I did not.

19 Q. So the only tests you conducted were looking for
20 Armillaria; correct?

21 A. Correct.

22 Q. And that's all those tests were designed to do was to
23 find Armillaria; correct?

24 A. Correct.

25 Q. Now, you had indicated that the peach trees were getting

1 worse from 2018 to 2019; correct?

2 A. From 2018 -- say that again, please.

3 Q. When you testified on direct, I thought you said, and
4 correct me if I'm wrong, when you went back in '19, the peach
5 trees looked worse than they did in '18; is that right?

6 A. The infection centers had expanded; so there were more
7 trees dying around the infection centers, yes.

8 Q. Let's show the witness -- well, show everybody 201.19.
9 It's in evidence. Let's go to the second page. Well, let's
10 show the first page first and then go to the second page.

11 No, 2-0-1-9.

12 Have you seen this before?

13 A. I've seen that before.

14 Q. Okay. I know you've probably seen it in court because
15 you have been here a while. Had you seen it before you came
16 to court?

17 A. I -- I don't think so.

18 Q. Okay. Let's turn to page 2 of that.

19 Now, I want to do a little geography game here. You
20 are from South Carolina; right?

21 A. Yes.

22 Q. Okay. How many reports of dicamba injury are listed for
23 South Carolina in 2017?

24 A. I see a number here that is three.

25 Q. Three. And Mr. Mitchem is also from South Carolina?

1 A. No.

2 Q. Where is he from?

3 A. North Carolina.

4 Q. North Carolina. So there are a total of how many listed
5 in North Carolina?

6 A. I see a number of 15.

7 Q. Okay. And then Dr. Brennan, he is from Georgia; right?

8 A. Yes.

9 Q. How many are listed for Georgia?

10 A. Zero.

11 Q. Okay. So that would be 18 for the three states on the
12 coast that the defendants' experts are from; right?

13 A. That's what the document says.

14 Q. How many are listed for Missouri?

15 A. 310.

16 Q. And how many for Arkansas?

17 A. 986.

18 Q. Let's turn to page 3 of this document and focus on the
19 Missouri bootheel during that same time period.

20 One more. One more. There you go.

21 Now, do you see this document? We are going to go
22 up here and blow up the bootheel area. So we had a total of
23 18 listed for the states of Georgia and South Carolina and
24 North Carolina; right?

25 A. That's what the document said, yes.

1 Q. Okay. Can you pick out Dunklin County here on this map?

2 A. Probably in the neighborhood of somewhere between 24, 12
3 and 32, somewhere in there.

4 Q. You can just narrow it down to those three? Okay. I
5 will give you a hint. Dunklin County is the one with 24.

6 A. Okay.

7 Q. So in that one year, Dunklin County alone would have had
8 nine more complaints than the three states we've discussed
9 added together; correct?

10 A. The math sounds right.

11 Q. Okay. So is it fair to say that compared to the
12 bootheel, the states of Georgia, South Carolina and North
13 Carolina really don't have much of a dicamba issue? Is that
14 fair to say?

15 A. I can't comment on that.

16 Q. Well, you certainly haven't had the reported incidents,
17 have you?

18 A. I can't comment on that. I don't know.

19 Q. Well, based on these numbers, do you know any better
20 numbers than these?

21 A. I don't know any other numbers.

22 Q. I'm sorry?

23 A. I do not know any other numbers.

24 Q. Okay. And you have no basis to dispute these numbers, do
25 you?

1 A. I can't comment on this. This is not my area of
2 expertise.

3 Q. Well, we are just getting the environment in which the
4 peaches are growing established here for the jury. All right?
5 My point is your experimental farm located in South Carolina
6 would -- go back and refresh my recollection here -- had
7 exactly three dicamba-related complaints in the entire state
8 in 2017; correct?

9 A. That's what the document says.

10 Q. So is it fair to say you haven't had to deal with dicamba
11 issues on your experimental farm, have you?

12 A. We had -- there's no -- I don't know what to say. That's
13 just not my -- I'm here to discuss my observations at Bader
14 Farms with you.

15 Q. All right. You understand I get to ask the questions I
16 choose to ask; correct?

17 So I am just asking you, did you -- have you
18 experienced any dicamba problems on your experimental peach
19 farm?

20 A. I don't know.

21 Q. You don't know. Because you really wouldn't know how to
22 recognize them, would you?

23 A. There's no -- there's no reason to believe to me that
24 there's any dicamba issues at Musser Farm. We didn't spray
25 dicamba. There's no fields around. There's -- it's

1 surrounded by lake. It's woodland. It's absolutely no reason
2 for me to believe there's any dicamba issue and the Musser
3 Farm staff told me they did not spray anything related to
4 dicamba.

5 Q. And that's really all I'm getting at. You and I are
6 actually seeing eye to eye. I just don't think we are
7 communicating.

8 My point is with respect to dicamba, you are very
9 differently situated than Bader Farms is, aren't you?

10 A. It's a different geography.

11 Q. Different geography, different crops?

12 A. Yes.

13 Q. Different use levels; correct?

14 A. Yes.

15 Q. Okay. Let's put up B-979.

16 Have you seen this document before?

17 Oh, it's in evidence. I'm sorry. We can show the
18 jury.

19 A. I don't think so.

20 Q. You haven't seen this before. Okay. Well, this is --
21 this is in evidence. This is a registration decision for the
22 conditional registration of the dicamba herbicide. Are you
23 familiar with that process?

24 A. No.

25 Q. Okay. And it's dated October 31, 2018. Do you see that

1 down at the bottom?

2 A. Yes.

3 Q. I want to ask you if you agree with the statement of the
4 EPA. Let's turn to page 16. Let's go to "Impacts to growers
5 of other dicamba-sensitive crops."

6 I am not going to read you all of this, but it says,
7 "Many other plants are sensitive to low levels of dicamba and
8 are listed on the dicamba labels." Then if you go down about
9 two lines in the middle, it lists "all fruit trees."

10 Do you see that?

11 A. Okay.

12 Q. Do you see where I am?

13 A. Yes.

14 Q. Now, do you agree with the EPA that "all fruit trees" are
15 sensitive to low levels of dicamba?

16 A. Sir, I would love to talk to you about this, but this is
17 just not my area of expertise and I -- my assignment was to go
18 to Bader Farms and to assess his crop.

19 Q. Well, I'm perplexed because I heard BASF's counsel offer
20 you to this Court as a peach expert. And I did not object.
21 Do you remember that?

22 A. I was -- my assignment was to go to Bader Farms and give
23 my honest, frank opinion about what's going on there.

24 Q. Yeah, I understand that. You just said that. I'm asking
25 you a different question.

1 Did you hear BASF's lawyer tender you to the Court
2 as a peach expert?

3 A. Sure.

4 Q. Okay. So I'm asking you as a peach expert, do you know
5 whether peach trees -- let's just narrow it to peach trees --
6 peach tress are sensitive to low levels of dicamba?

7 A. I don't know.

8 Q. Okay. Well, let's go to page 23 of this report. Let's
9 go to the bottom of the page because much of this the jury has
10 heard before, so I am going to cut through it. Let's go to
11 the bottom page of the last paragraph and let's start with
12 "studying."

13 Okay. I'm going to put you in the middle of the
14 paragraph here with "studying." All right? You follow me,
15 Doctor?

16 A. Yes.

17 Q. "Studying the impact of off-target movement from dicamba
18 OTT" -- you understand that means "over the top"?

19 A. Yep.

20 Q. "...applications on high-value specialty crops, as well
21 as privately-owned gardens, landscaping, and orchards is of
22 particular interest to the agency, because unlike cotton and
23 soybean growers, managers of those types of vegetation do not
24 have the option to purchase protective dicamba-tolerant seed."

25 Did I read that correctly?

1 A. You did.

2 Q. As a peach expert, did you know that the EPA had
3 expressed special interest in studying the impact of
4 off-target movement of dicamba on, among other things,
5 orchards?

6 A. I am not a weed scientist, sir.

7 Q. Well, I am asking you as a peach expert, had you heard
8 that?

9 A. I am a plant pathologist.

10 Q. So are you saying you are not a peach expert?

11 A. I am a plant pathologist with an emphasis on peaches.
12 Yes, I am a peach plant pathologist.

13 Q. Okay. Well, I guess I am asking if -- I am testing, I
14 suppose, the extent of your peach knowledge here.

15 A. I admit that weed science is not my area of expertise.

16 Q. So you would defer to a trained weed scientist in areas
17 like dicamba impacts on orchards?

18 A. I would refer to Wayne Mitchem, yes.

19 Q. Is he the only qualified weed scientist you know of?

20 A. He's the best weed scientist I know with regard to
21 peaches.

22 Q. And you realize Mr. Mitchem doesn't have a PhD?

23 A. It doesn't matter. He has great knowledge and
24 experience.

25 Q. Well, and you know Mr. Mitchem doesn't have as many years

1 experience of dealing with dicamba in the field as some other
2 weed scientists. You know that, don't you?

3 A. I'm sure that's true.

4 Q. So let me go back to my basic question and it's fine if
5 you don't know. You don't know what the EPA has asked these
6 companies to look into about orchards; right?

7 A. Correct.

8 Q. Okay. As a peach expert, have you seen any research from
9 these companies about the effects of dicamba on orchards?

10 A. No.

11 Q. Okay. Let's pull up, if you don't mind -- and we may
12 have to have your help for this -- photo B-6 that was shown in
13 direct. Do we have it? Oh, all right.

14 You remember being asked about this July of 2015
15 photo on your direct?

16 A. Yes.

17 Q. And you talked about missing areas of trees; correct?

18 A. Yes.

19 Q. Now, are you telling our jury that from an aerial photo
20 this high, you can diagnose Armillaria?

21 A. I said it looked like Armillaria infection centers.

22 Q. But the trees could be missing for other reasons other
23 than Armillaria, couldn't they?

24 A. Well, I eventually actually went to this field and I
25 confirmed Armillaria.

1 Q. I am asking you another question. You went to this field
2 in 2018; correct?

3 A. 2018.

4 Q. This is July of 2015; right?

5 A. Yes.

6 Q. From this photo, you can't tell whether Armillaria killed
7 those trees or dicamba, can you?

8 A. I think I can be -- I think, yes, with all the work that
9 I did with the boots on the ground, with the hacking of the
10 bark, with the investigations I did, with the knowledge I have
11 of 20 years, I know that this is Armillaria.

12 Q. You know that this is Armillaria?

13 A. I know that this infection center over here, for example,
14 is Armillaria.

15 Q. I'm not asking you if you found Armillaria there in 2018.
16 What I am asking you is: In July of 2015, you can't tell this
17 jury with any scientific certainty whether those trees are
18 missing because of dicamba or Armillaria, can you?

19 A. I was there. I examined, I diagnosed, I put the puzzles
20 together and this is Armillaria infection centers.

21 Q. I didn't ask you that. Armillaria is in the soil at
22 Bader Farms and has been for decades; right?

23 A. Correct.

24 Q. What you are telling this jury, that because of what you
25 did in 2018, you can tell them from looking at this photo what

1 the cause of death for the missing trees is in 2015. Is that
2 what you are telling them?

3 A. Armillaria is a fungus that resides in the soil for a lot
4 of years. And what you need to know about Armillaria and
5 about replant sites is you've got the disease in the field and
6 it's not going anywhere. Those roots are there to stay. And
7 the expansion of an infection center has a lot to do with the
8 age of -- of that infection center. So an infection center
9 that is really big is older than an infection center that is
10 really small.

11 So if you have, in 2015, an infection or in 2018 a
12 confirmed infection center in an old block with a large area
13 that is dead, with my experience, I can be sure that the
14 Armillaria fungus was killing trees before.

15 Q. Do you remember what my question was?

16 A. I think I answered your question.

17 Q. So your testimony is from this photo, because of what you
18 did three years later, you can rule out dicamba and rule in
19 Armillaria. That's your testimony?

20 A. My testimony is I was there, the boots were on the
21 grounds, I examined the trees, I looked at the infection
22 centers, I did the DNA analysis, I looked at the satellite
23 pictures. Armillaria root rot has been on this farm for
24 decades.

25 Q. Let's look at those satellite pictures. B-1050 in

1 evidence.

2 And as we put it up, I want to ask you some
3 threshold questions.

4 You are not trained in satellite photo
5 reconnaissance, are you?

6 A. No.

7 Q. You realize that's a specialized area of training that
8 the military and certain colleges offer, don't you?

9 A. I am not saying that I am a specialist in satellite
10 surveillance, no.

11 Q. Have you ever had a class in interpreting what is
12 happening on the ground from photos from space?

13 A. No.

14 Q. Have you ever gone to a seminar on how to interpret
15 ground activity based on photos from space?

16 A. No.

17 Q. Have you ever before this case claimed to interpret what
18 was happening on a field based on a satellite photo from
19 space?

20 A. Could you rephrase the question, please?

21 Q. Is this the first time you have diagnosed a field based
22 on a satellite photo from space?

23 A. You have to -- it's the -- it's the sum of it all that
24 leads me to the conclusion that this is an Armillaria
25 infection center. You see it from above. I was there. I

1 diagnosed it. I ran the PCR analysis. It all makes sense.
2 Therefore, I conclude that those are infection centers of
3 Armillaria.

4 Q. Okay. But let's go back to my question. Have you ever
5 before diagnosed Armillaria based on photos from space?

6 A. There was no need for that.

7 Q. I'm sorry?

8 A. There was no need for that. Why would I do that?

9 Q. Well, I am not sure why you would do it, but this isn't
10 my exhibit. You were asked about this on your direct, weren't
11 you?

12 A. That's my exhibit.

13 Q. Okay. So I am going to try one more time and then I will
14 give up.

15 Have you ever before diagnosed Armillaria in a field
16 based on a photo from space?

17 A. Just with the single piece of information and nothing
18 else, I would not make this assumption. But with all the
19 other information that I collected in addition to the
20 satellite photos, yes, that is Armillaria tabescens.
21 Armillaria root rot I mean.

22 Q. Let's look at the 2010 photo. Now, you weren't doing DNA
23 testing of this field in 2010, were you?

24 A. No.

25 Q. You didn't do 50 DNA tests of this field in 2010, did

1 you?

2 A. No.

3 Q. There are missing trees?

4 A. Yes.

5 Q. Based on this photo and this photo alone, can you say
6 what caused those trees to be missing?

7 A. I have to add all the information together in order to
8 produce my conclusions and my -- my conclusions. Just taking
9 a look at one single picture out of context doesn't tell me
10 anything. But putting together the puzzle pieces to a big
11 picture, that's what telling me -- that's what's telling me
12 that this is Armillaria root rot.

13 Q. Doctor, you understand I am entitled to inquire into all
14 the bases of your opinion, don't you?

15 A. Yes.

16 Q. Do you think I'm entitled to an answer to that question?

17 A. Sure.

18 Q. Can you tell from this photo by itself whether what you
19 are seeing is Armillaria?

20 A. Yes, because I have all the other puzzle pieces together.

21 Q. Do you understand what the phrase "by itself" means?

22 A. I already said that if -- if you -- if I looked at an
23 image of Mr. Smith's farm from the sky, I would not make that
24 assumption. But with the other work that I have done, this
25 makes sense to me.

1 Q. Doctor, I understand your summary. And if you are not
2 going to answer my questions I have about these individual
3 photos, tell me and we can be very short and move on.

4 **MR. ANDERSON:** Object to the commentary, Your Honor.
5 He has already answered the question multiple times.

6 **THE COURT:** I will sustain -- I will overrule the
7 objection for now.

8 Q. (By Mr. Randles) There was a freeze in 2019, an ice
9 storm, a bad one at Bader Farms. Did you hear that testimony?

10 A. Yes.

11 Q. Are you telling our jury you can tell from this photo
12 from space whether those trees were killed and pushed out
13 because of the ice storm or because of Armillaria?

14 A. The ice storm -- it's the sequence of events that is
15 telling me that this is Armillaria. There's -- there is a
16 2010 picture and 2014 and 2018, I believe. I can't see it
17 right now. But ice storms wouldn't follow that pattern over
18 time.

19 Q. Is it all right --

20 A. A single ice storm in 2009.

21 Q. Is it all right with you if I deal with the photos one at
22 a time, Doctor?

23 A. Sure.

24 Q. I'm going to ask that question again.

25 Can you tell based on this photo from space whether

1 these trees are missing because of Armillaria or the ice
2 storm?

3 A. Yet again, I have all the other information that tell me
4 that this is Armillaria root rot.

5 Q. Doctor, you sat on that stand and told our jury that
6 Armillaria root rot had been the problem going back at least
7 ten years. And you took it through the filter of what you saw
8 in '18 and you read it backwards. That's what you did, didn't
9 you? Didn't you?

10 A. I am not following.

11 Q. Every time I ask you about these photos, any of the
12 photos that BASF counsel showed you that supposedly show it
13 had been there for decades, you answer it, well, when I look
14 at all of it and my testing, then I can look back and say that
15 was Armillaria. I mean, is that the gist of what you are
16 telling the jury?

17 A. The pattern is consistent with 20 years of experience
18 working on Armillaria root rot. I have seen that. It's
19 wiping out the South Carolina industry. It is wiping out the
20 Georgia industry. We replant in the same spot just to see the
21 new trees dying, and this is exactly what it looks like.

22 Q. Well, we are going to get to how much was really wiped
23 out of Bader Farms in a minute from 2010 forward. But just as
24 a summary, you are not willing to answer whether this could be
25 ice storm that caused this damage? You are not willing to

1 answer that?

2 A. Based on the sequence of pictures, I don't think there
3 was an ice storm involved because you replant and then you see
4 the same pattern again; so Armillaria must have been in there.

5 Q. Let's go to '14. No. No. The photo on the prior
6 page from 2014.

7 Now, you are aware there was a flood in 2011 in
8 southeast Missouri; right?

9 A. Okay.

10 Q. Were you aware of that?

11 A. Probably not, no.

12 Q. Did you hear on the national news about them blowing the
13 levee along the Mississippi and flooding untold thousands of
14 acres of Missouri farmland? Did you hear that on the news
15 maybe in 2011?

16 A. I may have, but -- I may have. I don't know.

17 **THE COURT:** That was in 2008. I was the judge in
18 the case.

19 **MR. RANGLES:** No, there was a blowing in 2011 when I
20 was running for -- no, I can't say that.

21 **THE COURT:** 2008.

22 **MR. RANGLES:** When I was down here for other reasons
23 also. The Cairo, Illinois situation. There was a 2008
24 situation.

25 **THE COURT:** That's when the levee was blown.

1 **MR. RANGLES:** But there was the Cairo situation in
2 '11, Your Honor. That's what I'm talking about. City of
3 Cairo. Anyway, Judge and I will discuss this separately.

4 Let me just say this, and I would never argue with a
5 judge in his own courtroom, so let me retract my question and
6 rephrase.

7 **THE COURT:** I will withdraw my comments.

8 **MR. RANGLES:** No, sir. This is your house, not
9 mine.

10 Q. (By Mr. Randles) Were you aware there was severe
11 flooding in 2011 in southeast Missouri?

12 A. No.

13 Q. Okay. So you would not have an opinion about whether any
14 of what you saw in '14 might be related to the flooding, would
15 you?

16 A. I don't see any evidence that any -- any of this is
17 related to flooding.

18 Q. Okay. Show just for the witness and the Court and
19 counsel B-1049.

20 Do you recognize this document?

21 A. I'm not sure.

22 Q. I will represent to you that it was sent to us by BASF
23 counsel as an exhibit that might be used in your testimony.
24 Does that ring a bell?

25 A. It looks -- could be, yes.

1 Q. Well, have you seen this document before?

2 A. I -- I know the content.

3 Q. Okay. Did you talk to them about putting this together?

4 A. Yes.

5 Q. Okay. And so you provided the content for this?

6 A. Yes.

7 Q. Did you see the final product, do you recall?

8 A. I don't think so.

9 Q. Okay.

10 **MR. RANGLES:** Your Honor, I would like to offer
11 B-1049 into evidence.

12 **THE COURT:** Any objection?

13 **MR. ANDERSON:** No objection.

14 **THE COURT:** Admitted.

15 Q. (By Mr. Randles) Okay. Let's put it up. You see causes
16 of damages at Bader Farms; correct?

17 A. Yes.

18 Q. And you said you provided the information in this to BASF
19 counsel; correct?

20 A. Yes.

21 Q. Okay. You listed primary, Armillaria root rot; correct?

22 A. Yes.

23 Q. And you testified earlier you can't say what percentage
24 of the trees are affected by Armillaria root rot at Bader
25 Farms; correct?

1 A. Correct.

2 Q. Okay. Then you listed planting issues; correct?

3 A. Correct.

4 Q. And you all talked about that for a while; right?

5 A. Yes.

6 Q. As I said, I want you to assume that Bill Bader testified
7 to this jury that he started growing peaches full time in
8 1976. All right?

9 A. Okay.

10 Q. And we don't have in evidence the yield information for
11 Bader Farms and its predecessor for the '70s, the '80s or the
12 '90s. All right? But you saw Bill Bader testify about the
13 yield information from 2000 to 2019, didn't you?

14 A. Yes.

15 Q. Okay. And I want -- I have added them up and I want you
16 to assume that Bader Farms from that 20-year period -- 19-year
17 period from 2000 to 2019, produced about 1.5 million bushels
18 of peaches. All right?

19 A. Okay.

20 Q. And did you hear Bill Bader testify that he uses the
21 eastern bushel, which is a 50-pound bushel? Do you remember
22 that?

23 A. Okay. I heard bushel.

24 Q. Okay. Bushel.

25 Well, I want you to assume then that there's

1 50 pounds to a bushel. All right?

2 A. Okay.

3 Q. So if we multiple 1.5 million pounds -- million bushels
4 by 50 pounds, we are at 75 million pounds of peaches; right?

5 A. I trust you on that.

6 Q. Okay. So during this time period that you say Bader
7 Farms was consistently planting their trees incorrectly, Bader
8 Farms produced about 75 million pounds of peaches; right?

9 A. I didn't say that.

10 Q. You didn't say what, that they are planting the trees
11 incorrectly?

12 A. I didn't say that he consistently planted his trees
13 incorrectly. I said that a lot of the trees that I saw dead
14 were planted -- the young ones were planted incorrectly.

15 Q. About what percentage of the trees on Bader Farms do you
16 think are planted incorrectly?

17 A. I didn't count them.

18 Q. Well, I mean, do you think it's half?

19 A. A significant portion of the young planted trees. There
20 was variation also. I mean, some were just stunted in growth
21 and some did okay.

22 Q. Okay. So my point is with all these planting issues --
23 and there's no evidence in the case that Bill Bader has
24 changed his planting tactics over the years, is there?

25 A. Well, Mr. Bader said in his deposition that he would like

1 to see the graft union at the soil line. What I have observed
2 is the graft union was always, in those dead plants, well
3 below the soil line, 4 to 6 inches below the soil line. So my
4 theory is that probably Mr. Bader did -- that the -- whoever
5 planted those trees probably didn't follow Mr. Bader's
6 instructions.

7 Q. That's your speculation?

8 A. That's my speculation.

9 Q. You understand Mr. Bader has testified that he is out in
10 his peach orchard every day when he's home; right?

11 A. Yes.

12 Q. You really think there's planting going on in a way in
13 his orchard that he doesn't know?

14 A. Typically growers have planting crews and Mr. Bader also
15 has help from planting crews; so it's possible that the
16 planting crew just didn't listen to his instructions.

17 Q. So your theory is there are badly planted trees on Bader
18 Farms because you think maybe his planting crews weren't
19 following his instructions?

20 A. It's a possibility.

21 Q. A possibility. Can you quantify the likelihood of that
22 possibility?

23 A. I don't know why those trees were planted deep, but they
24 were not planted at his instructions, to his instructions.
25 His instructions, according to his deposition, are to plant

1 the trees with the graft unions at the soil line. The graft
2 unions of the trees that were dead were planted -- were
3 situated well, well, well below the soil line.

4 Q. So you are speculating that some portion of the trees
5 were planted not according to his instructions and therefore
6 we had a problem, but you don't know what percentage of those
7 trees fall in that category. Is that right?

8 A. I did not make an assessment of that.

9 Q. Okay. So you listed it as one of the primary problems at
10 Bader Farms, but you can't quantify how widespread the
11 planting problem is?

12 A. It was frequently observed in the newly planted trees.

13 Q. I've heard you say that, but I am asking you a different
14 question.

15 You can't quantify how significant this problem is?

16 A. It was a significant problem in the newly planted trees.

17 Q. How many peach trees have you planted over the course of
18 your life?

19 A. 300, 400.

20 Q. Are you aware that Mr. Bader has planted tens of
21 thousands just over the last few years?

22 A. I can't talk to this. I don't know.

23 Q. You were here for his testimony. You're unaware of the
24 testimony of him planting tens of thousands of trees over the
25 last few years?

1 A. He himself or his crew? I'm sorry, I shouldn't ask
2 questions.

3 Q. Did you hear that testimony or not?

4 A. I heard him say that he is planting trees, but what I
5 don't know is what that means. Does he plant them -- I don't
6 know if this means he plants his trees himself, ten thousand
7 trees, or if he has people helping him.

8 Q. Well, do you really think it makes much difference when
9 we compare your relative experience with planting trees to
10 his?

11 A. In my experience, workers can make mistakes and I have
12 seen these mistakes in South Carolina, in Georgia often.
13 Oftentimes there's a new crew coming in and they don't know
14 what they are doing and they are planting these trees too deep
15 and the growers have to pull them up. So that happens on a
16 regular basis.

17 I don't know what happened at Bader Farms. All I
18 know is that the trees were planted too deep, not to his
19 instructions.

20 Q. You are aware since you read his testimony, aren't you,
21 that he has had the same crew chief since the 1980s? Are you
22 aware of that? You didn't notice that part of his testimony?

23 A. I didn't notice that part of the testimony.

24 Q. Did you notice the part of his testimony where he
25 explained that many of the folks that are working on his farm

1 had been with him since the '80s? Did you miss that part?

2 A. I assume that's true.

3 Q. What I am asking you is a simple question: Do you really
4 think your experience planting 300 trees remotely compares
5 with this man's experience in terms of planting trees?

6 A. I can't attest to that.

7 Q. How many peaches have you harvested over the course of
8 your life?

9 A. Thousands.

10 Q. Thousands of peaches?

11 A. Yes.

12 Q. Okay. About how many bushels?

13 A. We count them in kilograms.

14 Q. I will be happy to go metric. About how many kilograms?

15 A. Take your calculator and type in 250 grams times 5,000
16 peaches and we can figure this out.

17 Q. You've harvested about 5,000 individual peaches; right?

18 A. That would be my guess.

19 Q. You realize he's harvested millions of pounds of peaches;
20 right?

21 A. I have no doubt -- no reason to doubt that.

22 Q. How many bushels of peaches have you sold in your life?

23 A. We don't sell our peaches.

24 Q. Okay. You have never grown a single peach tree in the
25 bootheel of Missouri, have you?

1 A. No.

2 Q. Have you ever grown any in highly erodable soil?

3 A. No.

4 Q. Have you ever grown any on a ridge that has water flow
5 problems?

6 A. Yes.

7 Q. Okay. How big is your ridge?

8 A. It's about 2 acres.

9 Q. Okay. You realize he grows a thousand acres of peaches
10 on Crowley's Ridge?

11 A. Okay.

12 Q. Would you agree that the water management issues on a
13 thousand acres on a ridge are somewhat more significant --
14 what did you say 2 acres?

15 A. 2 acres.

16 Q. Would you agree that the water management issues are more
17 significant over a thousand acres?

18 A. If he has water management issues, there's ways to deal
19 with it.

20 Q. That wasn't my question. Would it be more complicated on
21 a thousand acres than 2 acres?

22 A. Absolutely.

23 Q. Do you think it is a coincidence that Bill Bader has
24 testified that his peach trees look different, act different
25 and have a harder time recovering from stress from 2015

1 forward and that just happens to be the same period that the
2 dicamba tolerance system has been on the market? Do you think
3 that's a coincidence?

4 A. I have no opinion on that.

5 **MR. RANGLES:** I have no further questions.

6 **THE COURT:** Mr. Miller.

7 **MR. MILLER:** Briefly, Your Honor. Thank you.

8 May it please the Court.

9 Good afternoon, ladies and gentlemen.

10 **CROSS-EXAMINATION**

11 **BY MR. MILLER:**

12 Q. Dr. Schnabel, just a few questions.

13 Could we have B-979 back up, please.

14 And this is the EPA document that Mr. Randles asked
15 you about. He asked you whether you agreed with some items in
16 this document. Do you recall those questions?

17 A. Yes.

18 Q. Okay. I want to bring your attention to a few other
19 items in this document. Can we go to page 18, please.

20 And -- oops. Can we blow up this next-to-last
21 paragraph down here after "Weighing the risks."

22 I do read it correctly that also in this document it
23 says, "After weighing the risks of concern against the
24 benefits of these issues, the EPA finds that when the
25 requested mitigation measures for these uses are applied, the

1 benefits of the use of the pesticide outweigh the risks."

2 Do you have any reason to disagree with the EPA on
3 that one?

4 A. No.

5 Q. Can we go to page 10, please.

6 **MR. MILLER:** I am trying to find it on the fly, Your
7 Honor, I'm sorry.

8 I'm sorry, page 12. Can we go down to the last
9 paragraph there.

10 Q. (By Mr. Miller) Do you see where it says, "The EPA
11 evaluated new data, including field volatility and vapor
12 exposure toxicity studies submitted by the registrant and
13 large field studies conducted by academic researchers."

14 Do you have any doubt that -- any reason to disagree
15 with what the EPA says there?

16 A. No.

17 Q. Now, this document, if we go to the front, was dated
18 October 31, 2018; correct?

19 A. Yes.

20 Q. And as Mr. Randles pointed out, this is the document in
21 which the EPA reapproved use of XtendiMax over the top of
22 Xtend and dicamba-tolerant soybeans and cotton. Do you recall
23 that?

24 A. I don't really have an opinion about that.

25 Q. Okay. Well, let me ask you this. Were you here for

1 Mr. Bader's testimony when he said in August of 2018, just a
2 few months before this document came out where the EPA is
3 reapproving, that in August of 2018, people from the EPA came
4 out and actually saw his orchard before they decided to go
5 ahead with all the other information in this document and
6 reapprove XtendiMax? Are you aware of that?

7 A. I think I remember that.

8 Q. A couple other quick things, Dr. Schnabel. Schnabel.
9 Excuse me. I didn't mean to mispronounce your name.

10 A. Happens all the time.

11 Q. I'm sure it does.

12 Could we go, please, to B-98.

13 And this is the document -- what did you call this,
14 peach production guide?

15 A. Peach guide, yes.

16 Q. I just wanted to point out also you are listed here as
17 one of the editors or one of the -- there you are under
18 Clemson; correct?

19 A. Yes.

20 Q. And the jury has heard from a couple other people listed
21 here. For example, senior editor of disease management,
22 that's the same Dr. Phil Brannen who testified here; correct?

23 A. Yes.

24 Q. And if we go over to the North Carolina State University
25 column, that's the same Wayne Mitchem that testified here and

1 that you have talked about; correct?

2 A. Correct.

3 Q. And speaking of Mr. Mitchem, I just want to make sure the
4 record is clear. You were here when Mr. Mitchem testified
5 that he looked at thousands and thousands of terminals in the
6 trees --

7 A. Yes.

8 Q. -- and never saw any terminal dieback?

9 A. Yes.

10 Q. Did you ever see any terminal dieback at Bader Farms?

11 A. No.

12 Q. And the twig dieback and the branch dieback, those are
13 different than terminal dieback; correct?

14 A. Very different. I diagnosed fungal twig dieback.

15 Q. And that's a completely different thing from the terminal
16 dieback that Mr. Mitchem was looking for; correct?

17 A. Correct.

18 **MR. MILLER:** Thank you.

19 No further questions, Your Honor.

20 **THE COURT:** Redirect.

21 **REDIRECT EXAMINATION**

22 **BY MR. ANDERSON:**

23 Q. Good afternoon, Dr. Schnabel. Just a couple of quick
24 things.

25 Mr. Pusterla, if you can pull up 893.0021, please.

1 I'm sorry. Let's start with 893.0016.

2 All right. Dr. Schnabel, earlier you testified that
3 this photograph is from -- and I am going to get it wrong
4 again, so I apologize -- Musser Farms?

5 A. Musser Farm.

6 Q. Well, the good news is I can only get it wrong like one
7 or two more times.

8 The herbicide strip that is shown at Musser Farms at
9 your research station, is this the type of herbicide strip
10 that is recommended for commercial peach orchards?

11 A. Yes, sir.

12 Q. All right. How wide is that supposed to be?

13 A. 12 feet on a mature tree. Should go from one end of the
14 canopy to the other.

15 Q. And Plaintiffs' counsel showed a bunch of pictures of
16 Bader Farms showing various states of herbicide strips. Were
17 any of them consistent with the recommendations and look like
18 this photograph?

19 A. No.

20 Q. All right. Let's, if we can, put 893.0021 and let's look
21 at 0015.

22 Now, this is another photograph. This is from Bader
23 Farms; correct?

24 A. Yes.

25 Q. All right. Are there any weed strips in that field?

1 A. No.

2 Q. Now, earlier you and I talked generally about the weed
3 pressure at Bader Farms and if I understood your testimony
4 correct, some fields were better than others; correct?

5 A. Correct.

6 Q. All right. And Mr. Randles showed some fields that were
7 on the better end of the spectrum; correct?

8 A. That's correct.

9 Q. And we are looking at 15 here, that's one on the worst
10 spectrum, isn't it?

11 A. It is.

12 Q. Now we have another one here that -- we can go to 13.
13 Looks like it's mowed in the center?

14 A. Yes.

15 Q. And then there's no weed strip underneath the peach
16 trees?

17 A. Yes.

18 Q. Let's go to No. 11. This is another orchard at Bader
19 Farms; correct?

20 A. Correct.

21 Q. Any weed strip in this photograph?

22 A. No.

23 Q. Let's go to 10. Any weed strip in that photograph of
24 Bader Farms?

25 A. No.

1 Q. So Bader Farms has a wide range of whether or not he had
2 weed control; correct?

3 A. Correct.

4 Q. But none of them looked like the commercial
5 recommendation that's shown in Musser Farms?

6 A. Correct.

7 Q. If you can pull up Exhibit 2214, please.

8 It's already been admitted.

9 **THE CLERK:** It has or has not?

10 **MR. ANDERSON:** It has. I'm sorry. I talk too fast.

11 I apologize. It has been admitted. Plaintiffs' 2214.

12 Q. (By Mr. Anderson) I would ask you other questions, but
13 that's all I have left; so I have to wait for this exhibit.
14 My apologies.

15 A. Okay.

16 Q. Do you remember your testimony, you were asked questions
17 about the Steiner article?

18 A. Yes.

19 Q. Let's go to the second page under tree stress factors.

20 And you were asked questions about this second
21 sentence: "For the most part, however, they are weak
22 pathogens which attack trees weakened by some stress factors."

23 Dr. Schnabel, has that sentence been discredited in
24 a peer-review publication as lacking scientific evidence?

25 A. Yes, it has.

1 **MR. ANDERSON:** No further questions.

2 **MR. RANGLES:** Very briefly, Your Honor.

3 **RECROSS EXAMINATION**

4 **BY MR. RANGLES:**

5 Q. Doctor, Mr. Miller asked you questions from B-979, which
6 is this EPA -- you can put it up. It's in evidence. Let's
7 show him the front page to refresh his recollection as to what
8 it is.

9 No, that's not it. B-979.

10 Sorry, Your Honor. A lot of numbers to keep up
11 with.

12 Do you remember I asked you about that and
13 Mr. Miller asked you about that?

14 A. Yes.

15 Q. And he asked you, did you know that this was when the
16 labels were reapproved by the EPA, and you said yes.

17 A. Okay.

18 Q. Do you remember that?

19 A. Yes.

20 Q. I assume you knew, and Mr. Miller must have just left out
21 inadvertently, that this was a conditional reapproval. You
22 knew that, didn't you?

23 A. I can't say that I did.

24 Q. And so I guess you didn't know it expires in fall of
25 2020. You didn't know that?

1 A. No.

2 Q. Okay. Let's go to page 12, the same page Mr. Miller
3 asked you about. Numbered page 12, I mean.

4 Let's go to this next to last paragraph, first full
5 sentence.

6 He read you something from the bottom photograph,
7 but I want to go one above it.

8 "New information that is now available appear to
9 show that dicamba emission (through spray drift, volatility,
10 or a combination) from use of these registrations on
11 dicamba-tolerant cotton and dicamba-tolerant soybean fields
12 has resulted in effects to non-target terrestrial plants
13 offsite from the treated fields."

14 Did I read that correctly?

15 A. Yes.

16 Q. Is this science something you are familiar with?

17 A. Rephrase the question, please.

18 Q. Is this science, the damage of sensitive plants by
19 off-target movement of dicamba something you are familiar
20 with?

21 A. No.

22 Q. Let's go to page 23.

23 You will recall Mr. Miller asked you if you knew
24 that a couple of months before this was issued, someone from
25 the EPA visited Bader Farms. Do you remember that question?

1 A. Yes.

2 Q. I don't remember if you said you knew that before he
3 asked you or not. Did you?

4 A. I don't think I did.

5 Q. Okay. Okay. Well, a couple of months after the EPA
6 visited Bader Farms, they did issue this document. Let's look
7 at a couple of things they said. Let's go up to "confirmatory
8 data." Let's go up to the sentence right above "confirmatory
9 data" and through "conformity data."

10 "The agency's new data and monitoring requirements
11 for dicamba are listed below."

12 Did I read that correctly?

13 A. Yes.

14 Q. And it says "Confirmatory data." Did I read that
15 correctly?

16 A. Yes.

17 Q. And it says No. 1, "Field studies examining offsite
18 movement of dicamba."

19 No. 2, "Studies to investigate temperature effects
20 on volatility of dicamba."

21 Did I read that correctly?

22 A. Yes.

23 Q. And 3, "Ecological effects data on non-target plants
24 related to survival, growth, and reproduction for select
25 sensitive tree/shrub/woody perennial species."

1 Did I read that correct?

2 A. Yes.

3 Q. So when it talks about in No. 3, sensitive tree, shrub,
4 woody perennial species, that would include peaches, wouldn't
5 it?

6 A. Woody perennial species. Yes, I would think so.

7 Q. And it calls this "New data and monitoring requirements."
8 And let's go back down, in view of what Mr. Miller just read,
9 and check on the language at the bottom of the page we talked
10 about earlier.

11 **MR. ANDERSON:** Object as outside the scope, Your
12 Honor. I didn't touch any of this in my examination, my
13 direct or my redirect.

14 **THE COURT:** Overruled.

15 Q. (By Mr. Randles) Let's go to this last paragraph
16 starting with "studying" again. And you recall we read this
17 language starting with "studying" there, "Studying the impact
18 of off-target movement." And then it listed things and then
19 it says, "and orchards."

20 Do you see that, two lines down, "and orchards is of
21 particular interest to the agency."

22 Did you see that?

23 A. I see that.

24 Q. You think it's a coincidence that the EPA listed orchards
25 as a particular interest to it two months after visiting Bader

1 Farms?

2 A. I have no opinion on that.

3 **MR. RANGLES:** Thank you.

4 **FURTHER REDIRECT EXAMINATION**

5 **BY MR. ANDERSON:**

6 Q. Is Armillaria root rot killing trees at Bader Farms?

7 A. Yes.

8 Q. Are planting issues killing trees in the young orchards
9 at Bader Farms?

10 A. Yes.

11 **MR. ANDERSON:** Thank you.

12 **THE COURT:** Anything else?

13 Ladies and gentlemen, we will need a recess at this
14 time; so I will send you back to the jury room with the
15 admonition I have already given you. We will call you back
16 shortly.

17 (The following proceedings were held in the
18 courtroom out of the presence of the jury:)

19 **THE COURT:** Okay. You wanted to make an offer of
20 proof; is that right?

21 You may step down, Doctor, sorry.

22 **MR. MANDLER:** Before I do, Your Honor, I just have
23 the order from your rulings on the Birk testimony, the last
24 video we played.

25 And on the offer of proof, Your Honor, we did

1 actually file this with the offer. I intend to reference that
2 filing and incorporate it by reference here. I will put as
3 much or as little on the record as Your Honor thinks
4 appropriate. But in particular we are relying on our filed
5 offer of proof.

6 BASF reaffirms its position that Dr. Gallus, Hewitt
7 and Jackson were fully, timely and properly disclosed in both
8 the MDL, of which Mr. Bader is a part, and in this case by
9 cross reference.

10 Specifically, the disclosures in this case came
11 within weeks of the disclosure in the MDL and those experts
12 were incorporated by reference in that disclosure.

13 Bader Farms suffered no prejudice or surprise from
14 BASF Corporation's designation of Drs. Gallus, Hewitt and
15 Jackson as "may call" witnesses at trial. It was notified by
16 each of their -- each of their expert opinions are based on
17 the reports they filed and the fact they had full-day
18 depositions taken of each of them.

19 The opinions they would have offered if allowed to
20 testify at this trial would have been exactly the same as they
21 disclosed in their expert opinions and exactly the same as
22 they were deposed upon.

23 At trial Bader Farms' expert, Dr. Baldwin, was
24 permitted to testify regarding issues of volatility,
25 meteorology, long-range transport, all based merely on his

1 weed science background. These are areas in which Dr. Gallus,
2 Hewitt and Jackson are true and undisputed experts.

3 Dr. Hewitt, if allowed to testify, would have
4 testified that he is a PhD with expertise in analysis of
5 pesticide drift. He would have testified that Engenia's label
6 contains detailed instructions that if followed allows the
7 product to be applied on target and does not cause yield to
8 nontarget crops.

9 He would have testified there's no scientific basis
10 to conclude the allegations of visual symptoms that claim to
11 be caused by dicamba that can come as a single explanation
12 such as volatilization into an inversion layer and instead are
13 caused by other types of off-target movement.

14 Dr. Jackson is a PhD in environmental fate. He
15 would, if allowed to testify, have testified consistent with
16 his expert report and his deposition that BASF Corporation
17 studies submitted in support of Engenia's registration with
18 the EPA satisfied the EPA's testing requirements established
19 Engenia's risk of volatility is very low.

20 Dr. Baldwin's theory is that the alleged off-target
21 movement of Engenia was caused by volatility. Dr. Jackson
22 would have testified that that's speculative and contradicted
23 by valid and reliable scientific data.

24 Dr. Gallus has a PhD in meteorology. If allowed to
25 testify, he would have testified consistent with his expert

1 report and his deposition testimony. Specifically he would
2 have testified that formation of inversions and the winds
3 within them are influenced by local and individual
4 environmental and geographic factors. He would have testified
5 that due to rapid temperature increase within near ground
6 temperature inversions, any production of volatiles would be
7 substantially decreased. And he would have testified that
8 during inversions, any volatiles already present would be
9 unable to descend back to the inversion layer, those produced
10 before the volatile layer was formed.

11 He said that volatiles continue to be mixed and
12 diluted above the inversion layer and would be very unlikely
13 to leave volatiles to be transported over large distances.

14 Finally, he would testify to understand how
15 volatiles would be transported within any inversion layer that
16 formed, one would have to individually assess that inversion
17 layer.

18 That's our offer of proof, Your Honor.

19 **THE COURT:** The offer of proof is rejected for the
20 reasons stated initially because of the late disclosures.

21 **MR. MANDLER:** Thank you, Your Honor.

22 **THE COURT:** And anything else for BASF?

23 **MR. MANDLER:** We will have to rest. I don't know if
24 you want us to rest in front of the jury.

25 **THE COURT:** We might as well do it now and then I

1 can announce it.

2 **MR. MANDLER:** Pardon me?

3 **THE COURT:** We might as well do it now and then I
4 can announce it to the jury.

5 **MR. MANDLER:** That's fine. Then BASF rests, Your
6 Honor.

7 **THE COURT:** Rebuttal?

8 **MR. RANGLES:** No rebuttal, Your Honor.

9 **THE COURT:** If there's no rebuttal, you are out,
10 too.

11 **MR. MILLER:** We are done. I do -- I want -- at the
12 close of the case I need to renew a couple motions, but that's
13 it, Your Honor.

14 **THE COURT:** Well --

15 **MR. MILLER:** Orally very briefly. It will take
16 30 seconds.

17 **THE COURT:** Well, here is what I want to do. I want
18 to use tomorrow as a workday and submit the case to the jury
19 at 9:00 with the reading of the instructions followed
20 immediately by oral argument and hopefully we can get it
21 submitted by noon or just shortly after based on what counsel
22 told me about the time they will need for closing arguments.

23 Does that make sense, counsel?

24 **MR. RANGLES:** On Friday you mean, not --

25 **THE COURT:** On Friday, yeah. I meant on Friday.

1 **MR. MILLER:** That's fine, Your Honor.

2 **THE COURT:** Tomorrow is a workday then, in other
3 words.

4 **MR. MANDLER:** Yeah. Your Honor, if it hasn't been
5 filed already, we will be filing our substantive JMOL motion.
6 We filed our abbreviated one at the close of Plaintiffs'
7 evidence. We're going to be filing our full one by 3:00.

8 **THE COURT:** Okay. And is that what you are going to
9 do, too, Mr. Miller?

10 **MR. MILLER:** The only two things I want to put on
11 the record, Your Honor, is -- I guess I should do this before
12 the jury is told the evidence is closed.

13 We renew orally our motion to strike Dr. Guenthner's
14 testimony for all the reasons that we have previously filed.

15 And yes, Your Honor, we renew our motion JMOL based
16 on all the previous filings and I think we are filing some
17 additional things this afternoon.

18 **MR. MANDLER:** To the extent my filing is
19 insignificant, I renew my JMOL motion orally as well.

20 **THE COURT:** Well, as all of you know, the case is
21 going to be submitted to the jury, and so regardless of any
22 particulars in the motion for judgment at the end of all of
23 the evidence. So there might be some parts that are granted
24 and other -- but for the most part, the -- I know that the
25 case is going to be submitted.

1 So it just seems like that we are going to need a
2 substantial amount of time to put all of this on the record
3 tomorrow just as we started to do on Monday morning. And I
4 think we will need probably nearly three or four hours to get
5 all of the rulings on the motion for judgment at the close
6 of -- directed verdict, I should say, at the close of all of
7 the evidence and put all of the instruction concerns on the
8 record and final approval.

9 Does that make sense, counsel? I mean --

10 **MR. MILLER:** It does, Your Honor.

11 **MR. RANGLES:** Yes.

12 **THE COURT:** Okay. Now, we have another problem,
13 too. Because one of the jurors, Mr. Caldwell, has had a death
14 in the family and asked to go to a funeral on Friday.

15 So I thought I would call him up as soon as they
16 come back and announce that the evidence has been closed in
17 the case and that we are going to take Thursday off as a
18 workday and then we will call him up to the bench and talk
19 with him there to see his prospects. But that's why we have
20 eight instead of just six.

21 So --

22 **MR. MANDLER:** For the record, Your Honor, if that's
23 the case, BASF would prefer to close tomorrow morning. I
24 think we can be ready.

25 **THE COURT:** I would -- I know. But I don't see how

1 we can get it done. I just don't see how we can get it done.
2 So there's just too much work. I mean, we've gone through
3 this before.

4 **MR. MANDLER:** How about if we close Thursday
5 afternoon then? We should have -- we have the rest of --

6 **THE COURT:** There -- there's no way to do that
7 because it's at least half a day to read the instruction and
8 to do the oral arguments and then I don't want to submit the
9 case to them at 6:00 at night. That's another problem.

10 Who knows, maybe after we talk with him, he will --
11 see if he can stay, but it doesn't look like he is able to
12 because of the family situation. So --

13 **MR. RANGLES:** This is why we have alternates.

14 **THE COURT:** That's right. Actually, they are not
15 called alternates in a civil case, but you know --

16 **MR. RANGLES:** I apologize.

17 **THE COURT:** That's all right.

18 **MR. RANGLES:** I tripped twice today.

19 **THE COURT:** I tripped once myself on that blowing
20 the levee problem.

21 **MR. RANGLES:** I briefly disagreed with you in front
22 of the jury. I do apologize. I know not to do that in your
23 courtroom.

24 **THE COURT:** What is the --

25 **MS. GEORGE:** The levee was blown in Cairo in 2011

1 and it flooded a ton of acres out here. It was declared an
2 emergency --

3 **THE COURT:** I thought you were talking about the
4 Birds Point levee in 2008.

5 **MR. RANGLES:** No, I was talking about the one in
6 Cairo.

7 **MS. GEORGE:** That's what flooded his farm was the
8 Cairo one. It's in *Britannica*.

9 **MR. RANGLES:** We were actually both right, but we're
10 talking about two different levees.

11 **THE COURT:** All right. Let's bring the jury back
12 in.

13 (The following proceedings were held in the
14 courtroom in the presence of the jury:)

15 **THE COURT:** Ladies and gentlemen, all sides have now
16 rested and that's the conclusion of all of the evidence that
17 will be presented in the case.

18 We are going to need tomorrow as a working day to
19 prepare the final instructions and to do a number of other
20 things in preparation for the closing arguments, which I am
21 now scheduling for the reading of the instructions at
22 9:00 a.m. Friday morning followed immediately by the closing
23 arguments from counsel on all sides. And then the case should
24 be submitted to you around noon -- between 12:00 and 12:30 on
25 Friday. So that's the schedule.

1 Mr. Caldwell, I know you have a problem. We will
2 speak to you after we finish today up here in private at the
3 bench.

4 But -- so at this point I'm going to excuse you for
5 the day and now that all the evidence has been presented, it's
6 all the more important that you abide by my admonishments.

7 Do not discuss the case among yourselves or with
8 others or permit anyone to discuss it in your presence. Do
9 not form or express any opinion about the case until it is
10 given to you to decide.

11 Once again, your family, friends, spouses, children,
12 whoever, tell them you are under oath. You just can't talk
13 about it.

14 So with that, thank you so much for your patience
15 and attentiveness throughout the course of the trial. And we
16 will see you back here at 9:00 on Friday morning.

17 Thank you.

18 Anybody have any questions about that or concerns?

19 **JUROR:** Thursday?

20 **THE COURT:** Yes, you do not need to come tomorrow.
21 We will be working while you are waiting, like we said.

22 So anyway, you are excused at this time.

23 Mr. Caldwell, if you could come up, please.

24 (Counsel and Juror Caldwell approached the bench and
25 had a discussion off the record.)

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THE COURT: Court is in recess.
(The proceedings concluded at 2:42 p.m.)

CERTIFICATE

I, Reagan A. Fiorino, Registered Merit Reporter and Certified Realtime Reporter, hereby certify that I am a duly appointed Official Court Reporter of the United States District Court for the Eastern District of Missouri.

I further certify that the foregoing is a true and accurate transcript of the proceedings held in the above-entitled case and that said transcript is a true and correct transcription of my stenographic notes.

I further certify that this transcript contains pages 2172 through 2283 inclusive and was delivered electronically and that this reporter takes no responsibility for missing or damaged pages of this transcript when same transcript is copied by any party other than this reporter.

Dated at St. Louis, Missouri, this 12th day of February, 2020.

/s/ Reagan A. Fiorino

Reagan A. Fiorino, CRR, RMR, CCR, CSR
Official Court Reporter