

FINAL PLAYED

Farmer, Donna 09-26-2018

Farmer, Donna 09-27-2018

Farmer, Donna 01-24-2019

[REDACTED]

Total Time 02:58:38



Page/Line	Source	ID
89:10 - 90:7	<p>Farmer, Donna 09-26-2018 (00:00:56)</p> <p>89:10 Q. And if we turn to -- well, one thing I 89:11 actually thought was interesting -- you made a comment 89:12 on Page 4 of 6, and you're referring to -- it looks 89:13 like -- to be some link to something, and it says if 89:14 this is about cancer, why is the Mink noncancer health 89:15 outcomes here and not the cancer review? Do you see 89:16 that? 89:17 A. Yes. 89:18 Q. Do you know what that's referring to? 89:19 A. Yes. 89:20 Q. What is that referring to? I'm just -- 89:21 A. Dr. Mink did two epidemiological reviews. 89:22 One was on noncancer health outcomes and one was on 89:23 cancer, and they seemed to put the wrong review in 89:24 this. 90:1 Q. I got you. Did you help Dr. Mink with 90:2 that review? 90:3 A. I provided studies if she needed some, but 90:4 I wasn't involved in -- and we did help support and pay 90:5 for it. 90:6 Q. Did you write any of it? 90:7 A. No.</p>	<p>DF2_COMBINED_06.1</p> <p>EXHIBIT 429.7.1</p>
117:14 - 117:22	<p>Farmer, Donna 09-26-2018 (00:00:23)</p> <p>117:14 Q. (By Mr. Wisner) Isn't it true that part 117:15 of your work at Monsanto was to neutralize things that 117:16 would affect sales? 117:17 A. No, that's not true. My job as part of 117:18 Monsanto, as we've been talking about, is to know the 117:19 science behind glyphosate, to make sure we get it 117:20 communicated, we work through the regulatory agencies, 117:21 and they're the ones that approve our products for 117:22 sale.</p>	<p>DF2_COMBINED_06.2</p> <p>clear</p>
118:1 - 118:8	<p>Farmer, Donna 09-26-2018 (00:00:20)</p> <p>118:1 I'm handing you a 118:2 document, Exhibit 16 to your deposition, Doctor. 118:3 [Exhibit 16 marked for identification.] 118:4 Q. This is an e-mail from you, Dr. Farmer. 118:5 Do you see that? 118:6 A. Yes.</p>	<p>DF2_COMBINED_06.3</p> <p>clear</p> <p>EXHIBIT 435.1.1</p>

Page/Line	Source	ID
118:9 - 118:17	118:7 Q. It's dated October 30th, 2000. Do you see 118:8 that?	DF2_COMBINED_06.4
	Farmer, Donna 09-26-2018 (00:00:21)	
	118:9 A. Yes.	
	118:10 Q. And it's MONGLY00921329. This is an 118:11 e-mail that you sent to John Acquavella and others 118:12 within Monsanto; correct?	
	118:13 A. I was forwarding an e-mail below to 118:14 others.	
	118:15 Q. And John Acquavella at this time was an 118:16 employee at Monsanto; correct?	
118:20 - 118:22	118:17 A. Yes, he was.	DF2_COMBINED_06.5
	Farmer, Donna 09-26-2018 (00:00:10)	
	118:20 Q. (By Mr. Wisner) I would draw your 118:21 attention to the attachment, Page 2 of the attachment. 118:22 And it says Page 2 objectives.	EXHIBIT 435.3.1
119:3 - 119:15	Farmer, Donna 09-26-2018 (00:00:40)	DF2_COMBINED_06.6
	119:3 Q. (By Mr. Wisner) It states under 119:4 objectives on Page 2, Doctor, neutralize attacks on 119:5 Roundup herbicide by activist groups such as NCAP, 119:6 create and foster an environment that will not hinder 119:7 or negatively impact increased sales of Roundup 119:8 herbicide, capitalize on the positive reputation of 119:9 Roundup herbicide. Did I read that correctly?	EXHIBIT 435.3.3
	119:10 A. You read that correctly, and this was 119:11 prepared by Aronow & Pollock Communications.	EXHIBIT 435.3.4
	119:12 Q. Okay. Great. And if you read the e-mail 119:13 at the beginning of it, it says -- the title of this 119:14 document is Roundupplan.doc (sic). Do you see that?	EXHIBIT 435.3.5
	119:15 A. Yes.	EXHIBIT 435.1.2
122:24 - 124:4	Farmer, Donna 09-26-2018 (00:01:17)	DF2_COMBINED_06.7
	122:24 Q. (By Mr. Wisner) Now, Doctor, what is 123:1 freedom to operate?	clear
	123:2 A. Well, for me, what freedom to operate 123:3 means is that people have the right to choose our 123:4 product based on the information they have about it, 123:5 and that's what I want, so freedom to operate is that 123:6 our product is free to be sold and people have the 123:7 information about the product to make the choice to 123:8 choose it or not.	

123:9 Q. Is that how freedom to operate is defined
123:10 within Monsanto?

123:11 A. I don't know how freedom to operate is
123:12 defined in Monsanto. That's how I've always viewed
123:13 freedom to operate, and that's how I use the term, and
123:14 that's how I operate under that.

123:15 Q. Isn't it true, Doctor, that Monsanto
123:16 defines freedom to operate as to reduce regulatory
123:17 restrictions preventing it from being able to sell
123:18 their product freely?

123:19 A. I'm not aware of that definition.

123:20 Q. Now, freedom to operate -- that's
123:21 referring to Monsanto's ability to operate; correct?

123:22 A. Again, I'm talking about my definition of
123:23 freedom to operate, which is again that we -- people
123:24 have the opportunity, the choice to buy our product or
124:1 not, based on the information that's available to them.
124:2 It's about their freedom. It's our freedom to sell our
124:3 product and that people can then make a choose --
124:4 choose to buy it or not buy it.

182:11 - 182:22

Farmer, Donna 09-26-2018 (00:00:29)

DF2_COMBINED_06.8

182:11 Q. (By Mr. Wisner) Well, isn't it true,
182:12 Doctor, that when a piece of science comes out that
182:13 suggests that there's a health risk associated with
182:14 Monsanto's Roundup product, you feel like that should
182:15 be challenged?

182:16 A. No, that's not true. We don't feel it
182:17 should be challenged, but we do feel that we need to
182:18 evaluate the science behind it and understand the data
182:19 and understand the conclusions, do a scientific
182:20 evaluation.

182:21 Q. (By Mr. Wisner) I'm handing you a
182:22 document, Exhibit 22 to your deposition.

187:21 - 187:22

Farmer, Donna 09-26-2018 (00:00:04)

DF2_COMBINED_06.9

187:21 Q. I'd like to show you another document,
187:22 Exhibit 23 to your deposition.

188:4 - 188:10

Farmer, Donna 09-26-2018 (00:00:16)

DF2_COMBINED_06.10

188:4 Q. You are a participant on these series of
188:5 e-mails?

EXHIBIT 442.1.1

188:6 A. Yes, I am.

Page/Line	Source	ID
188:7 Q. And these e-mails were created and sent as 188:8 part of the regular course of Monsanto's business; 188:9 right?		
188:10 A. Yes.		
188:13 - 189:17	Farmer, Donna 09-26-2018 (00:01:25)	DF2_COMBINED_06.11
188:13 Q. (By Mr. Wisner) I want to 188:14 draw your attention to the second page, ending in 188:15 Bates-stamped 527. Are you there?		EXHIBIT 442.2.1
188:16 A. Okay.		
188:17 Q. And Dr. Heydens says to you, Donna, here 188:18 we go again. This coupled with Stocco and the three or 188:19 four new literature studies over the last couple of 188:20 weeks indicates it's time to take a deeper look at all 188:21 of this. Did I read that right?		EXHIBIT 442.2.2
188:22 A. Yes.		
188:23 Q. Do you know what he's referring to?		
188:24 A. Just what he's saying, that there's a 189:1 study by Stocco and three or four others ones that he 189:2 would like us to take a deeper look at.		
189:3 Q. And these are studies that were being done 189:4 that showed that glyphosate or Roundup could cause 189:5 endocrine disruption?		
189:6 A. They were in vitro experiments. Stocco 189:7 was an in vitro experiment alleging endocrine 189:8 disruption.		
189:9 Q. And so he says it's time for us to take a 189:10 deeper look at all of this. He goes on, let's you and 189:11 I sit down with all the new, quote, free studies, end 189:12 quote, tomorrow. Do you see that?		EXHIBIT 442.2.3
189:13 A. Yes.		
189:14 Q. Why is free -- what is a free study?		
189:15 A. I don't know what Bill meant.		
189:16 Q. Does it mean that it's free from 189:17 Monsanto's influence?		
189:21 - 190:1	Farmer, Donna 09-26-2018 (00:00:08)	DF2_COMBINED_06.12
189:21 A. Yeah, see, I don't know what he meant by 189:22 that.		
189:23 Q. (By Mr. Wisner) I mean, we see this 189:24 phrase free studies appear all over the place, Doctor. 190:1 You don't know what it means?		

Page/Line	Source	ID
190:4 - 190:17	<p>Farmer, Donna 09-26-2018 (00:00:28)</p> <p>190:4 A. I mean, Bill put down free studies. I'm 190:5 not sure which ones he's referring to or what he's 190:6 referring to.</p> <p>190:7 Q. (By Mr. Wisner) So this e-mail that you 190:8 received from Dr. Heydens -- you're not sure what it 190:9 meant?</p> <p>190:10 A. What he talked about is he wanted to look 190:11 at the Stocco study and the three or four new 190:12 literature studies. That's what it appears he's 190:13 talking about.</p> <p>190:14 Q. Well, Doctor, you used the phrase free 190:15 studies, don't you?</p> <p>190:16 A. I don't remember using it.</p> <p>190:17 Q. Well, you respond to this e-mail; right?</p>	DF2_COMBINED_06.13
190:18 - 190:18	<p>Farmer, Donna 09-26-2018 (00:00:01)</p> <p>190:18 You see that, your response?</p>	DF2_COMBINED_06.14 EXHIBIT 442.1.2
190:24 - 191:13	<p>Farmer, Donna 09-26-2018 (00:00:30)</p> <p>190:24 A. Yes, I did.</p> <p>191:1 Q. And if you turn to the page it goes -- you 191:2 said, we can work this same message for other free 191:3 studies. That's what you wrote; right?</p> <p>191:4 A. I'm sorry. I'm lost where you are.</p> <p>191:5 Q. Turn the page, right up at the top. We 191:6 can work this same message for the other free studies. 191:7 Do you see that?</p> <p>191:8 A. Yes.</p> <p>191:9 Q. What do you mean by free studies?</p> <p>191:10 A. I think this means that we didn't pay for 191:11 the studies.</p> <p>191:12 Q. So free means free from Monsanto's 191:13 influence?</p>	DF2_COMBINED_06.15 EXHIBIT 442.2.4
191:16 - 191:18	<p>Farmer, Donna 09-26-2018 (00:00:04)</p> <p>191:16 A. I said we didn't pay for them.</p> <p>191:17 Q. (By Mr. Wisner) Well, I mean, if you pay 191:18 for something you're obviously influencing it; right?</p>	DF2_COMBINED_06.16
191:21 - 191:24	<p>Farmer, Donna 09-26-2018 (00:00:19)</p> <p>191:21 A. Not necessarily so.</p> <p>191:22 Q. (By Mr. Wisner) So in response you write 191:23 this e-mail. It's dated April 25th, 2002; right?</p>	DF2_COMBINED_06.17 EXHIBIT 442.1.2

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Source

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193:6 - 194:17	<p>191:24 A. Yes.</p> <p>Farmer, Donna 09-26-2018 (00:01:28)</p> <p>193:6 Q. Now, if you go on the next page, the 193:7 second paragraph from the top, it says, I think we 193:8 should be cautious in dignifying every alleged finding 193:9 by doing more work, publishing significantly, or being 193:10 seen to overreact to these very small papers, which in 193:11 the scheme of things may be just blips. 193:12 We need to look at each of them on a 193:13 case-by-case basis as well as seeing if a pattern is 193:14 beginning to form for a, quote, weight of the evidence, 193:15 unquote, like the genotox. We have had about four of 193:16 these free studies every year now. Only some get 193:17 highlighted internally and externally. Do you see 193:18 that?</p> <p>193:19 A. Yes.</p> <p>193:20 Q. And then you write, this does not mean, 193:21 however, we do nothing. In my mind, the stewardship 193:22 program for glyphosate has a four-part strategy. One, 193:23 publish relevant toxicological, exotoxicological (sic), 193:24 and human information about glyphosate in the 194:1 peer-reviewed literature, like Williams, Geisy, 194:2 Acquavella. Do you see that?</p> <p>194:3 A. Yes.</p> <p>194:4 Q. Do you know what that Williams article is 194:5 referring to?</p> <p>194:6 A. It's a 2000 publication.</p> <p>194:7 Q. That's an article that Dr. Heydens 194:8 ghostwrote; correct?</p> <p>194:9 A. No Dr. Heydens did not ghostwrite the 194:10 Williams article.</p> <p>194:11 Q. You do know that Dr. Heydens told you he 194:12 ghostwrote it; right?</p> <p>194:13 A. Dr. Heydens did not ghostwrite it.</p> <p>194:14 Q. But that wasn't my question. My question 194:15 is you are aware he told you he ghostwrote it; correct?</p> <p>194:16 A. He used that phrase, but that's not what 194:17 he did.</p>	<p>DF2_COMBINED_06.18</p> <p>EXHIBIT 442.2.5</p>
197:21 - 198:7	<p>Farmer, Donna 09-26-2018 (00:00:28)</p> <p>197:21 Q. (By Mr. Wisner) I thought the reason why</p>	<p>DF2_COMBINED_06.19</p>

clear

197:22 you wanted to know about them in advance was so you
 197:23 could get a response ready and distribute it
 197:24 proactively?

198:1 A. No.

198:2 Q. Well, let's actually look at what you

198:3 said. It goes on. It goes, Mark fortunately saw the

EXHIBIT 442.2.7

198:4 neuroblastoma paper at the British tox meetings.

198:5 Quote, we can get response ready and distribute it

198:6 proactively. Do you see that, Doctor?

198:7 A. I'm sorry. I've lost where you --

198:10 - 198:19

Farmer, Donna 09-26-2018 (00:00:17)

DF2_COMBINED_06.20

198:10 Q. (By Mr. Wisner) So I'll just read it to

EXHIBIT 442.2.8

198:11 you. Is says right here. Another thing I would like

198:12 to do -- to discuss is how we can improve our

198:13 intelligence in finding out about these studies in

198:14 advance. That's what we were just discussing?

198:15 A. Yes.

198:16 Q. That paragraph ends with the sentence, we

198:17 can get response ready and distribute it proactively.

198:18 That's exactly what I just asked you the purpose was,

198:19 and you said no.

198:22 - 199:17

Farmer, Donna 09-26-2018 (00:00:44)

DF2_COMBINED_06.21

198:22 A. So again, what I was talking about is

198:23 having a response that would -- in this sense, I mean

198:24 about getting that information out there so that we

199:1 would know what other information is available on

199:2 glyphosate and compare to what just one paper might be.

199:3 And this neuroblastoma paper, again, was an in vitro

199:4 study, and again, you cannot extrapolate from like an

199:5 in vitro publication to a human risk assessment. So

199:6 this is another in vitro study, a petri dish

199:7 experiment.

199:8 Q. (By Mr. Wisner) Sure, but putting that

199:9 study aside, the whole purpose of getting intelligence

199:10 about these studies is so you can have a response ready

199:11 and distribute it proactively?

199:12 A. Well, and a part of that response is

199:13 having what other data is out there that puts those in

199:14 vitro studies into perspective.

199:15 Q. But isn't that kind of like playing

199:16 Whack-A-Mole with the data?

199:17 A. No.

199:19 - 200:17

Farmer, Donna 09-26-2018 (00:01:00)

DF2_COMBINED_06.22

clear

199:19 Q. (By Mr. Wisner) I mean, you're getting

199:20 ready to whack the study before you've even seen the
199:21 results, Doctor?

199:22 A. No, we've seen the results, so this has

199:23 nothing to do about whacking it before we see the

199:24 results. This is about seeing the results and then

200:1 putting in a in vitro study into the context of the

200:2 entire database of whole animals, and so that's what

200:3 that's about.

200:4 Q. Isn't it true, Doctor, that there have

200:5 been epidemiological studies published related to

200:6 glyphosate that involved non-Hodgkin's lymphoma?

200:7 A. There are publications, I understand, that

200:8 have alleged that there is non-Hodgkin's lymphoma, yes.

200:9 Q. And some of those studies show an

200:10 evaluated rate of lymphoma -- non-Hodgkin's lymphoma

200:11 with people exposed to Roundup; right?

200:12 A. That's what they allege.

200:13 Q. That's what the studies show; right?

200:14 A. Well, that's what's alleged in the study.

200:15 Q. Now, it would be wholly inappropriate to

200:16 attack a scientist personally for publishing a study

200:17 like that; right?

200:20 - 201:13

Farmer, Donna 09-26-2018 (00:00:46)

DF2_COMBINED_06.23

200:20 A. We wouldn't do that.

200:21 Q. (By Mr. Wisner) Well, I'm handing you a

200:22 document. This is Exhibit 24 to your deposition.

200:23 [Exhibit 24 marked for identification.

200:24 You've seen this document before; right, Doctor?

201:1 A. Not for a long time, but yes, I have.

201:2 Q. This is the Hardell study from 1999?

201:3 A. Yes.

201:4 Q. It's titled, A Case-Control Study of

201:5 Non-Hodgkin's Lymphoma and Exposure to Pesticides;

201:6 right?

201:7 A. Right.

201:8 Q. And this one did show an elevated rate of

EXHIBIT 443.1.1

Page/Line	Source	ID
202:7 - 202:8	<p>201:9 non-Hodgkin's lymphoma for people exposed to 201:10 glyphosate; right? 201:11 A. It's my understanding that when they are 201:12 corrected for confounders, it's not statistically 201:13 significant.</p> <p>Farmer, Donna 09-26-2018 (00:00:03)</p>	DF2_COMBINED_06.24 clear
202:10 - 202:17	<p>202:7 Q. I'm handing you Exhibit 25. 202:8 [Exhibit 25 marked for identification.]</p> <p>Farmer, Donna 09-26-2018 (00:00:14)</p> <p>202:10 This is a series of e-mails, Doctor, and if you see 202:11 starting on the middle of the page there's an e-mail 202:12 from you, Dr. Farmer, dated June 22nd, 1999. Do you 202:13 see that? 202:14 A. Yes. 202:15 Q. And this was made while you were employed 202:16 at Monsanto? 202:17 A. Yes.</p>	DF2_COMBINED_06.25 EXHIBIT 444.1.1
203:14 - 203:19	<p>Farmer, Donna 09-26-2018 (00:00:09)</p> <p>203:14 Q. Turn to the second page. Who is Lennart 203:15 Hardell? Do you see that? 203:16 A. Yes. 203:17 Q. That's Dr. Hardell, the guy who authored 203:18 this article? 203:19 A. Yes.</p>	DF2_COMBINED_06.26 EXHIBIT 444.2.1
205:12 - 205:19	<p>Farmer, Donna 09-26-2018 (00:00:21)</p> <p>205:12 Q. (By Mr. Wisner) So then if you go down 205:13 here, it says, he has a history of resorting to ad 205:14 hominem attacks. I'll start right there. What does ad 205:15 hominem mean? 205:16 A. It's -- again, he has a history of 205:17 resorting to ad hominem attacks when challenged, but he 205:18 attacks back if he's challenged by industry -- attacks 205:19 the people.</p>	DF2_COMBINED_06.27 EXHIBIT 444.2.2
206:15 - 207:2	<p>Farmer, Donna 09-26-2018 (00:00:29)</p> <p>206:15 Q. Now, in the sentence before that, you 206:16 state Dr. Ralph Cook, the retired medical director of 206:17 epidemiology at Dow Chemical, told us that Hardell is 206:18 very arrogant. Do you see that? 206:19 A. That's what written are. 206:20 Q. That's a personal attack, isn't it?</p>	DF2_COMBINED_06.28 EXHIBIT 444.2.3

Page/Line	Source	ID
206:21 A. I wouldn't consider that a personal 206:22 attack. That was Dr. Cook's opinion that we put into 206:23 this summary.		
206:24 Q. Doctor, if I told this jury my friend 207:1 thinks that you're arrogant, that would be a personal 207:2 attack, wouldn't it?		
208:11 - 208:24	Farmer, Donna 09-26-2018 (00:00:38) 208:11 record; okay? So in this message that you're sending 208:12 around about the Hardell study you're accusing Dr. 208:13 Hardell of being arrogant and having a tendency to 208:14 engage in personal attacks? 208:15 A. I did not call him arrogant. These were 208:16 words from someone else that we incorporated in this. 208:17 But in addition to that -- and this was going 208:18 internally to Monsanto. We also had other documents 208:19 for them to look at. But this is just a description, 208:20 and this is not going anywhere but into internal 208:21 Monsanto, and that was Dr. Cook that was saying those 208:22 things.	DF2_COMBINED_06.29
208:23 Q. Dr. Farmer, you're spreading mud -- you're 208:24 slinging mud about Dr. Hardell here, aren't you?		
209:2 - 209:3	Farmer, Donna 09-26-2018 (00:00:04) 209:2 A. We are just reporting what has been told 209:3 to us about Dr. Hardell's behavior.	DF2_COMBINED_06.30
209:4 - 209:8	Farmer, Donna 09-26-2018 (00:00:15) 209:4 Q. (By Mr. Wisner) Let's 209:5 look at some other stuff. After the Hardell study, did 209:6 you ever consider conducting your own epidemiological 209:7 study of Roundup?	DF2_COMBINED_06.31
209:8 A. No, we did not.		
209:9 - 210:2	Farmer, Donna 09-26-2018 (00:00:52) 209:9 Q. Why not? 209:10 A. Well, when we have no indication we did 209:11 the Farm Family Exposure Study, which was a really good 209:12 study to look at exposure. We had all the data coming 209:13 from our animal studies and our gene tox studies that 209:14 there was no indication of concern for people using our 209:15 product to develop cancer from using that product. 209:16 Q. So after the Hardell study it's your 209:17 testimony that you never considered doing an	DF2_COMBINED_06.32

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	209:18 epidemiological study to look at NHL? 209:19 A. Again, we had a lot of data that we were 209:20 looking at different scientifically. There -- we would 209:21 say that -- we'd have to believe that everyone that 209:22 uses our product is associated -- has a potential to 209:23 develop cancer of some sort, and the data never told us 209:24 that. We're very confident it wasn't genotoxic, we 210:1 didn't see evidence of carcinogenicity, and we were 210:2 very comfortable with the safety of the product.	
234:6 - 234:10	Farmer, Donna 09-26-2018 (00:00:08) 234:6 Q. (By Mr. Wisner) Doctor, I'm handing you 234:7 Exhibit 28. This is a copy of the McDuffie article 234:8 that was published in November 2001; correct? 234:9 [Exhibit 28 marked for identification.] 234:10 A. Yes.	DF2_COMBINED_06.33 EXHIBIT 447.1.1
235:2 - 235:6	Farmer, Donna 09-26-2018 (00:00:12) 235:2 Q. But then when you have greater than two 235:3 days, it is a 2.12 risk that is statistically 235:4 significant. Do you see that? 235:5 A. There -- it's -- yes, it's over -- 235:6 statistically -- sorry -- statistically significant.	DF2_COMBINED_06.34 EXHIBIT 447.7.1
235:7 - 235:10	Farmer, Donna 09-26-2018 (00:00:09) 235:7 Q. Now, one of the criticisms that I 235:8 understand has been levied against this article is that 235:9 it didn't control for confounders; right? 235:10 A. That's my understanding as well.	DF2_COMBINED_06.35 clear
238:11 - 239:2	Farmer, Donna 09-26-2018 (00:00:46) 238:11 Well, in any event, when this article was published in 238:12 2001, you and Dr. Acquavella were very happy that 238:13 glyphosate was not mentioned in the abstract; isn't 238:14 that true? 238:15 A. We were -- wanted what was in the abstract 238:16 to be what was scientifically important from the 238:17 publication, yes. 238:18 Q. And specifically you didn't want the word 238:19 glyphosate in there so when people searched for the 238:20 document they wouldn't find it? 238:21 A. What we wanted was what were the most 238:22 important parts in the abstract to be included in that. 238:23 Q. And for your purposes, a doubling of the	DF2_COMBINED_06.36

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239:5 - 239:7	<p>238:24 risk for greater than two days per year use for 239:1 glyphosate for non-Hodgkin's lymphoma -- that wasn't 239:2 important?</p> <p>Farmer, Donna 09-26-2018 (00:00:06)</p> <p>239:5 A. That -- could I see what you're talking 239:6 about? Again, we come back to a statistically 239:7 significant finding.</p>	DF2_COMBINED_06.37
239:14 - 239:16	<p>Farmer, Donna 09-26-2018 (00:00:09)</p> <p>239:14 Q. Well, let's look at what you actually 239:15 said, though. I'm handing you a Document 29 to your 239:16 deposition.</p>	DF2_COMBINED_06.38
239:20 - 241:19	<p>Farmer, Donna 09-26-2018 (00:02:01)</p> <p>239:20 email from you to Dr. Acquavella, et al. Do you see 239:21 that, Doctor?</p> <p>239:22 A. Yes.</p> <p>239:23 Q. It's dated 11 -- November 29th, 2001; 239:24 right?</p> <p>240:1 A. Yes.</p> <p>240:2 Q. And you were sending this to Dr. 240:3 Acquavella and at that time he was an epidemiologist at 240:4 Monsanto; right?</p> <p>240:5 A. Yes.</p> <p>240:6 Q. And the title -- I'm sorry. The subject 240:7 of the e-mail from John Acquavella to you states, the 240:8 McDuffie article appears, glyphosate not mentioned in 240:9 the abstract. Do you see that?</p> <p>240:10 A. I see that written there, yes.</p> <p>240:11 Q. And then it goes -- he writes, the 240:12 McDuffie article appeared in the November issue of the 240:13 journal Cancer Epidemiology, Biomarkers & Prevention. 240:14 See abstract below. Unlike the abstract presented at 240:15 the International Society for Environmental 240:16 Epidemiology meeting, August 1999, glyphosate is no 240:17 longer mentioned as a risk factor in the abstract. Do 240:18 you see that?</p> <p>240:19 A. I see that written.</p> <p>240:20 Q. And he goes, I'll have to get the article 240:21 and see what it says in the, quote, small print. Do 240:22 you see that?</p> <p>240:23 A. Yes.</p>	DF2_COMBINED_06.39
		EXHIBIT 448.1.1
		EXHIBIT 448.1.2
		FARMER 29.1.1

240:24 Q. And then in response to that, you write,
 241:1 John, I know we don't know yet what it says in the,
 241:2 quote, small print, but the fact that glyphosate is no
 241:3 longer mentioned in the abstract is a huge step
 241:4 forward. It removes it from being picked up by
 241:5 abstract searches, exclamation mark. See that?
 241:6 A. Yes.

FARMER 29.1.2

241:7 Q. So you were excited that glyphosate was no
 241:8 longer mentioned in the abstract because it would no
 241:9 longer be picked up by abstract searches?

241:10 A. Because what should be picked up in the
 241:11 abstract searches are the most important parts of a
 241:12 publication, and it appears that after she ran through
 241:13 her preliminary work and came to the final one, it
 241:14 wasn't considered important for her to put in the
 241:15 abstract.

241:16 Q. Well, the study shows a 2.12 odds ratio
 241:17 that is statistically significant for greater than two
 241:18 days per use; correct?

241:19 A. That's what that said in this article.

242:18 - 243:10

Farmer, Donna 09-26-2018 (00:00:38)

DF2_COMBINED_06.40

242:18 Q. Let's go back and look at -- do you know
 242:19 if she didn't include it in the abstract because of her
 242:20 relationship with John Acquavella?

242:21 A. I can't answer that. I don't know.

242:22 Q. Well, in the previous document, we saw
 242:23 that Dr. Acquavella was planning to cultivate a
 242:24 relationship with her; right?

243:1 A. But you also saw in the previous article
 243:2 that -- or the document that John was going to be
 243:3 providing her information about Farm Family Exposure
 243:4 studies, having a conversation with her, so I don't
 243:5 know what -- we were going to meet with other various
 243:6 people in Canada, so I don't know what went on with
 243:7 her.

243:8 Q. Well, let's look at another document.

243:9 It's Exhibit 30 to your deposition.

243:10 [Exhibit 30 marked for identification.

243:12 - 243:18

Farmer, Donna 09-26-2018 (00:00:14)

DF2_COMBINED_06.41

243:12 The e-mail from you at

EXHIBIT 449 REDACTED.1.1

243:13 the top is dated December 6th, 2001. Do you see that,
243:14 Doctor?

243:15 A. Yes.

243:16 Q. And this document -- this e-mail was sent

243:17 as part of your work at Monsanto?

243:18 A. Yes.

244:1 - 244:16

Farmer, Donna 09-26-2018 (00:00:31)

DF2_COMBINED_06.42

244:1 Q. Dr. Acquavella appears to have obtained a

244:2 copy of it now, Doctor?

244:3 A. Yes, it does.

244:4 Q. And you can see that on the e-mail

244:5 starting on -- ending with Bates Number 559, Dr.

244:6 Acquavella sends it to you, Dr. Heydens, Janice

244:7 Armstrong, and Dr. Goldstein. The subject is, McDuffie

244:8 paper. Do you see that?

244:9 A. Yes.

244:10 Q. And he says, I received the McDuffie paper

244:11 today and have scanned it briefly. There are two

244:12 findings for glyphosate and only two tables. Do you

244:13 see that?

244:14 A. Yes.

244:15 Q. And then he reports the never ever

244:16 finding. Do you see that?

244:19 - 246:10

Farmer, Donna 09-26-2018 (00:01:45)

DF2_COMBINED_06.43

244:19 A. In Table 2 -- reading right here?

244:20 Q. (By Mr. Wisner) Yeah. And then he

244:21 subsequently reports the greater than two days per use

244:22 finding. Do you see that?

244:23 A. But for use two days. Uh-huh.

244:24 Q. And this finding is one of the numerous

245:1 significant pesticide associations in the paper. He

245:2 continues, glyphosate is only mentioned once in the

245:3 text. He cites the page. The authors are talking

245:4 about herbicides and mention, quote, glyphosate, which

245:5 was not significant for exposure, meaning in Table 2,

245:6 but for which we demonstrated a dose response

245:7 relationship. Do you see that?

245:8 A. I see that written there, yes.

245:9 Q. And so he's talking about the places where

245:10 glyphosate is specifically mentioned in the McDuffie

EXHIBIT 449 REDACTED.2.1

EXHIBIT 449 REDACTED.2.2

EXHIBIT 449 REDACTED.2.3

EXHIBIT 449 REDACTED.2.4

245:11 article; right?

245:12 A. Yes.

245:13 Q. So then if you turn the page, Dr. Heydens

EXHIBIT 449 REDACTED.1.2

245:14 responds, John, so if I understand the situation

245:15 correctly, even though reference to glyphosate wasn't

245:16 removed entirely, there was a substantial reduction in

245:17 emphasis, including but not limited to removal from the

245:18 abstract. Do you see that?

245:19 A. Yes.

245:20 Q. And then Dr. Acquavella says, right. It's

EXHIBIT 449 REDACTED.1.3

245:21 a good result, but not everything we wanted. The

245:22 invalid result could be cited as a second NHL --

245:23 sorry -- glyphosate NHL finding. However, it will not

245:24 be picked up by most of the usual suspects because it

246:1 is not mentioned in the abstract. That's what John

246:2 wrote; right?

246:3 A. That's written there, yes.

246:4 Q. And then you respond, John, darn, but at

EXHIBIT 449 REDACTED.1.4

246:5 least it's out of the abstract and not a huge

246:6 discussion in the text. Regarding the journal it's

246:7 published in, how is it viewed? Is it a premier

246:8 journal or a lower-rung journal? Yes, please get a

246:9 third-party review. Donna. See that?

246:10 A. Yes.

248:13 - 249:15

Farmer, Donna 09-26-2018 (00:00:53)

DF2_COMBINED_06.44

248:13 Q. (By Mr. Wisner) All right, Doctor. I'm

248:14 handing you Exhibit 31 to your deposition.

EXHIBIT 450.1.1

248:15 [Exhibit 31 marked for identification.]

248:16 Q. This is the glyphosate stewardship

EXHIBIT 450.1.2

248:17 epidemiology and Farm Family Exposure Study memorandum.

248:18 Do you see that?

248:19 A. Memorandum?

248:20 Q. Sure. Is it a memorandum? Is that what

248:21 this is?

248:22 A. I have no idea what you would call it.

248:23 Q. A document?

248:24 A. A draft.

249:1 Q. A draft?

249:2 A. I would say a draft.

249:3 Q. A draft document. Looks like it's dated

249:4 June 11th, 2002; right?

249:5 A. Yes.

249:6 Q. And you're one of the team members on

EXHIBIT 450.1.3

249:7 here, Donna Farmer. Do you see that?

249:8 A. Yes.

249:9 Q. Along with Dr. Acquavella and Daniel

249:10 Goldstein; right?

249:11 A. Yes.

249:12 Q. This is MONGLY00888454. Doctor, this

249:13 document was created as part of your work at Monsanto;

249:14 correct?

249:15 A. Yes.

250:3 - 252:4

Farmer, Donna 09-26-2018 (00:02:18)

DF2_COMBINED_06.45

250:3 Q. So on page ending in 455, under macro

EXHIBIT 450.2.1

250:4 issues. Do you see that section, Doctor?

250:5 A. Yes.

250:6 Q. It says, starting in the second

250:7 paragraph -- well, I'll start with the first paragraph.

250:8 The general public is selectively risk adverse,

EXHIBIT 450.2.2

250:9 especially about perceived risks to children's health.

250:10 Individuals will assume known risks -- for example,

250:11 cigarettes -- yet object to infinitesimal potential

250:12 risks from pesticide residues on foods or foreign DNA

250:13 in genetically modified, GM crops.

250:14 Anti-pesticide activists orient their

250:15 allegations accordingly. Glyphosate is a prime target

250:16 of anti-pesticide and anti-GM activists due to its

250:17 widespread use and key role to glyphosate-tolerant

250:18 crops. Did I read that correctly?

250:19 A. Yes.

250:20 Q. Do you agree with that?

250:21 A. Yes.

250:22 Q. It goes on, allegations based on results

EXHIBIT 450.2.3

250:23 from epidemiological studies have begun to affect our

250:24 freedom to operate. In Canada, enabled by a recent

251:1 Supreme Court ruling, localities have cited

251:2 epidemiological findings to ban, quote, nonessential

251:3 use of pesticides, usurping federal regulations that

251:4 are based on toxicological data.

251:5 There are now six published studies that

Page/Line	Source	ID
	251:6 arguably associate glyphosate and other pesticides with 251:7 lymphopoietic cancers or adverse reproductive outcomes. 251:8 Lymphopoietic -- did I read that correctly, Doctor? 251:9 A. Yes. 251:10 Q. Lymphopoietic cancers -- those are blood 251:11 cancers; right? 251:12 A. Yes. 251:13 Q. Non-Hodgkin's lymphoma would be one of 251:14 those? 251:15 A. I'm not sure of all the categories that 251:16 would be in that, but a blood cancer. 251:17 Q. Is it your understanding that 251:18 epidemiological studies in 2002 were affecting 251:19 Monsanto's freedom to operate? 251:20 A. Well, it looks like up in here that 251:21 they -- some areas in Canada, as it states, were using 251:22 epidemiological findings to ban nonessential use of 251:23 pesticides. That's what they're stating in there, so 251:24 that's written right there. 252:1 Q. So it looks like then freedom to operate 252:2 is not about giving consumer choice in this context; 252:3 it's about the -- it's about avoiding any restrictions 252:4 on the use of a product?	
253:6 - 253:11	Farmer, Donna 09-26-2018 (00:00:14) 253:6 A. So I would go back again to my definition 253:7 of freedom to choice -- freedom to operate, is that we 253:8 had a piece of data that was missing that we felt 253:9 needed to be taken into consideration when people are 253:10 making the decision not to allow certain pesticides to 253:11 be used.	DF2_COMBINED_06.46
253:12 - 253:16	Farmer, Donna 09-26-2018 (00:00:12) 253:12 Q. (By Mr. Wisner) Are you familiar with the 253:13 De Roos 2003 epidemiological study? 253:14 A. Again, not being the epidemiologist in the 253:15 group, I'm familiar with it from a higher level. 253:16 Q. I'm handing you Exhibit 32.	DF2_COMBINED_06.47 clear
253:18 - 253:20	Farmer, Donna 09-26-2018 (00:00:11) 253:18 Q. This is the De Roos 2003 study; correct? 253:19 A. Correct. 253:20 Q. And in this study, they -- if you look	DF2_COMBINED_06.48 EXHIBIT 451.1.1

Page/Line	Source	ID
253:21 - 254:4	<p>Farmer, Donna 09-26-2018 (00:00:26)</p> <p>253:21 onto Table -- oh. Table 3. Page 5 of 9. And you have 253:22 the herbicides listed there. You see glyphosate is 253:23 listed? 253:24 A. Yes. 254:1 Q. And if you look at the logistical 254:2 regression analysis, it shows a 2.1 statistically 254:3 significant result? 254:4 A. Yes.</p>	<p>DF2_COMBINED_06.49 EXHIBIT 451.5.1</p>
263:14 - 263:21	<p>Farmer, Donna 09-26-2018 (00:00:29)</p> <p>263:14 Handing you Exhibit 36. This is an e-mail from Dr. 263:15 Acquavella dated September 2nd, 2003. It is 263:16 MONGLY062629 -- sorry -- 795. This is an e-mail sent 263:17 to, among other people, you; correct, Doctor? 263:18 A. Yes. 263:19 Q. And this was sent to you as part of your 263:20 work at Monsanto; correct? 263:21 A. Yes.</p>	<p>DF2_COMBINED_06.50 clear - EXHIBIT 254.1.1</p>
263:24 - 264:3	<p>Farmer, Donna 09-26-2018 (00:00:10)</p> <p>263:24 Q. (By Mr. Wisner) The original e-mail is 264:1 from Katherine Carr. Who is Katherine Carr? 264:2 A. She was one of the ecotoxicologists who 264:3 did our glyphosate information management.</p>	<p>DF2_COMBINED_06.51 EXHIBIT 254.1.2</p>
264:19 - 265:8	<p>Farmer, Donna 09-26-2018 (00:00:28)</p> <p>264:19 Q. (By Mr. Wisner) Now, she 264:20 writes subject, article re NHL and glyphosate, 264:21 alachlor; right? You see that? 264:22 A. Yes. 264:23 Q. And she sends what appears to be a copy of 264:24 the article to you and Dr. Acquavella and others; 265:1 right? 265:2 A. Yes. 265:3 Q. And Dr. Acquavella says, thanks to Kathy 265:4 for bringing the De Roos, et al, paper to our 265:5 attention. See below. I have a few quick thoughts 265:6 about it. More information will follow. Do you see 265:7 that? 265:8 A. Yes.</p>	<p>DF2_COMBINED_06.52 EXHIBIT 254.1.3</p>
265:9 - 266:12	<p>Farmer, Donna 09-26-2018 (00:01:10)</p> <p>265:9 Q. Now, reading the paragraph that starts</p>	<p>DF2_COMBINED_06.53 EXHIBIT 254.1.4</p>

265:10 strangely, it reads, strangely, glyphosate looks to be
 265:11 one of the pesticides most associated with NHL in this
 265:12 analysis. See Table 3. At the time these NHL cases
 265:13 were diagnosed, 1979 through 1983, glyphosate was very
 265:14 early in its commercial history. Do you see that?

265:15 A. I see that written.

265:16 Q. So even Dr. Acquavella acknowledges that
 265:17 at least in that Table 3 that we were looking at,
 265:18 glyphosate seems to be the most highly one associated
 265:19 with NHL?

265:20 A. That's what John -- Dr. Acquavella has
 265:21 written here.

265:22 Q. Then the next paragraph he says, the
 265:23 author spent an entire paragraph in the discussion on
 265:24 glyphosate, specifically mentioning Hardell and
 266:1 McDuffie. Do you see that?

266:2 A. Down -- yes.

266:3 Q. And he actually -- it looks like he pasted
 266:4 that portion of the article in there. Do you see that?

266:5 A. Yeah, it looks like something was pasted.

266:6 Q. Yeah. And the Hardell and McDuffie
 266:7 articles -- those are the ones we just discussed a
 266:8 second ago; right?

266:9 A. Yes.

266:10 Q. He says, I'm afraid this could add more
 266:11 fuel to the fire for Hardell, et al. Do you see that?

266:12 A. I see he wrote that.

266:13 - 266:15 **Farmer, Donna 09-26-2018 (00:00:05)**

266:13 Q. What do you understand -- what did you
 266:14 understand that to mean?

266:15 A. I don't know. You'd have to ask John.

266:16 - 267:21 **Farmer, Donna 09-26-2018 (00:01:13)**

266:16 Q. Would it be fair to say that with Hardell,
 266:17 McDuffie, and now De Roos, all showing elevated risks
 266:18 of non-Hodgkin's lymphoma associated with glyphosate,
 266:19 that it was creating concern that in fact Roundup might
 266:20 cause NHL?

266:21 A. No, I don't think it was a concern that
 266:22 Roundup caused NHL. I think there were these
 266:23 epidemiology publications out there. From what I

EXHIBIT 254.1.5

EXHIBIT 254.1.6

DF2_COMBINED_06.54

DF2_COMBINED_06.55

Page/Line	Source	ID
	266:24 understand from John, there were -- one had exposure, 267:1 there were some differences in these studies, and so it 267:2 wasn't a concern for -- that Roundup was causing NHL. 267:3 Q. His next paragraph -- well, the 267:4 second-to-last paragraph says, it looks like NHL and 267:5 other lymphopietic cancers continue to be the main 267:6 cancer epidemiology issues both for glyphosate and 267:7 alachlor. Do you see that? 267:8 A. That's what he wrote. 267:9 Q. So even Dr. Acquavella -- and he's an 267:10 epidemiologist; right? 267:11 A. Yes. 267:12 Q. And he was using -- a Monsanto 267:13 epidemiologist; right? 267:14 A. Yes. 267:15 Q. And he's saying that one of the primary 267:16 issues appears to be lymphopietic cancers in the 267:17 epidemiology, isn't he? 267:18 A. That's what he's saying, but again, it 267:19 wasn't our concern. This is from the epidemiology 267:20 studies, but not from the studies and the animal data 267:21 we had. It wasn't a concern for us.	EXHIBIT 254.1.7
271:12 - 271:20	Farmer, Donna 09-26-2018 (00:00:20) 271:12 Q. Handing you Exhibit 35 to your deposition. 271:13 [Exhibit 35 marked for identification.] 271:14 Q. This is an e-mail from you dated October 271:15 14th, 2008. Do you see that, Doctor? 271:16 A. Yes. 271:17 Q. MONGLY Number 01179185. Doctor, this is 271:18 an e-mail you sent and it was part of your work at 271:19 Monsanto; correct? 271:20 A. Yes.	DF2_COMBINED_06.56
271:22 - 272:3	Farmer, Donna 09-26-2018 (00:00:22) 271:22 Q. (By Mr. Wisner) As you can see in the 271:23 original e-mail sent to you on October 14th, it's from 271:24 Nasser Dean, or Dean Nasser. I'm not sure if that's -- 272:1 A. Nasser Dean. 272:2 Q. Nasser Dean? Okay. And it's reporting on 272:3 the recent Eriksson study; correct?	EXHIBIT 453.1.1 DF2_COMBINED_06.57
272:4 - 272:16	Farmer, Donna 09-26-2018 (00:00:27)	EXHIBIT 453.1.2 DF2_COMBINED_06.58

Page/Line

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272:4 A. I'm not sure it gives a title. It's
272:5 obviously talking about a epidemiology study, but I'm
272:6 not sure --

272:7 Q. Well, it says published in the October
272:8 issue --

EXHIBIT 453.1.3

272:9 A. Of --

272:10 Q. -- of the International Journal of
272:11 Cancer. This is -- if you look at the previous
272:12 exhibit, that is the International Journal -- that's
272:13 the same time frame. Reports a 2.02 odds ratio, which
272:14 is the same odds ratio we saw in the study. It's
272:15 clearly reporting on Eriksson; right?

272:16 A. Okay.

272:24 - 273:2

Farmer, Donna 09-26-2018 (00:00:07)

DF2_COMBINED_06.59

272:24 And so he sends it to you and others, and you
273:1 respond, Nasser -- is it "Nasser" or "Nasser"?

EXHIBIT 453.1.4

273:2 A. I'm not sure.

273:16 - 276:5

Farmer, Donna 09-26-2018 (00:02:46)

DF2_COMBINED_06.60

273:16 Thank you for forwarding this. You write this,
273:17 Doctor; right? Thank you for forwarding this. We have
273:18 been aware of this paper for a while and knew it would
273:19 only be a matter of time before the activists pick it
273:20 up. I have some epi experts reviewing it. As soon as
273:21 I have that review, we will pull together a
273:22 backgrounder to use in response. Here is their bottom
273:23 line. How do we combat this? Did I read that
273:24 correctly?

EXHIBIT 453.1.5

274:1 A. Yes.

274:2 Q. And then you paste what appears to be a
274:3 portion of the article that was sent to you; right?

EXHIBIT 453.1.6

274:4 A. I don't remember what that was, where that
274:5 was from.

274:6 Q. Well, if you turn the page, read the
274:7 bottom line, it says, avoid carcinogenic herbicides in
274:8 foods. Do you see that?

EXHIBIT 453.2.1

274:9 A. Yes.

274:10 Q. And then you literally copy and pasted
274:11 that in there. Do you see that?

EXHIBIT 453.1.6

274:12 A. Yes.

274:13 Q. And the sentence that you want to combat

274:14 reads, avoid carcinogenic herbicides in foods by
274:15 supporting organic agriculture and on lawns by using
274:16 nontoxic land care strategies that rely on soil health,
274:17 not toxic herbicides. Do you see that?
274:18 A. That's what was written.
274:19 Q. Why would you want to combat that
274:20 sentence?
274:21 A. Well, first of all, in relationship to
274:22 glyphosate, it was not a carcinogen, and I think that's
274:23 really important that people understand that
274:24 herbicides -- dose makes the poison, so you have to
275:1 look at this that glyphosate was not carcinogenic. I
275:2 don't want people to be misled that all these
275:3 herbicides are carcinogenics and that everything that's
275:4 used out there is -- organic is nontoxic.
275:5 Q. You have a growing body of epidemiological
275:6 literature showing an association between glyphosate
275:7 exposure and non-Hodgkin's lymphoma, and this article
275:8 is advocating the support of organic agriculture and
275:9 nontoxic land care strategies. Why would you ever
275:10 combat that, Doctor?
275:11 A. Because again, we -- you have these
275:12 epidemiology studies, but they are not the proof, the
275:13 evidence that glyphosate is carcinogenic, and what
275:14 we're saying here is that they are misleading people
275:15 about whether the herbicides are carcinogenic or not.
275:16 You need to look at the data.
275:17 Q. And you --
275:18 A. And we wanted to get -- remember that
275:19 balance we talked about before? In this there isn't a
275:20 balance of the science that talks about how herbicides
275:21 are evaluated for safety and they've been approved for
275:22 use by regulatory agencies, and that's what we're
275:23 talking about, is having the balance of the science out
275:24 there.
276:1 Q. Doctor, maybe my eyesight's blurry here,
276:2 but you don't use the word balance at all. I think you
276:3 write, here is their bottom line. How do we combat
276:4 this? You don't say, how do we balance this, do you?
276:5 A. Well --

Page/Line	Source	ID
276:7 - 276:14	<p>Farmer, Donna 09-26-2018 (00:00:17)</p> <p>276:7 A. This is what they were saying here, and 276:8 how do we combat this is how do we -- I didn't use 276:9 that -- define that at that time, but that's what -- I 276:10 didn't put that as the definition, but that's what 276:11 we've been talking about all day, is that when we see 276:12 these things, we want to make sure that there's a lot 276:13 of information out there that is accurate about the 276:14 safety of these herbicides.</p>	DF2_COMBINED_06.61
277:19 - 278:2	<p>Farmer, Donna 09-26-2018 (00:00:18)</p> <p>277:19 Q. You said that you care about the safety of 277:20 the product. Why don't you work on glyphosate anymore? 277:21 A. People move on to new different jobs. I 277:22 have younger people come in and learn to take over 277:23 different parts, and I go to different -- just to have 277:24 an opportunity to do different things. 278:1 Q. What are you working on now? 278:2 A. I'm working on some seed treatments.</p>	DF2_COMBINED_06.199
400:19 - 402:12	<p>Farmer, Donna 09-27-2018 (00:01:28)</p> <p>400:19 Doctor, do you have a definition for 400:20 ghostwriting? 400:21 A. I do. 400:22 Q. And what is that? 400:23 A. If someone writes something and someone 400:24 else puts their name on it without ever contributing to 401:1 it or someone writes something -- kind of both sides of 401:2 this -- that someone had nothing to do with anything 401:3 and put their name on it and somebody wrote everything 401:4 and put their name on it, that would be ghostwriting. 401:5 Q. Would you also agree that a form of 401:6 ghostwriting is somebody else writing a portion of it 401:7 and not disclosing their involvement? 401:8 A. No. 401:9 Q. You don't consider that ghostwriting? 401:10 A. No, I gave you my definition of 401:11 ghostwriting. 401:12 Q. What would you call that? Deceptive 401:13 authorship? 401:14 A. I would call it editing. 401:15 Q. Editing. So if I were to prepare a paper</p>	DF2_COMBINED_06.62 clear

401:16 at school and somebody literally wrote paragraphs of
 401:17 that paper and I submitted that paper under my name,
 401:18 even though another person wrote portions of it, you'd
 401:19 agree that's unethical; right?

401:20 A. I am saying that I think you have to look
 401:21 at the contributions, so I think it's on a case-by-case
 401:22 basis, and so I gave you my definition of ghostwriting.

401:23 Q. I understand that, but I asked you if what
 401:24 I described to you is unethical. Do you agree that it
 402:1 is?

402:2 A. I don't know the circumstances and what
 402:3 the other person put in or what didn't put in, so I
 402:4 really can't respond to that.

402:5 Q. You have a PhD; right?

402:6 A. I do.

402:7 Q. So you've been through a lot of school, I
 402:8 assumed?

402:9 A. Uh-huh.

402:10 Q. You would never submit a paper with your
 402:11 name on it when some other person had written portions
 402:12 of it; right?

402:15 - 403:20

Farmer, Donna 09-27-2018 (00:00:59)

DF2_COMBINED_06.63

402:15 A. So you do understand in a lot of the
 402:16 scientific community that publications are put together
 402:17 by a variety of people in different areas, so in fact,
 402:18 if someone's writing something like on
 402:19 immunohistochemistry, which is not my area, but he's an
 402:20 coauthor in the paper, he would have written that
 402:21 portion of immunochemistry; right?

402:22 Q. (By Mr. Wisner) Sure.

402:23 A. And so there's a lot of contributions that
 402:24 go on that way.

403:1 Q. Sure. And when a person writes a portion
 403:2 like that, their name goes under the author line;
 403:3 right?

403:4 A. If it's a highly contributed part of it,
 403:5 yes.

403:6 Q. Okay. Great. All right. I'm going to
 403:7 talk to you about some papers that have been published
 403:8 that relate to glyphosate and Roundup over the last

Page/Line	Source	ID
	403:9 decade or so. All right? I want to start off with a 403:10 paper called Williams -- a paper by Dr. Williams, 403:11 Kroes, and Munro from 1999. Are you familiar with that 403:12 article?	
	403:13 A. Yes.	
	403:14 Q. I'm handing you a copy of it, Exhibit 46 403:15 to your deposition.	
	403:16 [Exhibit 46 marked for identification.]	
	403:17 Q. Does that appear to be a fair and accurate 403:18 copy of that article?	EXHIBIT 460.1.1
	403:19 A. Actually, it was published in 2000. It 403:20 was online in 1999.	
403:24 - 404:1	Farmer, Donna 09-27-2018 (00:00:04)	DF2_COMBINED_06.64
	403:24 Q. So this is the 2000 article. This seems 404:1 to be a fair and accurate copy of it; right?	
404:2 - 404:13	Farmer, Donna 09-27-2018 (00:00:25)	DF2_COMBINED_06.65
	404:2 A. Yes.	
	404:3 Q. And if you look at the front page here, it 404:4 lists the authors of the article, doesn't it?	
	404:5 A. Yes.	
	404:6 Q. And the authors state Gary Williams, 404:7 Robert Kroes, and Ian Munro; right?	
	404:8 A. Yes.	
	404:9 Q. And it states underneath their names their 404:10 various affiliations, both academic and I guess 404:11 professionally.	
	404:12 A. That's where they're employed and the 404:13 location of their employment.	
404:19 - 404:24	Farmer, Donna 09-27-2018 (00:00:17)	DF2_COMBINED_06.66
	404:19 Nowhere on this authorship line does it 404:20 state William Heydens?	
	404:21 A. Not on that authorship line.	
	404:22 Q. Isn't it true that Dr. Heydens 404:23 substantially edited and in fact wrote portions of this 404:24 manuscript?	
405:2 - 405:5	Farmer, Donna 09-27-2018 (00:00:04)	DF2_COMBINED_06.67
	405:2 A. Not to my knowledge.	
	405:3 Q. (By Mr. Wisner) I'm handing you Exhibit 405:4 47.	clear
	405:5 [Exhibit 47 marked for identification.]	

Page/Line	Source	ID
405:8 - 405:14	<p>Farmer, Donna 09-27-2018 (00:00:08)</p> <p>405:8 This is a series of e-mail exchanges.</p> <p>405:9 Do you see that, Doctor?</p> <p>405:10 A. Yes, I do.</p> <p>405:11 Q. And those are e-mail exchanges that you're</p> <p>405:12 actually involved in, at least at the end of it. Do</p> <p>405:13 you see that?</p> <p>405:14 A. Yes.</p>	<p>DF2_COMBINED_06.68</p> <p>EXHIBIT 314.1.1</p>
405:18 - 405:21	<p>Farmer, Donna 09-27-2018 (00:00:06)</p> <p>405:18 Q. (By Mr. Wisner) These e-mails were --</p> <p>405:19 between you and Dr. Heydens, they were exchanged in the</p> <p>405:20 regular course of your business?</p> <p>405:21 A. Yes.</p>	DF2_COMBINED_06.69
405:24 - 406:4	<p>Farmer, Donna 09-27-2018 (00:00:14)</p> <p>405:24 Q. (By Mr. Wisner) As you see here, there</p> <p>406:1 appears to be conversations amongst the various authors</p> <p>406:2 and Dr. Heydens in the earlier part of the e-mail</p> <p>406:3 exchange. Do you see that?</p> <p>406:4 A. Yes, let me go through this a little bit.</p>	DF2_COMBINED_06.70
406:8 - 407:17	<p>Farmer, Donna 09-27-2018 (00:01:33)</p> <p>406:8 Q. (By Mr. Wisner) So in the</p> <p>406:9 e-mail from Douglas Bryant at Cantox to Lisa Drake</p> <p>406:10 including Bill Heydens. Do you see that?</p> <p>406:11 A. Yes.</p> <p>406:12 Q. And in the fourth paragraph in that</p> <p>406:13 e-mail, it says Bill Heydens, Donna Farmer, Kathy Carr,</p> <p>406:14 and all those at Monsanto have been helping get the</p> <p>406:15 document through QA. Is that quality assurance?</p> <p>406:16 A. Yes, it is.</p> <p>406:17 Q. There appear to be plenty of small errors,</p> <p>406:18 but as yet there don't seem to be any great problems</p> <p>406:19 threatening completion. Bill has proposed completing</p> <p>406:20 the QA changes, then sending the edited form of the</p> <p>406:21 manuscript back to Cantox to incorporate final comments</p> <p>406:22 by the reviewers and send it off. Did I read that</p> <p>406:23 right?</p> <p>406:24 A. Yes, you did read it.</p> <p>407:1 Q. And then Bill or Dr. Heydens responds,</p> <p>407:2 all, a clarification. There is one step missing. I</p> <p>407:3 will review the final manuscript with the reviewers,</p>	<p>DF2_COMBINED_06.71</p> <p>EXHIBIT 314.1.2</p> <p>EXHIBIT 314.1.3</p>

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	407:4 comments incorporated, in revision mode so I can find 407:5 them easily before it is sent to the publisher. Do you 407:6 see that? 407:7 A. Yes.	EXHIBIT 314.1.5
	407:8 Q. And then Dr. Heydens then forwards you an 407:9 e-mail and he makes a comment to you; right? 407:10 A. Yes.	
	407:11 Q. And he goes, FYI, and Dougie thinks I 407:12 would actually leave the final editing to him 407:13 unsupervised, dot, dot, dot. That's what it says? 407:14 A. That's what written there.	
	407:15 Q. So apparently Dr. Heydens was ensuring 407:16 that he had the final say before it got submitted to 407:17 the publisher for publication?	
408:20 - 408:7	Farmer, Donna 09-27-2018 (00:00:23)	DF2_COMBINED_06.72
	408:20 A. That's -- I don't know what Bill meant by 408:21 that, but I do know that the conclusions of this 408:22 publication were those of the authors that are noted on 408:23 the manuscript.	
	408:24 Q. (By Mr. Wisner) As approved by Bill 408:25 Heydens; correct? 408:26 A. No. No.	
	408:27 Q. That's what it says right here? 408:28 A. No.	EXHIBIT 314.1.6
	408:29 Q. I mean, it says that. It says, I will 408:30 review the final manuscript with the reviewers. That's 408:31 what he says; right?	DF2_COMBINED_06.73
408:9 - 408:14	Farmer, Donna 09-27-2018 (00:00:10)	
	408:9 A. Could you repeat your question? I missed 408:10 the -- 408:11 Q. (By Mr. Wisner) Sure. That's what he 408:12 says. He says, I will review the final manuscript with 408:13 the reviewers' comments incorporated before it is sent 408:14 to the publisher. That's what he wrote; right?	
408:17 - 409:8	Farmer, Donna 09-27-2018 (00:00:37)	DF2_COMBINED_06.74
	408:17 A. So I think he's coming back again that 408:18 he's going to review it one more time to make sure all 408:19 the QA changes and all the reviewers' comments have 408:20 been incorporated.	
	408:21 Q. (By Mr. Wisner) And he tells you, and	EXHIBIT 314.1.5

Page/Line	Source	ID
	408:22 Dougie thinks I would actually leave the final editing 408:23 to him unsupervised. That's what he says to you? 408:24 A. That's what he says, but the final editing 409:1 could be anything from a number being corrected to a 409:2 page number being connected. It's not talking anything 409:3 about the conclusions of the publication. 409:4 Q. Well, that e-mail he sent to you -- that 409:5 was in June 1999; right? 409:6 A. Yes. 409:7 Q. I'm handing you another document, Exhibit 409:8 48 to your deposition.	clear
410:15 - 410:17	Farmer, Donna 09-27-2018 (00:00:03) 410:15 Q. (By Mr. Wisner) This 410:16 is an e-mail exchange. You're on it. Do you see that? 410:17 A. Yes.	DF2_COMBINED_06.75 EXHIBIT 461.1.1
411:3 - 411:14	Farmer, Donna 09-27-2018 (00:00:29) 411:3 Q. And this e-mail was created in the regular 411:4 course of your work at Monsanto? 411:5 A. Yes. 411:6 Q. And it says -- it's from Bill Heydens. He 411:7 says, Ian, finally, attached are the text, tables, and 411:8 references. I sprouted several new gray hairs during 411:9 the writing of this thing, but as best I can tell at 411:10 least they have stayed attached to my head. Do you see 411:11 that? 411:12 A. Yes. 411:13 Q. And if you turn the page, you see the 411:14 attachment.	DF2_COMBINED_06.76 EXHIBIT 461.1.2
413:4 - 413:9	Farmer, Donna 09-27-2018 (00:00:08) 413:4 Q. And then do you see the title of that 413:5 study right there? 413:6 A. Yes. 413:7 Q. That's the same title of the Williams 413:8 article that was ultimately published? 413:9 A. I believe so.	DF2_COMBINED_06.77
413:24 - 414:6	Farmer, Donna 09-27-2018 (00:00:11) 413:24 Q. (By Mr. Wisner) Let's look at 414:1 Exhibit 49. 414:2 [Exhibit 49 marked for identification.] 414:3 Q. This is another e-mail. This is another	clear EXHIBIT 462.1.1

Page/Line	Source	ID
414:15 - 415:6	<p>414:4 e-mail. It's from Dr. Heydens. It's actually to you. 414:5 Do you see that? 414:6 A. Yes. Farmer, Donna 09-27-2018 (00:00:39)</p>	DF2_COMBINED_06.79
	<p>414:15 Q. And these e-mails were exchanged in the 414:16 regular course of your business; correct? 414:17 A. Yes. 414:18 Q. And it says right here -- you have the 414:19 first e-mails with Douglas Bryant. I believe that's 414:20 who Dr. Heydens called Dougie in that previous e-mail. 414:21 Do you recall that?</p>	EXHIBIT 462.1.2
	<p>414:22 A. That was from Bill Heydens's e-mail. 414:23 Q. Yeah. All right. And this is an e-mail 414:24 to Bill, and it says, attached is the revised draft 415:1 that is being sent to Dr. Gary Williams and Dr. Robert 415:2 Kroes and Dr. Ian Munro today. This draft includes all 415:3 the changes that were discussed today during calls last 415:4 week. Please check it over to make sure I have been 415:5 thorough. Do you see that?</p>	EXHIBIT 462.1.3
415:24 - 416:16	<p>415:6 A. Yes. Farmer, Donna 09-27-2018 (00:00:43) 415:24 Q. (By Mr. Wisner) Dr. Heydens 416:1 writes to you and others, FYI, in case you want to see 416:2 how it ended up -- hopefully, that is. I'll strangle 416:3 Kroes or Williams if they ask for any rewrites. Bill. 416:4 Do you see that? 416:5 A. I see it written there, yes. 416:6 Q. So this is -- again, this is in September 416:7 of 1999. Do you see that? 416:8 A. Yes. 416:9 Q. And as we know from the Williams article, 416:10 it wasn't submitted for publication until December of 416:11 1999? We saw that earlier on the publication? 416:12 A. Yes. 416:13 Q. So this is before it's even submitted to 416:14 the journal and Bill Heydens is saying that he's 416:15 willing to strangle Kroes or Williams if they want to 416:16 rewrite it any further?</p>	DF2_COMBINED_06.80
416:19 - 416:19	<p>Farmer, Donna 09-27-2018 (00:00:00) 416:19 A. That's what written there.</p>	DF2_COMBINED_06.81

Page/Line	Source	ID
417:3 - 417:5	Farmer, Donna 09-27-2018 (00:00:05) 417:3 Q. (By Mr. Wisner) Isn't it true that Dr. 417:4 Heydens had the final say of what would be published 417:5 and what would not?	DF2_COMBINED_06.82 clear
417:10 - 417:10	Farmer, Donna 09-27-2018 (00:00:01) 417:10 A. Absolutely not.	DF2_COMBINED_06.83
418:23 - 418:24	Farmer, Donna 09-27-2018 (00:00:03) 418:23 A. In the back, Bill and the rest of us are 418:24 acknowledged for our contributions.	DF2_COMBINED_06.84
419:18 - 419:20	Farmer, Donna 09-27-2018 (00:00:05) 419:18 Let me show you what Bill 419:19 Heydens said 15 years later. I'm handing you Exhibit 419:20 50.	DF2_COMBINED_06.85
420:9 - 420:10	Farmer, Donna 09-27-2018 (00:00:02) 420:9 Q. (By Mr. Wisner) Doctor, you've seen this 420:10 e-mail before; right?	DF2_COMBINED_06.86 EXHIBIT 463.1.1
420:13 - 420:13	Farmer, Donna 09-27-2018 (00:00:01) 420:13 A. I don't remember seeing this one.	DF2_COMBINED_06.87
420:14 - 420:18	Farmer, Donna 09-27-2018 (00:00:11) 420:14 Q. (By Mr. Wisner) Well, you were involved 420:15 in the e-mail exchanges, at least for the -- not the 420:16 last one, but at least the ones starting from Saltmiras 420:17 down? Do you see that? 420:18 A. I'm trying to go back. All right.	DF2_COMBINED_06.88
420:19 - 420:22	Farmer, Donna 09-27-2018 (00:00:07) 420:19 Q. All right. So there's an e-mail exchange, 420:20 and these e-mail exchanges were done in the regular 420:21 course of Monsanto's business; correct? 420:22 A. Yes.	DF2_COMBINED_06.89
421:1 - 421:9	Farmer, Donna 09-27-2018 (00:00:16) 421:1 Q. (By Mr. Wisner) I'd like to draw your 421:2 attention to, at the bottom of the first page, an 421:3 e-mail from William Heydens to yourself dated February 421:4 19th, 2015. Do you see that? 421:5 A. Yes. 421:6 Q. And this is an e-mail, Doctor, that's 15 421:7 years after the Williams article had been published; 421:8 right? 421:9 A. Yes.	DF2_COMBINED_06.90 EXHIBIT 463.1.2
422:12 - 422:14	Farmer, Donna 09-27-2018 (00:00:09)	DF2_COMBINED_06.91

Page/Line	Source	ID
422:15 - 422:20	<p>422:12 A. less expensive, more palatable option 422:13 might be to involve experts only for the area of 422:14 contention, epidemiology, and possibly MOA, Farmer, Donna 09-27-2018 (00:00:10)</p>	DF2_COMBINED_06.92
422:22 - 423:4	<p>422:15 and we 422:16 ghostwrite the exposure tox and genotox sections. Did 422:17 I read that correctly? 422:18 A. You had two errors, but -- 422:19 Q. Was I generally correct? 422:20 A. Generally -- Farmer, Donna 09-27-2018 (00:00:20)</p>	DF2_COMBINED_06.93 EXHIBIT 463.3.2
423:7 - 423:15	<p>422:22 Q. (By Mr. Wisner) He goes on, an option 422:23 would be to add Greim and Kier or Kirkland to have 422:24 their names on the publication, but we would be keeping 423:1 the cost down by us doing the writing, and they would 423:2 just edit and sign their names, so to speak. Did I 423:3 write that -- read that right? 423:4 A. Yes. Farmer, Donna 09-27-2018 (00:00:32)</p>	DF2_COMBINED_06.94
423:19 - 423:21	<p>423:7 He writes, recall, that is how we handled 423:8 Williams, Kroes, and Munro, 2000. Do you see that? 423:9 A. I see that written there. 423:10 Q. So the documents at the time it was 423:11 published suggest that Bill Heydens believed he had the 423:12 final say of what would be in the published version. 423:13 We have Bill Heydens saying 15 years later that 423:14 Monsanto actually ghostwrote that article, and are you 423:15 asking the jury to just think all of this is untrue? Farmer, Donna 09-27-2018 (00:00:04)</p>	DF2_COMBINED_06.95
423:22 - 423:23	<p>423:19 A. Could you -- I kind of got lost in 423:20 everything that you did. Could you repeat that for me? 423:21 MR. WISNER: Please repeat the question. Farmer, Donna 09-27-2018 (00:00:16)</p>	DF2_COMBINED_06.96
424:1 - 424:13	<p>423:22 [The requested portion of the transcript 423:23 was read by the reporter.] Farmer, Donna 09-27-2018 (00:00:39) 424:1 A. So let me start with the first one. So 424:2 Bill Heydens, as we said, did not have final say on 424:3 that Williams and Kroes -- that Williams, et al, in 424:4 2000. That was definitely -- those authors had the</p>	DF2_COMBINED_06.97

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424:5 final say on that. The second one is I don't believe

424:6 that this sentence up here is directly stating this.

424:7 This is talking about a future activity and it's not

424:8 connected with the final sentence.

424:9 And we know, as we talked about here, that

424:10 Bill Heydens did not ghostwrite the Williams, et al,

424:11 paper and we know that there were no future

424:12 publications that were ghostwritten, so I'm not sure

424:13 that these are connected.

427:5 - 427:15

Farmer, Donna 09-27-2018 (00:00:38)

DF2_COMBINED_06.98

427:5 It reads, a less

427:6 expensive/more palatable approach might be to involve

427:7 experts only for the areas of contention, and it

427:8 describes those areas. And we ghostwrite the exposure

427:9 tox and genotox sections.

427:10 An option would be to add Greim and Kier

427:11 or Kirkland to have their names on this publication,

427:12 but we would be keeping the costs down by us doing the

427:13 writing, and they would just edit and sign their names,

427:14 so to speak. Recall, that is how we handled Williams,

427:15 Kroes, and Munro, 2000. That's what he wrote?

EXHIBIT 463.3.3

427:18 - 427:19

Farmer, Donna 09-27-2018 (00:00:05)

DF2_COMBINED_06.99

427:18 A. That's what was written there, but that's

427:19 not how I interpret what is written there.

435:3 - 435:7

Farmer, Donna 09-27-2018 (00:00:11)

DF2_COMBINED_06.100

435:3 Q. (By Mr. Wisner) Well, you were commended

435:4 by the CEO of Monsanto for your work in getting the

435:5 Williams article published; correct?

435:6 A. I don't remember that.

435:7 Q. I'm handing you Exhibit 51.

clear

EXHIBIT 464, REDACTED 1.1.1

435:12 - 436:1

Farmer, Donna 09-27-2018 (00:00:26)

DF2_COMBINED_06.101

435:12 Q. And you actually are a recipient on this

435:13 e-mail? If you look down on the CC line, you'll see

435:14 Bill Heydens and yourself?

435:15 A. Yes.

435:16 Q. And this e-mail was sent from Hugh Grant.

435:17 Do you see that?

435:18 A. Yes.

435:19 Q. At the time this e-mail was sent, he was

435:20 the CEO of Monsanto?

EXHIBIT 464, REDACTED 1.1.2

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435:21 A. I believe so.

435:22 Q. And if you look at the -- this e-mail was

435:23 sent as part of Monsanto's regular course of business;

435:24 correct?

436:1 A. Yes.

436:18 - 436:22

Farmer, Donna 09-27-2018 (00:00:08)

DF2_COMBINED_06.102

436:18 Q. And it says, the abstract for -- and it

436:19 says the title of the article -- Williams, Kroes, and

436:20 Munro, is now posted on the internet at the following

436:21 link. Do you see that?

436:22 A. Yes.

EXHIBIT 464_REDACTED 1.2.1

437:5 - 438:1

Farmer, Donna 09-27-2018 (00:00:50)

DF2_COMBINED_06.103

437:5 Q. All right. So you see that this was an

437:6 e-mail distributing the Williams article that had just

437:7 been published? Do you see that?

437:8 A. Yes.

437:9 Q. And then in response to this e-mail,

437:10 there's an e-mail from Lisa Drake. Do you see that?

437:11 A. Yes.

EXHIBIT 464_REDACTED 1.1.3

437:12 Q. Then she changes the title of the e-mail

437:13 subject line to, kudos on publication of Roundup tox

437:14 paper, now posted on the internet. Do you see that?

437:15 A. Yes.

437:16 Q. So she's giving you and Bill Heydens and

437:17 others kudos?

437:18 A. That's what her title says.

437:19 Q. Yeah. That's what she's doing. And she

437:20 acknowledges both -- you for hard work over three years

437:21 of data collection, writing, review, and relationship

437:22 building with the paper's authors; correct?

437:23 A. Yes.

437:24 Q. And then she goes on to explain how it's

438:1 going to be used by the company; right?

EXHIBIT 464_REDACTED 1.2.2

438:2 - 438:9

Farmer, Donna 09-27-2018 (00:00:19)

DF2_COMBINED_06.104

438:2 A. Well, I think another point I'd like to

438:3 point out in the next sentence is this is the

438:4 stewardship result. And remember we talked about that

438:5 we had this stewardship program, and one of the ones

438:6 was to do publications, to work with outside experts,

438:7 to do data, and so this is another one of our

EXHIBIT 464_REDACTED 1.2.4

Page/Line	Source	ID
438:19 - 439:12	<p>438:8 stewardship initiatives that she's talking about in 438:9 here.</p> <p>Farmer, Donna 09-27-2018 (00:00:44)</p> <p>438:19 Q. She writes --</p> <p>438:20 A. But again, that's an important part of our 438:21 stewardship program.</p> <p>438:22 Q. Okay. Well, here's what she writes, and 438:23 she says both documents -- do you see that paragraph? 438:24 A. Yes.</p> <p>439:1 Q. And she's talking about another article 439:2 that was being published as well around that time by 439:3 Giesy; right? 439:4 A. Yes.</p> <p>439:5 Q. She goes, both documents meant to be 439:6 utilized by the next tier of third-party scientists for 439:7 continued Roundup FTO were written by internationally 439:8 acclaimed experts in their respective fields of 439:9 science. FTO -- that's freedom to operate; right? 439:10 A. That's what FTO stands for, yes.</p> <p>439:11 Q. So this document was going to be used to 439:12 facilitate continued Roundup freedom to operate?</p>	DF2_COMBINED_06.105 EXHIBIT 464_REDACTED 1.2.5
439:13 - 439:20	<p>Farmer, Donna 09-27-2018 (00:00:19)</p> <p>439:13 A. Well, as we talked about yesterday, what 439:14 we talked about is freedom to operate is getting all 439:15 the information out there so people can have it at 439:16 their hand to make their decisions on how do you -- 439:17 they want to buy our product or not, so this is another 439:18 one of those publications that we talked about in our 439:19 stewardship program to be used and to getting 439:20 information out about the safety of our products.</p>	DF2_COMBINED_06.106
440:4 - 440:4	<p>Farmer, Donna 09-27-2018 (00:00:00)</p> <p>440:4 A. Yes.</p>	DF2_COMBINED_06.107
441:7 - 441:17	<p>Farmer, Donna 09-27-2018 (00:00:29)</p> <p>441:7 Q. Then she says, I am so proud to have been 441:8 part of this team. What a significant accomplishment. 441:9 Congratulations to all. Do you see that? 441:10 A. I see that written there.</p> <p>441:11 Q. And then she finally concludes, please 441:12 pass this note on to others in the ag organization who 441:13 can utilize these references in defending or building</p>	DF2_COMBINED_06.108 EXHIBIT 464_REDACTED 1.2.6

Page/Line	Source	ID
441:14 Roundup sales. Do you see that?		
441:15 A. I see that written there.		
441:16 Q. That's what FTO is really about, isn't it,		
441:17 Doctor -- defending and building Roundup sales?		
441:20 - 442:4	Farmer, Donna 09-27-2018 (00:00:23)	DF2_COMBINED_06.109
441:20 A. Again, I told you what my definition of		
441:21 FTO is, and I don't see that that's defined over here		
441:22 as FTO. So I told you my FTO was about getting the		
441:23 information out, and we got the science out for people		
441:24 to see for themselves.		
442:1 Q. (By Mr. Wisner) And clearly Monsanto		
442:2 intends to use this Williams article to defend or build		
442:3 Roundup sales?		
442:4 A. Well, again --		
442:6 - 442:19	Farmer, Donna 09-27-2018 (00:00:31)	DF2_COMBINED_06.110
442:6 A. -- what we talked about and used the word		
442:7 yesterday, defend, is when there are other reports out		
442:8 there, we want all the balanced science out there, and		
442:9 this was the -- all of the database on Monsanto's		
442:10 glyphosate and Roundup, both from the two publications		
442:11 for people to use to have discussions with the public.		
442:12 Q. (By Mr. Wisner) Hold on, Doctor. It		
442:13 says, in defending or building Roundup sales. It's not		
442:14 talking about science. It's talking about making		
442:15 money; right, Doctor?		
442:16 A. On that side -- I mean, Lisa Drake wrote		
442:17 that, but my role in all of this, again, is to make		
442:18 sure that we got the science and got the science out		
442:19 there.		
443:8 - 443:18	Farmer, Donna 09-27-2018 (00:00:37)	DF2_COMBINED_06.111
443:8 Q. (By Mr. Wisner) So Mr. Grant, the CEO of		
443:9 Monsanto -- he responds to all of you in this glowing		
443:10 commendation from Ms. Drake, and he states, this is		
443:11 very good work. Well done to the team. Please keep me		
443:12 in the loop as you build the PR info to go with it.		
443:13 Thanks again. Hugh. Read that right?		
443:14 A. Yes.		
443:15 Q. So the CEO of Monsanto doesn't seem to be		
443:16 interested in the science or the safety or any of those		
443:17 things. He wants to know how he can help with the PR;		

EXHIBIT 464_REDACTED 1.1.4

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443:21 - 443:24	443:18 right? Farmer, Donna 09-27-2018 (00:00:10)	DF2_COMBINED_06.112
	443:21 A. I don't know. That was Hugh's words.	clear
	443:22 Q. (By Mr. Wisner) All right, Doctor. Let's	
	443:23 move on to another document. I'm handing you Exhibit	
	443:24 52 to your deposition.	
444:8 - 446:18	Farmer, Donna 09-27-2018 (00:02:35)	DF2_COMBINED_06.113
	444:8 Q. (By Mr. Wisner) Have you seen this	EXHIBIT 465.1.1
	444:9 document before, Doctor?	
	444:10 A. Yes, I have.	
	444:11 Q. This is an article that deals with	
	444:12 glyphosate; correct?	
	444:13 A. Not just glyphosate.	
	444:14 Q. Not just glyphosate?	
	444:15 A. No.	
	444:16 Q. The title of it says, developmental and	
	444:17 reproductive outcomes in humans and animals after	
	444:18 glyphosate exposure, a critical analysis.	
	444:19 A. I know. But there are other -- they talk	
	444:20 about formulated products and surfactants and other	
	444:21 things in here.	
	444:22 Q. Oh, I'm sorry. So it's glyphosate or	
	444:23 glyphosate-based formulations?	
	444:24 A. Well, it's their title, so --	
	445:1 Q. Did you have any role in this document?	clear
	445:2 A. I was involved in working originally to	
	445:3 get this document done. Yes, I was.	
	445:4 Q. And what role did you have?	
	445:5 A. Contacting Dr. Williams and Dr. DeSesso to	
	445:6 talk about doing a review on this, and at one point I	
	445:7 was actually going to be an author on it, but time ran	
	445:8 out on me, and so Dr. Williams and Dr. DeSesso went	
	445:9 ahead and continued. I provided -- if they needed some	
	445:10 reports, we got the reports to them -- things like	
	445:11 that.	
	445:12 Q. Did you write any of it?	
	445:13 A. I did some minor editing, yes.	
	445:14 Q. Minor editing? Did you red-line it?	
	445:15 A. I don't know -- well, I think it was	
	445:16 more -- I don't know. If you can find me -- I know I	

445:17 did some minor things, but if you have a draft of it,
 445:18 I'd be happy to show you what I contributed.
 445:19 Q. Well, let's look at what it does say about
 445:20 your contribution to this article, if any. If you look
 445:21 at the bottom of Page 39 in small font on the bottom.
 445:22 It says, the authors acknowledge the Monsanto Company
 445:23 for funding and for providing its unpublished
 445:24 glyphosate and surfactant toxicity study reports. Do
 446:1 you see that?

EXHIBIT 465.4.1

446:2 A. That's what I said, yes.

446:3 Q. Doesn't say anything about you making
 446:4 edits, red-lining. It doesn't even state your name at
 446:5 all, does it?

446:6 A. Again, what I contributed to this actually
 446:7 was very minor. It didn't rise to the level of being
 446:8 considered an author, and they were minor
 446:9 contributions. Just some edits along the way to
 446:10 provide more information for them.

446:11 Q. But your name is not on there; right?

446:12 A. Clearly it says that Monsanto Company
 446:13 helped them, and I did very minor contributions to
 446:14 this, not that would rise to the level of an author.

446:15 Q. It actually says you provide -- that
 446:16 Monsanto provided funding and unpublished study
 446:17 reports. It doesn't say anything about Monsanto
 446:18 writing any of it; right?

446:21 - 448:9

Farmer, Donna 09-27-2018 (00:01:11)

DF2_COMBINED_06.114

446:21 A. What I said is I did provide some edits,
 446:22 and if you would get a copy of the draft version, we
 446:23 could go over each of the edits that I did. I'd be
 446:24 happy to do that with you.

447:1 Q. (By Mr. Wisner) I'm handing you Exhibit
 447:2 53.

clear

447:3 [Exhibit 53 marked for identification.]

447:4 Q. Do you see this is a document, MONGLY --
 447:5 Bates-numbered MONGLY00919381? Do you see that?

447:6 A. Yes.

447:7 Q. And this is an e-mail from you to John
 447:8 "DeSeyo." Do you see that?

EXHIBIT 466.1.1

447:9 A. DeSesso.

447:10 Q. DeSesso. I'm sorry. Do you see that?

447:11 A. Yes.

447:12 Q. And it's first draft?

447:13 A. Yes --

447:14 Q. First half -- sorry. First half. That's

447:15 what it says; right?

447:16 A. Yes.

447:17 Q. And this is an e-mail you sent; right?

447:18 A. Yes.

447:19 Q. And this is a document you sent as part of

447:20 your work at Monsanto?

447:21 A. Yes.

447:22 Q. So if we turn the page, we actually see on

447:23 the -- turn the page.

447:24 A. Uh-huh.

448:1 Q. We actually see that there's a list of

EXHIBIT 466.3.1

448:2 authors. Right?

448:3 A. Yes. Uh-huh.

448:4 Q. And we have Williams, Watson, and DeSesso;

448:5 right?

448:6 A. Yes.

448:7 Q. Did Watson ever make it onto the

448:8 publication? She did; right?

448:9 A. Yes, I believe.

448:12 - 448:20

Farmer, Donna 09-27-2018 (00:00:23)

DF2_COMBINED_06.115

448:12 Q. (By Mr. Wisner) And as you can see on

448:13 this page, Doctor, ending in Bates Number 440, your

448:14 name and your affiliation with Monsanto are actually

448:15 red-lined out of it as an author on the paper; right?

448:16 A. Just as I had said, yes.

448:17 Q. And if we go through here, we see comments

448:18 that you've made and additions you've actually written

448:19 into the paper, don't we?

448:20 A. Yes.

448:22 - 449:2

Farmer, Donna 09-27-2018 (00:00:09)

DF2_COMBINED_06.116

448:22 Q. (By Mr. Wisner) And in fact, if we turn

448:23 to the page ending in 401, there's a sentence in there.

448:24 There is no single-study product on the market today.

449:1 Do you see that?

449:2 A. Yes.

EXHIBIT 466.4.1

Page/Line	Source	ID
449:3 - 449:18	<p>Farmer, Donna 09-27-2018 (00:00:35)</p> <p>449:3 Q. That's your addition; right?</p> <p>449:4 A. Well, and I think, again, if you look at</p> <p>449:5 this, this is not talking about any of the results or</p> <p>449:6 the conclusion. This is just helping them understand</p> <p>449:7 that there is no such thing as a -- one single Roundup</p> <p>449:8 formulation anymore.</p> <p>449:9 Q. I don't really want to get into the</p> <p>449:10 substance. I just want to validate that you wrote</p> <p>449:11 these things. You wrote that paragraph under the</p> <p>449:12 introduction, glyphosate acid is typically -- you see</p> <p>449:13 that?</p> <p>449:14 A. Again, I think it's important that we do</p> <p>449:15 take the context, because Dr. Williams and Dr. DeSesso</p> <p>449:16 are not familiar with the constituents of the product,</p> <p>449:17 so the minor edits that I did was to help give a little</p> <p>449:18 bit of context to the formulated products.</p>	DF2_COMBINED_06.117
449:19 - 449:22	<p>Farmer, Donna 09-27-2018 (00:00:09)</p> <p>449:19 Q. So you wrote that paragraph; correct?</p> <p>449:20 A. It's inserted about the commercial</p> <p>449:21 products, what they consist of in terms of salts,</p> <p>449:22 surfactant systems, and water.</p>	DF2_COMBINED_06.118
453:4 - 453:12	<p>Farmer, Donna 09-27-2018 (00:00:14)</p> <p>453:4 Q. (By Mr. Wisner) So I'm going to hand you</p> <p>453:5 another document, Exhibit 54 to your deposition.</p> <p>453:6 [Exhibit 54 marked for identification.]</p> <p>453:7 Q. It's another e-mail from you. It's to Dr.</p> <p>453:8 Williams. Do you see that, Doctor?</p> <p>453:9 A. Uh-huh.</p> <p>453:10 Q. And this is the second half of your edits;</p> <p>453:11 right?</p> <p>453:12 A. Uh-huh. Uh-huh.</p>	DF2_COMBINED_06.119
457:16 - 458:2	<p>Farmer, Donna 09-27-2018 (00:00:17)</p> <p>457:16 Q. So</p> <p>457:17 Doctor, I've handed you an exhibit that contains a</p> <p>457:18 series of e-mails with an attachment; is that right?</p> <p>457:19 A. Yes.</p> <p>457:20 Q. And these e-mails were sent between you</p> <p>457:21 and various authors of the Amy Williams article from</p> <p>457:22 2012?</p>	DF2_COMBINED_06.120

457:23 A. Yes.

457:24 Q. And this -- and you sent these e-mail as
458:1 part of your work at Monsanto; correct?

458:2 A. Yes.

458:5 - 459:23

Farmer, Donna 09-27-2018 (00:01:39)

DF2_COMBINED_06.121

clear

458:5 Q. (By Mr. Wisner) Now Doctor, in these
458:6 e-mail exchanges you and the authors are discussing
458:7 various edits and changes to the manuscript; right?

458:8 A. Yes.

458:9 Q. And after you had sent the original edits
458:10 to the first 46 pages there was some discussion with
458:11 the authors; right?

458:12 A. Yes.

458:13 Q. Now, Doctor, I want to check with you on
458:14 something. Is it your testimony that in these original
458:15 46 pages of edits you didn't make any substantial edits
458:16 or contributions?

458:17 A. That was my recollection.

458:18 Q. Well, I'd like to turn your attention to
458:19 the Bates ending 331. Do you see that?

458:20 A. Yes.

458:21 Q. And this is an e-mail from Dr. Amy
458:22 Williams to yourself dated November 19th, 2010;
458:23 correct?

458:24 A. Yes.

459:1 Q. And it's regarding the first half, second
459:2 reply; right?

459:3 A. Yes.

459:4 Q. And what she says to you is Donna, you
459:5 have added significant text to the document with regard
459:6 to the following references. Do you see that?

459:7 A. Yes.

459:8 Q. And then she lists all these references of
459:9 stuff you added to the study, to the paper; right?

459:10 A. Yes.

459:11 Q. And then she goes on to say, unless
459:12 someone from Monsanto plans to be listed as an author,
459:13 we need to see these references in order to verify that
459:14 we are in agreement with the newly added text. Do you
459:15 see that?

EXHIBIT 467.8.1

EXHIBIT 467.8.2

EXHIBIT 467.9.1

Page/Line

Source

ID

459:16 A. Yes.

459:17 Q. As such, could you please -- could you
459:18 forward these -- sorry. As such, could you forward
459:19 these papers to us. Do you see that?

459:20 A. Yes.

459:21 Q. So at least according to the lead author
459:22 on the paper, Dr. Amy Williams, she felt that your
459:23 contributions were considerable; right?

EXHIBIT 467.8.2

460:1 - 460:3

Farmer, Donna 09-27-2018 (00:00:04)

DF2_COMBINED_06.122

460:1 A. She didn't say considerable.

460:2 Q. (By Mr. Wisner) Significant?

460:3 A. She said significant.

461:5 - 461:12

Farmer, Donna 09-27-2018 (00:00:18)

DF2_COMBINED_06.123

461:5 A. Well, it appears that I did make some
461:6 contributions, but as you see, they very clearly went
461:7 back and asked for every single one of these references
461:8 to make sure it was consistent with their
461:9 interpretation of the studies, and again, I didn't felt
461:10 that I rose to the level of being an author, and you
461:11 can see they did very thorough work in checking out the
461:12 details.

clear

462:10 - 463:2

Farmer, Donna 09-27-2018 (00:00:46)

DF2_COMBINED_06.124

462:10 Nowhere in the published
462:11 report does it ever say that you added significant text
462:12 contributions?

462:13 A. And I would say to you in the end I didn't
462:14 because they verified whatever was put in there by
462:15 their own review of the studies.

462:16 Q. Wait, so if someone else writes something
462:17 so long as you agree with it it's okay?

462:18 A. Again, I don't believe that what I put in
462:19 there rose to the level of significance to be an
462:20 author. They went back and looked at everything that
462:21 was put in there and therefore then verified what was
462:22 said is what they would have put in there as well.

462:23 Q. So when you were in school and you had to
462:24 write a report for a professor, would you just copy and
463:1 paste things written by other people into your report
463:2 and say well, it's okay because I agree with them?

463:5 - 463:5

Farmer, Donna 09-27-2018 (00:00:01)

DF2_COMBINED_06.125

Page/Line	Source	ID
465:6 - 465:14	463:5 A. No, and that's not what happened here. Farmer, Donna 09-27-2018 (00:00:16)	DF2_COMBINED_06.126
	465:6 Q. (By Mr. Wisner) So Doctor, yesterday you 465:7 testified that you did not write any of the Mink 465:8 glyphosate epi review; correct?	
	465:9 A. I didn't write the epi review, no.	
	465:10 Q. Didn't write any of it is actually what I 465:11 asked you?	
	465:12 A. I didn't write the epi review.	
	465:13 Q. Did you write any portion of it	
	465:14 whatsoever?	
465:17 - 466:1	Farmer, Donna 09-27-2018 (00:00:20)	DF2_COMBINED_06.127
	465:17 A. I may have done an edit, but I didn't 465:18 write it.	
	465:19 Q. (By Mr. Wisner) I'm handing you Exhibit 465:20 55 to your deposition.	
	465:21 [Exhibit 55 marked for identification.]	
	465:22 Q. As you can see, this is an e-mail	EXHIBIT 468.1.1
	465:23 exchange. The top one is from Dr. Goldstein to	
	465:24 yourself. Do you see that?	
	466:1 A. Yes.	
466:4 - 466:9	Farmer, Donna 09-27-2018 (00:00:10)	DF2_COMBINED_06.128
	466:4 Q. And as you can see here, Doctor, these are 466:5 a series of e-mails that you are a participant on?	
	466:6 A. Yes.	
	466:7 Q. And I -- these e-mails were conducted in	
	466:8 the regular course of your work?	
	466:9 A. Yeah, let me check. Yes.	
466:10 - 466:17	Farmer, Donna 09-27-2018 (00:00:24)	DF2_COMBINED_06.129
	466:10 Q. And as you can see, attached to this is a	EXHIBIT 468.3.1
	466:11 draft with edits made to the article conducted by and	
	466:12 ultimately published as an article by Mink. Do you see	
	466:13 that?	
	466:14 A. Yes.	
	466:15 Q. And as you can see in the attachment there	
	466:16 is a whole host of line edits that are made to the	
	466:17 document?	
466:20 - 467:13	Farmer, Donna 09-27-2018 (00:00:54)	DF2_COMBINED_06.130
	466:20 A. I see that there are edits.	
	466:21 Q. (By Mr. Wisner) For example, if you look	

466:22 on page ending in 829, there is a sentence added.

EXHIBIT 468.5.1

466:23 Quote, glyphosate is widely considered by regulatory

466:24 authorities and scientific bodies to have no

467:1 carcinogenic potential. Do you see that?

467:2 A. Yes.

467:3 Q. So from what we can see here, if we go

467:4 back to the e-mails to which this draft document is

EXHIBIT 468.1.2

467:5 attached -- you see at the bottom e-mail from you dated

467:6 May 13th, 2008, it states, I have put in some suggested

467:7 edits to the Mandel/Mink glyphosate epi critical review

467:8 study, mostly in the intro section. If you have time,

467:9 I would appreciate your review. Do you see that?

467:10 A. Yes, I do.

467:11 Q. So it would be fair to say then that you

467:12 actually personally did author at least some sentences

467:13 and portions of that review?

467:16 - 468:9

Farmer, Donna 09-27-2018 (00:00:51)

DF2_COMBINED_06.131

467:16 A. No, I would not say that I authored, and

467:17 it was only to the front part, kind of like what we

467:18 talked about the other one where people don't know the

467:19 different formulated products or didn't know different

467:20 things adding that, but I never contributed to any of

467:21 the epidemiological part of the Pam Mink publication.

467:22 Q. (By Mr. Wisner) Okay, Doctor. Nowhere in

clear

467:23 the publication -- the Mink publication does it state

467:24 you had any role in that publication?

468:1 A. These were only some edits to the intro on

468:2 non-epidemiological things but more based on what --

468:3 how the glyphosate works in plants and things like

468:4 that.

468:5 Q. I mean, there's a sentence in here that we

EXHIBIT 468.5.1

468:6 just read to the jury that you put into the article

468:7 saying that scientific bodies have found no

468:8 carcinogenic potential. That's a pretty strong

468:9 statement, wouldn't you agree?

468:11 - 468:17

Farmer, Donna 09-27-2018 (00:00:22)

DF2_COMBINED_06.132

468:11 A. It was put in there, but you notice that I

468:12 was stating the findings of the US EPA in 1993, the

468:13 European Union in 2002, the WHO, and FAO in 2004.

468:14 Q. (By Mr. Wisner) I understand that, but

Page/Line	Source	ID
468:19 - 469:7	<p>468:15 you're putting in a strong statement that suggests the 468:16 product is not carcinogenic, and that's a statement 468:17 being put into the mouths of other people?</p> <p>Farmer, Donna 09-27-2018 (00:00:32)</p> <p>468:19 A. I would disagree, because, again, I think 468:20 you have to read down here as you read before, I have 468:21 put it in some suggested edits, and that's what those 468:22 were. There were suggested edits that Dr. Mandel and 468:23 Dr. Mink could include or not include. 468:24 Q. (By Mr. Wisner) But you wrote them; 469:1 right? 469:2 A. I offered them as some suggested edits for 469:3 them to include or not include. 469:4 Q. And since you wrote them, you wrote 469:5 material, factual statements in the journal article, 469:6 your name should be attached as one of the authors of 469:7 the article; correct?</p>	DF2_COMBINED_06.133
469:10 - 469:13	<p>Farmer, Donna 09-27-2018 (00:00:13)</p> <p>469:10 A. Again, I did write those. They are 469:11 referencing what happened in the different articles and 469:12 they were suggested edits for Pam Mink, Dr. Mink, and 469:13 Dr. Mandel, and they were just edits for suggestions.</p>	DF2_COMBINED_06.134
470:11 - 470:12	<p>Farmer, Donna 09-27-2018 (00:00:02)</p> <p>470:11 Q. (By Mr. Wisner) But your name 470:12 isn't in the final publication, is it?</p>	DF2_COMBINED_06.135
470:15 - 471:1	<p>Farmer, Donna 09-27-2018 (00:00:28)</p> <p>470:15 A. So again, these were suggested edits. 470:16 Again, it's for Pam and Dr. Mandel and Dr. Mink to 470:17 consider and that was up to them to incorporate them or 470:18 not. 470:19 Q. (By Mr. Wisner) Have you ever taught 470:20 students before? 470:21 A. Yes. 470:22 Q. And as a teacher, if a student submitted 470:23 an article to you to be graded that had sentences 470:24 written by someone else and they didn't tell you about 471:1 it, what grade would you give that student?</p>	DF2_COMBINED_06.136
471:4 - 471:7	<p>Farmer, Donna 09-27-2018 (00:00:09)</p> <p>471:4 A. That's not what we're talking about here. 471:5 We're talking about suggested edits that they could</p>	DF2_COMBINED_06.137

Page/Line	Source	ID
472:12 - 472:15	<p>471:6 choose or not to choose, and that's in this document 471:7 for them to make that decision.</p> <p>Farmer, Donna 09-27-2018 (00:00:04)</p>	DF2_COMBINED_06.138
476:4 - 476:8	<p>472:12 Q. (By Mr. Wisner) All right. I'm handing 472:13 you another document. This is Exhibit 56 to your 472:14 deposition. 472:15 [Exhibit 56 marked for identification.]</p> <p>Farmer, Donna 09-27-2018 (00:00:13)</p>	DF2_COMBINED_06.139
476:11 - 476:17	<p>476:4 Q. So earlier in the deposition, when you 476:5 testified that you didn't write any portion of the Mink 476:6 article, you'd agree that that's incorrect? You 476:7 actually did write at least a sentence or two of the 476:8 article?</p> <p>Farmer, Donna 09-27-2018 (00:00:20)</p>	DF2_COMBINED_06.140
550:20 - 550:21	<p>476:11 A. I still would disagree that I wrote that, 476:12 because I don't know if it was included in it. We did 476:13 talk about that we paid for these, but these are 476:14 suggested edits, and Dan's were only suggested edits. 476:15 They were really minor and they were not substantive in 476:16 any way in the epidemiological conclusions of Dr. Mink 476:17 and her colleagues.</p> <p>Farmer, Donna 01-24-2019 (00:00:01)</p>	DF2_COMBINED_06.141
550:22 - 556:24	<p>550:20 Q. Good morning, Dr. Farmer. 550:21 A. Good morning.</p> <p>Farmer, Donna 01-24-2019 (00:05:42)</p> <p>550:22 Q. First I want to ask you to tell us a 550:23 little bit about yourself. Where did you grow up? 550:24 A. In Denver, Colorado. 551:1 Q. Do you have a family? 551:2 A. Yes, I do. 551:3 Q. Tell us just a little bit about your 551:4 family, please. 551:5 A. I've been married for 38 years, and I have 551:6 three children. I have two boys and a girl, and my one 551:7 son is married and just recently we have a 551:8 five-month-old granddaughter, Emma. 551:9 Q. And where do you and your family live? 551:10 A. In University City, a suburb of St. Louis. 551:11 Q. Tell us a little bit about your education 551:12 after high school, please.</p>	DF2_COMBINED_06.142

551:13 A. As I said, I was in raised in Denver, so I
551:14 went to University of Colorado in Boulder. I have a
551:15 bachelor of arts in biology, and then I went on to
551:16 graduate school.
551:17 Q. What graduate school did you go to?
551:18 A. I went to the University of Cincinnati
551:19 College of Medicine.
551:20 Q. Did you get a degree there?
551:21 A. Yes, I did.
551:22 Q. What degree did you get?
551:23 A. I have a PhD in anatomy and cell biology.
551:24 Q. In your PhD coursework, did you study
552:1 toxicology?
552:2 A. Yes, I did.
552:3 Q. What is toxicology, briefly?
552:4 A. It's the study of the effect of substances
552:5 on living organisms.
552:6 Q. After you obtained your PhD -- well, what
552:7 year did you obtain your PhD?
552:8 A. 1982.
552:9 Q. After you received the PhD, what did you
552:10 do next?
552:11 A. I went on to become a professor of anatomy
552:12 at the Univer -- at Chicago College of Osteopathic
552:13 Medicine that's now a part of Midwestern University in
552:14 Chicago, Illinois.
552:15 Q. When you were a professor of anatomy in
552:16 Chicago, who did you teach?
552:17 A. I taught first-year medical students.
552:18 Q. How long did you do that?
552:19 A. For six years.
552:20 Q. What did you teach them?
552:21 A. First-year medical students, you teach
552:22 them gross anatomy, histology, which is looking at
552:23 tissues under microscope, neuroanatomy, understanding
552:24 the nervous system, and embryology.
553:1 Q. After you taught there -- did you say for
553:2 seven years?
553:3 A. Six years.
553:4 Q. Six years. What did you do next?

553:5 A. My husband I met when we were in graduate
553:6 school. He is an M.D. And after he did his training
553:7 in Chicago, he was coming down here to Washington
553:8 University to continue his research training.
553:9 Q. So you moved to St. Louis in the late
553:10 1980s?
553:11 A. Yes. Uh-huh.
553:12 Q. What did you do first in St. Louis
553:13 professionally?
553:14 A. Professionally, I was at Washington
553:15 University in the department of OB/GYN.
553:16 Q. What did you do at Washington University?
553:17 A. We were looking at the placenta,
553:18 understanding how the role of the placenta in helping
553:19 have healthy babies.
553:20 Q. And this is Washington University in St.
553:21 Louis?
553:22 A. Yes.
553:23 Q. Who did -- were your were you a teacher,
553:24 lab worker at Washington University? What exactly did
554:1 you do?
554:2 A. I co-led with another PhD. A lab. We
554:3 were head of the lab for an M.D. there. And I also was
554:4 a part of the faculty that taught sophomore students.
554:5 Q. How long did you do that at Washington
554:6 University?
554:7 A. I was there for three years.
554:8 Q. And when you left Washington University,
554:9 what year was that?
554:10 A. It was in 1991.
554:11 Q. What did you do next?
554:12 A. I went to Monsanto.
554:13 Q. All right. So you joined Monsanto in
554:14 1991?
554:15 A. Yes.
554:16 Q. Why did you join Monsanto?
554:17 A. I really was in -- looking for another
554:18 opportunity because when I was teaching medical school,
554:19 I was interacting with a lot of people on a daily
554:20 basis. When I was at Wash U, it was this other

554:21 gentleman and I in a lab for about 10 hours a day.
554:22 While it was really fun and exciting research, I really
554:23 wanted to have more interaction in science in a more
554:24 broader way.

555:1 Q. What position did you take at Monsanto?
555:2 What was your job when you joined in 1991?
555:3 A. As a regulatory toxicologist.
555:4 Q. Tell us briefly what a regulatory
555:5 toxicology does at Monsanto.
555:6 A. The -- because of the products that we
555:7 had, which are pesticides, we work with the U.S.
555:8 Environmental Protection Agency, which is a regulatory
555:9 agency, and so our job as regulatory toxicologists is
555:10 to understand what is the information that the agency
555:11 need to be able to evaluate the safety of the product.
555:12 Q. Well, we'll come back to your job plenty
555:13 this morning. Tell us, when you joined Monsanto in
555:14 1991, became a regulatory toxicologist, did you also
555:15 take more training in the field of toxicology?
555:16 A. Yes, I did.
555:17 Q. Tell us briefly about that, please.
555:18 A. When I started in the fall of 1991, I also
555:19 sat in on the course of -- toxicology course at St.
555:20 Louis University, and the director of our department
555:21 also taught a toxicology course for those within the
555:22 department as well as attending society meetings, like
555:23 the Society of Toxicology, where they always have
555:24 continuing education courses on various aspects of
556:1 toxicology.
556:2 Q. All right. So you joined Monsanto in
556:3 1991. When did you start working with glyphosate and
556:4 Roundup and other glyphosate products at Monsanto?
556:5 A. 1996.
556:6 Q. And is it fair to say since 1996 through
556:7 today, you have had some involvement with glyphosate
556:8 and glyphosate products at Monsanto?
556:9 A. Yes.
556:10 Q. Give us just an overview, if you can,
556:11 about what your job responsibilities have been at
556:12 Monsanto as they relate to glyphosate and glyphosate

556:13 products.

556:14 A. Yeah. Okay, I think there's probably two

556:15 major areas. As we just talked about, the regulatory

556:16 piece, working with regulatory agencies, making sure

556:17 that we have the data, conduct the studies to develop

556:18 the data that the agencies use to evaluate the safety

556:19 of the product.

556:20 And then there's another piece that's

556:21 called -- what we would call product stewardship, and

556:22 the baseline of product stewardship is always following

556:23 laws and regulations and then doing above and above

556:24 that.

557:16 - 557:22

Farmer, Donna 01-24-2019 (00:00:19)

DF2_COMBINED_06.143

557:16 Q. Now, the plaintiff's lawyer, when he was

557:17 asking you questions, asked whether you believe

557:18 glyphosate and Roundup cause cancer. I want to ask

557:19 you, based on the science that you have conducted in

557:20 your career, the science you've reviewed and studied,

557:21 does Roundup cause cancer?

557:22 A. No.

558:1 - 558:22

Farmer, Donna 01-24-2019 (00:00:41)

DF2_COMBINED_06.144

558:1 Q. (By Mr. Hall) Do you use Roundup

558:2 yourself?

558:3 A. Yes, I do.

558:4 Q. How long have you used Roundup?

558:5 A. Probably -- since we've owned a house,

558:6 around 25 years or more.

558:7 Q. Tell us a little bit about that use. How

558:8 often do you use Roundup?

558:9 A. We have a small yard, so I use it probably

558:10 about three times a year.

558:11 Q. When you use Roundup yourself, do you wear

558:12 special equipment?

558:13 A. No, I follow the label directions.

558:14 Q. Do you have any concerns about your health

558:15 related to your use of Roundup for 25 years?

558:16 A. No.

558:17 Q. You mentioned that your husband is a

558:18 medical doctor; is that right?

558:19 A. Yes. Uh-huh.

558:20 Q. Has your husband the doctor ever expressed
558:21 any concerns to you about your health related to your
558:22 use of Roundup?

558:24 - 558:24

Farmer, Donna 01-24-2019 (00:00:00)

DF2_COMBINED_06.145

558:24 A. No.

559:17 - 561:23

Farmer, Donna 01-24-2019 (00:02:23)

DF2_COMBINED_06.146

559:17 Q. (By Mr. Hall) Have you ever recommended
559:18 to anyone that they use Roundup?

559:19 A. Yes.

559:20 Q. Tell us a bit about that. Who have you
559:21 made recommendations for Roundup to?

559:22 A. I can think of a couple recently. One is
559:23 a friend of mine -- her son was wearing a backpack
559:24 sprayer. They have about a 20-acre farm, and he was
560:1 out spraying a glyphosate-based product, and I was
560:2 recommending that he had -- there are different
560:3 products he could use, one for gravel, one for the
560:4 poison ivy, and so recommending that he look at a
560:5 different products.

560:6 Another one is a future daughter-in-law.

560:7 Her father has a 100-acre farm in Wisconsin, and we
560:8 were talking about the different uses that he has for
560:9 Roundup products on his farm.

560:10 Q. And you said it was your future
560:11 daughter-in-law?

560:12 A. Uh-huh.

560:13 Q. But then you said he has.

560:14 A. It's her father.

560:15 Q. Oh, okay.

560:16 A. It was her father's farm.

560:17 Q. All right. Let me ask you about the
560:18 Roundup and other Monsanto glyphosate products, what
560:19 they're made of. What are the main ingredients in
560:20 Monsanto glyphosate products?

560:21 A. The main ingredients are water, glyphosate
560:22 and a surfactant, which a soapy-like substance.

560:23 Q. When Roundup is sprayed or other Monsanto
560:24 glyphosate products are sprayed, about what percentage
561:1 of it is water?

561:2 A. Around -- greater than 90 percent, 95

561:3 percent.

561:4 Q. Now, you mentioned water, glyphosate, and
561:5 surfactants. Let me ask you about glyphosate. What is
561:6 glyphosate?

561:7 A. Glyphosate is a synthetic molecule that
561:8 was discovered to act on a process in plants and is
561:9 very effective in all plants in controlling and killing
561:10 them.

561:11 Q. We've heard that glyphosate products are
561:12 popular and in demand. Do you know what accounts for
561:13 why it is a popular demanded product?

561:14 A. I think there's a couple reasons. One,
561:15 it's very efficacious. As we talked about, it acts on
561:16 a process found in plants, so it controls any kind of
561:17 unwanted plants. And the other one is it has a very
561:18 good safety profile.

561:19 Q. Well, when you say it has a very good
561:20 safety profile, are there -- in the field of
561:21 toxicology, are there general measures of the toxic
561:22 properties or toxicity of substances?

561:23 A. Yes.

562:6 - 562:9

Farmer, Donna 01-24-2019 (00:00:12)

DF2_COMBINED_06.147

562:6 Q. (By Mr. Hall) Based on your experience,
562:7 can you describe a generally-accepted toxicology
562:8 measure used to give a general evaluation of the
562:9 toxicity of substances?

562:12 - 565:4

Farmer, Donna 01-24-2019 (00:02:42)

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562:12 A. Toxicologists like to do -- kind of
562:13 compare relative toxicity of substances, and one of the
562:14 very first ones that toxicologists do will be an oral
562:15 LD50, and LD stands for lethal dose.

562:16 Q. (By Mr. Hall) And is an LD50 measure, is
562:17 that something that's uses or -- used to measure the
562:18 toxic properties of many substances?

562:19 A. Yes.

562:20 Q. Even substances we use on a daily basis?

562:21 A. Yes.

562:22 Q. And the LD50 you said is lethal dose.

562:23 What's the 50?

562:24 A. Giving it one time, it's a dose that will

563:1 kill 50 percent of the population that it's given to.
563:2 Q. And are you familiar with the LD50
563:3 measures for substances that all of us use every day?
563:4 A. Yes.
563:5 Q. Give us some examples of an LD50 measure
563:6 for common substances.
563:7 A. So for example, water would be 90,000
563:8 milligrams per kilogram.
563:9 Q. So the LD50 for water is 90,000?
563:10 A. Yes.
563:11 Q. What's the LD50 for another common
563:12 everyday substance?
563:13 A. If you look at table salt, it's around
563:14 3,000 milligrams per kilogram.
563:15 Q. So it's -- table salt is 3,000, water is
563:16 90,000. How do they compare?
563:17 A. As the number goes down -- the lower the
563:18 number it's considered more toxic.
563:19 Q. Table salt is then considered more toxic
563:20 than water?
563:21 A. Yes.
563:22 Q. Give us another example of a product
563:23 used -- we all use on a daily basis, what the LD50 is?
563:24 A. Caffeine that you would find in coffee has
564:1 an LD50 -- and again, these are typically done in
564:2 rodents rats -- is around 50 milligrams -- I'm sorry,
564:3 200 milligrams per kilogram.
564:4 Q. Is there an LD50 measure for glyphosate?
564:5 A. Yes.
564:6 Q. And what is that?
564:7 A. It's around 5,000.
564:8 Q. And is the LD50 measure, this -- is it --
564:9 does it reflect anything about cancer?
564:10 A. No, it doesn't.
564:11 Q. Is this just a relative measure
564:12 toxicologists use to gauge the relative toxicity of
564:13 substances?
564:14 A. Yes, it is.
564:15 Q. Now, you said the LD50 of water is 90,000,
564:16 the LD50 of glyphosate is 5,000 --

564:17 A. Yes.

564:18 Q. -- and the LD50 of caffeine is around

564:19 200?

564:20 A. Yes.

564:21 Q. What is the LD50 of Roundup glyphosate

564:22 products?

564:23 A. They're around 5,000 as well.

564:24 Q. What does an LD50 5,000 measure for

565:1 glyphosate and glyphosate products -- what does that

565:2 tell you as a toxicology (sic) about the relative

565:3 toxicity of glyphosate?

565:4 A. That is --

565:7 - 565:7

Farmer, Donna 01-24-2019 (00:00:02)

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565:7 A. It has a low toxicity.

565:15 - 578:2

Farmer, Donna 01-24-2019 (00:12:45)

DF2_COMBINED_06.150

565:15 Q. You mentioned that there's water,

565:16 glyphosate, and surfactants in Roundup and Roundup --

565:17 and glyphosate products; right?

565:18 A. Yes.

565:19 Q. Let me ask you about surfactants first.

565:20 What are surfactants?

565:21 A. They're soapy-like substances.

565:22 Q. What are some products that contain

565:23 surfactants that we'd be familiar with using daily?

565:24 A. They would be shampoos and dishwashing

566:1 detergents and body soaps. Things like that.

566:2 Q. Why do Roundup and other glyphosate

566:3 products include this soapy-like surfactant substance?

566:4 A. One of the things that surfactants do,

566:5 say, with water droplets is -- because, again,

566:6 remember, we said there's a lot of water that's in the

566:7 formulated product when it's sprayed -- is if you think

566:8 about the water sitting as a droplet and it drops on

566:9 that plant leaf, if you don't, it can just bounce off.

566:10 So the surfactant reduces the tension of

566:11 that ball of water to make it look more like a pancake

566:12 so it spreads out over the surface of the leaf as well

566:13 as not allowing it then to fall off.

566:14 Q. I want to ask you about the testing that

566:15 Monsanto has done over the years of glyphosate,

566:16 Roundup, and glyphosate products; okay?

566:17 A. Uh-huh.

566:18 Q. First, have you been involved in that

566:19 testing?

566:20 A. Yes.

566:21 Q. Have you been extensively involved?

566:22 A. Yes.

566:23 Q. Give us first an overview of the

566:24 substances that Monsanto tested over the years as they

567:1 related to glyphosate and glyphosate products.

567:2 A. So we have done glyphosate the active --

567:3 what we call the active ingredient. Again, we talked

567:4 about -- the next one is the surfactant. We've done

567:5 testing on the surfactants. And then when those two

567:6 are put together in the glyphosate products, the

567:7 formulation what we call it, we will then test that

567:8 formulation.

567:9 Q. And by formulation, are you referring then

567:10 to Roundup or other glyphosate products?

567:11 A. Yes.

567:12 Q. Now, I'm going to be asking you some

567:13 details about the various tests that Monsanto has done

567:14 over the years on glyphosate and glyphosate

567:15 formulations and surfactants. Tell us first, did

567:16 Monsanto itself actually do the test that we're going

567:17 to be talking about?

567:18 A. We -- there's -- so there's -- the

567:19 Monsanto monitor contracted all of those tests. Some

567:20 of the tests were done at a testing facility we had at

567:21 Monsanto and others were done at testing facilities

567:22 that are established to do that for all sorts of

567:23 industries.

567:24 Q. All right. Well, let me make sure I have

568:1 that clear. Were some of the tests that you're going

568:2 to describe actually done by Monsanto employees in a

568:3 lab at Monsanto?

568:4 A. Yes.

568:5 Q. When were those tests done?

568:6 A. Back in the -- I think in the 1980s and

568:7 1990s.

568:8 Q. And is that lab at Monsanto still used for
568:9 these kinds of tests?

568:10 A. No, it's not.

568:11 Q. So after that lab is no longer used, who
568:12 has actually done the tests you're going to be
568:13 describing of glyphosate, surfactants, and glyphosate
568:14 products?

568:15 A. And even back then, we also used outside,
568:16 what we call contract labs, who are toxicology testing
568:17 labs that we use.

568:18 Q. Are these professional laboratories that
568:19 are owned by someone other than Monsanto?

568:20 A. Yes.

568:21 Q. And are you familiar with these
568:22 professional laboratories?

568:23 A. Yes.

568:24 Q. Are they under some kind of accreditation
569:1 system, or is there some kind of check done to the
569:2 quality of their work?

569:3 A. Absolutely.

569:4 Q. Can you describe a little bit about that?

569:5 A. They have oversight by the regulatory
569:6 agencies, so they conduct studies both to be submitted
569:7 to the Environmental Protection Agency as well as the
569:8 Food and Drug Administration. They can bring in
569:9 auditors to look at the data.

569:10 They also have -- all of their technicians
569:11 and the people that work there also have certification.
569:12 For their animal facilities, they have to have
569:13 certification. So they have a lot of different
569:14 organizations that they have to be certified by and
569:15 inspected by.

569:16 Q. These professional laboratories you're
569:17 talking about, the third-party laboratories that have
569:18 done much of this testing for Monsanto --

569:19 A. Uh-huh.

569:20 Q. -- do they do testing for other companies
569:21 aside from Monsanto?

569:22 A. Yes.

569:23 Q. Do you know if they do work for many other

569:24 companies?

570:1 A. Yes.

570:2 Q. Now, when -- over what period of time have
570:3 the tests that Monsanto has done -- either in the lab
570:4 that it owned back in the 1980s and 1990s or
570:5 third-party labs that you've described -- over what
570:6 period of time have these tests been done?

570:7 A. They have been ongoing for all this time,
570:8 many, many years.

570:9 Q. Did it start before you arrived at
570:10 Monsanto in the 1990s?

570:11 A. Yes.

570:12 Q. Does it continue today?

570:13 A. Yes.

570:14 Q. Let's take a closer look at the testing
570:15 first of glyphosate. You mentioned that Monsanto has
570:16 tested glyphosate, the active ingredient. Tell us in
570:17 general terms the categories of tests that Monsanto has
570:18 done over the years on glyphosate itself.

570:19 A. I think there's kind of three major areas
570:20 you can look at, is the acute -- what we call acute
570:21 toxicology, we do the genotoxicology, and then we do a
570:22 number of animal tests that look at a variety of
570:23 different endpoints.

570:24 Q. Let's take those one at a time. You
571:1 mentioned acute toxicology test of glyphosate.

571:2 A. Uh-huh.

571:3 Q. Give us a sense of what are acute
571:4 toxicology tests of glyphosate.

571:5 A. Just a few minutes ago we were talking
571:6 about the oral LD50. That would be considered an acute
571:7 study. Then we look at different routes. We look at a
571:8 dermal route for LD50, we look at an inhalation route
571:9 for what we can an LC, lethal concentration, 50. Then
571:10 we look at eye and skin irritation, then we look at
571:11 what happens if you have repeat exposure to it, do you
571:12 develop an allergy.

571:13 Q. Are these acute toxicology tests -- well,
571:14 first of all, do they test for cancer?

571:15 A. No.

571:16 Q. Potential cancer causing of any substance?

571:17 A. No.

571:18 Q. Are these standard toxicology tests done

571:19 of many substances?

571:20 A. Yes.

571:21 Q. And tell us, are you familiar with the

571:22 results of these tests?

571:23 A. Yes.

571:24 Q. And by the way, you mentioned the

572:1 professional third-party laboratories have done many of

572:2 the tests for Monsanto of glyphosate, glyphosate

572:3 products, and surfactants. What has your role been

572:4 with respect to the testing that Monsanto has done over

572:5 your career at Monsanto?

572:6 A. So when we worked either with our Monsanto

572:7 lab or these contract labs, we are considered study

572:8 monitor. We work to get the contract in place, to get

572:9 the study placed at that facility, and then we work

572:10 with -- the main person there is called the study

572:11 director.

572:12 They're the ones who are actually

572:13 supervising and overseeing the conduct of the study,

572:14 and then they work with the pathologist who evaluates

572:15 some of the results coming out of the studies.

572:16 Q. And you used the term study monitor. Does

572:17 that describe your role?

572:18 A. Yes.

572:19 Q. And tell us a little more about exactly

572:20 what you would do, what you have done, with respect to

572:21 these tests that Monsanto has done over the decades of

572:22 your experience there.

572:23 A. So we would determine there was a need to

572:24 do a study or we needed a new formulation to be tested.

573:1 I would call up the study director or their contract

573:2 person and say we'd like to place this set of acute

573:3 studies with you.

573:4 They would send me a protocol. A protocol

573:5 is the study design; it says exactly how they're going

573:6 to conduct the study. I would make sure that our

573:7 people got the proper test materials sent to that study

573:8 and that it was analyzed and that you had that analysis
573:9 of what the substance was.

573:10 And then the study director -- I would
573:11 sign the protocol, and then they would be involved in
573:12 conducting the study, and then they would report back
573:13 to me with the results. They would write the report.
573:14 We would review the report with them. They would have
573:15 the pathologist look at it, and then the study director
573:16 and the pathologist signed the reports.

573:17 Q. And then at the conclusion of the signing
573:18 of the reports, would you obtain the reports yourself?

573:19 A. They would keep a copy for themselves and
573:20 they would send a copy to us at Monsanto.

573:21 Q. And then ultimately what did Monsanto do
573:22 with those reports?

573:23 A. So I work with what are called regulatory
573:24 affairs managers, and they are the ones who submit
574:1 these studies to the agencies. So the copy then would
574:2 be given to our regulatory affairs managers and then
574:3 they would make the official submissions to the
574:4 regulatory agencies.

574:5 Q. And the regulatory agencies would include
574:6 the United States Environmental Protection Agency?

574:7 A. Yes.

574:8 Q. Would it include agencies for other
574:9 countries around the world?

574:10 A. Yes.

574:11 Q. Now, you mentioned the acute toxicity
574:12 testing that Monsanto did of glyphosate. What did
574:13 those acute toxicology tests show as to glyphosate?
574:14 What were the results of those tests in your
574:15 experience?

574:16 A. For glyphosate by itself, it has all low
574:17 acute toxicity, but it is an eye irritant, because it's
574:18 an acid, so it's very -- like if you got lemon juice in
574:19 you on eye it would burn. So we do have eye irritation
574:20 with glyphosate itself.

574:21 Q. You mentioned three categories -- acute
574:22 toxicology tests, genotoxicity tests, and animal
574:23 testing. Let's move to the genotoxicity tests. First

574:24 of all, what is genotoxicity?

575:1 A. So what we're looking at is each cell has
575:2 genetic material that's very important, and so we want
575:3 to make sure that we understand does this substance
575:4 adversely affect the genetic substance in that cell.
575:5 And this is a really important study that we -- one of
575:6 the very first ones we always do with new chemicals.

575:7 Q. And when you say a cell, an effect on a
575:8 cell, that's a cell of what?

575:9 A. Of any tissue in your body. We're looking
575:10 at -- the cell has a nucleus, and in that nucleus -- I
575:11 think a lot of people have seen a picture of a cell,
575:12 dark purple circle, and that's called the nucleus, and
575:13 in that nucleus is that genetic material. So what we
575:14 want to know is does that substance have any impact on
575:15 that genetic material.

575:16 Q. And these genotoxicity tests, are they
575:17 tests of the effective glyphosate on actual cells of
575:18 human beings, or animals, or plants, or what?

575:19 A. All of the above.

575:20 Q. Tell us, how do you go about testing
575:21 effects of a substance on cells? Is that done in a
575:22 laboratory?

575:23 A. Yes.

575:24 Q. Tell us a little bit about how that's
576:1 done.

576:2 A. So -- I think a lot of people have heard
576:3 about a petri dish. So if you have cells, you have to
576:4 grow them in some sort of a dish, and we call it a
576:5 petri dish. And that's called in vitro, so it's an in
576:6 vitro system.

576:7 And you would plate your cells out on that
576:8 petri dish, and then you would cover them with the
576:9 fluid that keeps them alive, gives them nutrients. And
576:10 then you would add your test material to then that
576:11 water, whatever is bathing those cells.

576:12 Q. So in vitro testing is in a dish in a
576:13 laboratory where you are just introducing the substance
576:14 to cells in that dish?

576:15 A. Yes.

576:16 Q. And I take it you can't see those cells

576:17 with the naked eye?

576:18 A. Not individually, no.

576:19 Q. So they're examined under a microscope or

576:20 something like that?

576:21 A. Yes.

576:22 Q. Is there any other kind of a genotoxicity

576:23 test of glyphosate?

576:24 A. Then we would call it in vivo, and what

577:1 that means is in live animals. Because you can

577:2 understand in a petri dish, you just have cells.

577:3 While they have some mechanisms of

577:4 capability to repair, we really want to know what's

577:5 going on in a whole animal, because that's really how

577:6 people will be exposed to this, is in a whole system.

577:7 So that animal has barriers where the

577:8 chemical have to get through. It has repair

577:9 mechanisms. It has a lot more complex testing system,

577:10 so we will then do genotoxicity testing in whole

577:11 animals.

577:12 Q. And is this animal testing you're

577:13 describing, is that required by the EPA?

577:14 A. Yes.

577:15 Q. Is it required by other regulators in

577:16 other countries around the world, the animal testing?

577:17 A. Yes.

577:18 Q. So you mentioned that there's in vitro

577:19 testing of cells and in vivo testing of cells in this

577:20 genotoxicity testing. Over the years, what has

577:21 Monsanto's genotoxicity testing of glyphosate shown?

577:22 A. No genotoxicity.

577:23 Q. And what does genotoxicity -- if a

577:24 substance is genotoxic, you've mentioned that means --

578:1 you said that means damage to cell genes. Does that

578:2 mean it's a carcinogen if it's genotoxic?

578:11 - 580:14

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578:11 A. Not necessarily.

578:12 Q. (By Mr. Hall) Now, you mentioned that

578:13 over the years, the results of Monsanto's genotoxicity

578:14 of glyphosate have shown it is not genotoxic?

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578:15 A. Yes.

578:16 Q. Let's move to the animal tests that you
578:17 mentioned. Are these tests usually of mice and rats?

578:18 A. Yes.

578:19 Q. And again these are required by the EPA?

578:20 A. Yes.

578:21 Q. Tell us a little bit about how these tests
578:22 are done, of glyphosate.

578:23 A. They're done over different periods of
578:24 time, from several weeks, to several months, to over
579:1 the lifetime of the animals. They're typically done
579:2 orally; they're put into their diet, so it's mixed into
579:3 their food and they eat it through that. And we then
579:4 do this -- again, looking at different endpoints.

579:5 Q. What's an endpoint?

579:6 A. So for example, one endpoint would be an
579:7 effect on reproduction, and another endpoint might be
579:8 on the immune system.

579:9 Q. You mentioned that with the glyphosate
579:10 testing, the glyphosate would be introduced in the
579:11 food. Is it mixed in the mice and rats' foods?

579:12 A. Yes.

579:13 Q. Tell us a little bit about how much
579:14 glyphosate is used in these animal tests in the food.

579:15 A. What we have -- when you look at these
579:16 studies that are done, a group of animals will be fed
579:17 the food without any glyphosate in it, and then we will
579:18 have anywhere between three and five other groups that
579:19 will be fed increasing amounts of glyphosate. So you
579:20 have like a low dose, some middle doses, and then a
579:21 high dose.

579:22 Q. And you mentioned there's one group that
579:23 doesn't get any doses. Is that the control group?

579:24 A. Yes.

580:1 Q. As to the animals that get the doses of
580:2 glyphosate, can you give us a sense of how much
580:3 glyphosate they are getting? For example -- well, go
580:4 ahead. Can you give us a sense of that?

580:5 A. Yeah. If you look at a range of the
580:6 studies that have been conducted, maybe one of the low

580:7 doses might be 50 milligrams per kilogram upwards of
 580:8 around 5,000 milligrams per kilogram.
 580:9 Q. For those of us who those numbers don't
 580:10 mean much to, including me, can you compare that amount
 580:11 of glyphosate to the amount of glyphosate somebody
 580:12 would be exposed to by actually using Roundup or
 580:13 glyphosate products, a human being?
 580:14 A. Yeah.

581:9 - 581:21

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581:9 Q. (By Mr. Hall) Let me ask a slightly
 581:10 different question. Are you familiar with exposure
 581:11 studies of people who use glyphosate products and how
 581:12 much glyphosate -- what kind of dose you get of
 581:13 glyphosate if you actually use glyphosate products?
 581:14 A. Yes.
 581:15 Q. And you were describing the amount of
 581:16 glyphosate used in these animal studies, the doses to
 581:17 these animals. Can you give us some sense of
 581:18 comparison between the amount of glyphosate that the
 581:19 animals are eating, are exposed to, as compared to the
 581:20 amount of exposure someone, a person using glyphosate
 581:21 products would obtain?

581:23 - 585:3

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DF2_COMBINED_06.153

581:23 A. I -- when we talked about, remember, the
 581:24 low dose to the high dose? So if you're comparing the
 582:1 low dose to the high dose compared to, say, someone
 582:2 from the farm family exposure study, which was a task
 582:3 force study looking at glyphosate exposure in
 582:4 farmers -- it would be around 10,000 to 1,000,000 times
 582:5 greater the doses that the animals would be seeing than
 582:6 what that person had been exposed to.
 582:7 Q. (By Mr. Hall) The animal tests involved
 582:8 much higher doses of glyphosate than people would ever
 582:9 be exposed to; is that fair?
 582:10 A. Yes.
 582:11 Q. Why -- do you have an understanding of
 582:12 why -- in these animal tests required by the EPA and
 582:13 other regulatory agencies, why are the animals
 582:14 receiving such high doses of glyphosate?
 582:15 A. The regulatory agencies want you to reach

582:16 what's called a maximum tolerated dose, and so it
582:17 typically is around 1,000 milligrams per kilogram, but
582:18 as we talked about before, glyphosate has such low
582:19 toxicity, we had to push the doses even higher to some
582:20 of those animals.

582:21 Q. Why -- what's the point, in these animal
582:22 tests, of having such high doses provided to the
582:23 animals?

582:24 A. They really want to see a response of
583:1 those animals to that chemical. Is it really causing
583:2 any adverse effect in them, without just generalize
583:3 making them sick? They want a very spec -- they want
583:4 to push it as high as they can to get -- elicit a
583:5 response from those animals as a result of exposure to
583:6 that chemical, without making them sick.

583:7 Q. What period of time are these animal tests
583:8 conducted, the mice and rat studies that you've
583:9 mentioned?

583:10 A. I'm sorry. Can you --

583:11 Q. How long are these tests?

583:12 A. These are for a good portion of the
583:13 lifetime of mice and rats. So they'll go from like 18
583:14 months to 24 months.

583:15 Q. Are there also some shorter-term studies
583:16 as well?

583:17 A. Yes.

583:18 Q. Is one purpose of the two-year animal
583:19 studies, the longer animal studies, to see if a
583:20 substance can cause cancer in the animals?

583:21 A. Yes.

583:22 Q. By the way, if the substance can cause
583:23 cancer in an animal, does that mean it necessarily
583:24 would cause cancer in a person?

584:1 A. No.

584:2 Q. What were the results of the animal
584:3 testing of glyphosate that Monsanto did throughout your
584:4 career?

584:5 A. Not carcinogenic.

584:6 Q. Now, you mentioned that Monsanto also
584:7 tested surfactants. Who makes the surfactants, the

584:8 soapy-like substance that you told us is part of the
584:9 glyphosate products?

584:10 A. Other companies, not Monsanto.

584:11 Q. Do you know if the companies, the other
584:12 companies that make surfactants, test surfactants
584:13 themselves?

584:14 A. Yes.

584:15 Q. Do they do toxicity and genotoxicity and
584:16 animal testing of surfactants, these other companies
584:17 that make surfactants?

584:18 A. Yes, they do.

584:19 Q. Did Monsanto itself -- has Monsanto itself
584:20 also tested surfactants?

584:21 A. Yes.

584:22 Q. Was Monsanto required by regulators to do
584:23 all the tests of surfactants that it has done?

584:24 A. No.

585:1 Q. Why has Monsanto tested surfactants?

585:2 A. We wanted to have a complete profile of
585:3 the toxicological -- toxicology of our surfactants.

585:12 - 590:8

Farmer, Donna 01-24-2019 (00:04:42)

DF2_COMBINED_06.154

585:12 Q. (By Mr. Hall) Dr. Farmer, before we took
585:13 that break, I was asking you about surfactant testing.
585:14 You told us that the manufacturers of surfactants
585:15 tested surfactants and that Monsanto itself also tested
585:16 surfactants. Do you recall that?

585:17 A. Yes.

585:18 Q. I want to ask you now about the testing
585:19 that Monsanto did of surfactants. That's something
585:20 you've been involved in extensively throughout your
585:21 career; correct?

585:22 A. Yes.

585:23 Q. Let me show you a document that's been
585:24 marked as Exhibit -- Deposition Exhibit 68. And it is
586:1 titled surfactants genotoxicity studies conducted by
586:2 Monsanto.

EXHIBIT 479.1.1

586:3 Are you familiar with this chart?

586:4 A. Yes, I am.

586:5 [Exhibit 68 marked for identification.]

586:6 Q. What is this chart?

586:7 A. This is a chart is a list of different
586:8 surfactants that are used in our glyphosate products,
586:9 and it lists the genotoxicity studies that were
586:10 conducted on those various surfactants, and there are
586:11 different types of genotox studies listed.

EXHIBIT 479.1.2

586:12 Q. And where is the surfactant type
586:13 identified on this chart?

586:14 A. It's under description of product or test
586:15 substance.

EXHIBIT 479.1.4

586:16 Q. That would be the second-to-the-last
586:17 column on the right?

586:18 A. Yes.

586:19 Q. And then the chart has entries for each of
586:20 those. Some have multiple entries; that is, for each
586:21 formulation. Is that what they are? Or recipe of
586:22 surfactant?

586:23 A. Surfactant -- yeah, type of surfactant.

586:24 Q. And so for example, the one first one is
587:1 called MON 8080?

EXHIBIT 479.1.5

587:2 A. Yes.

587:3 Q. And that refers to the surfactants that
587:4 Monsanto used and tested?

587:5 A. Yeah. MON is a designation for Monsanto,
587:6 and then 8080 identifies that particular surfactant.

587:7 Q. And we see the Bates columns -- Bates
587:8 begin and Bates end.

EXHIBIT 479.1.6

587:9 Do you see that?

587:10 A. Yes.

587:11 Q. And do you understand that identifies the
587:12 Bates numbers of the documents as they were produced in
587:13 this litigation?

587:14 A. Yes.

587:15 Q. The next column -- author, study
587:16 director -- what does that refer to?

EXHIBIT 479.1.7

587:17 A. This is what we talked about earlier. The
587:18 people who actually are conducting the studies are
587:19 called study directors, and these are the last names of
587:20 those individuals.

587:21 Q. Are those people at professional labs, at
587:22 Monsanto, or both?

587:23 A. Both.

587:24 Q. The year, is that the year the test was
588:1 done?

588:2 A. That typically is the year the report was
588:3 issued. So the test could have been done a year or so
588:4 before, and then that would have been the year that the
588:5 report was issued.

588:6 Q. And then we see the title of the
588:7 genotoxicity test of the surfactants; right?

EXHIBIT 479.1.8

588:8 A. Correct.

588:9 Q. And then the test organism. What does
588:10 that refer to?

EXHIBIT 479.1.9

588:11 A. That refers, what did -- what type of cell
588:12 did we test it on or what kind of whole animal did we
588:13 test it in.

588:14 Q. And it looks like some -- are some human
588:15 cells?

588:16 A. Yes.

588:17 Q. What other kinds of cells were tested in
588:18 these tests shown on Exhibit 68?

588:19 A. There are some bacterial cells, and some
588:20 bone marrow cells.

588:21 Q. Bone marrow cells from mice, I see; is
588:22 that right?

588:23 A. Yes.

588:24 Q. And then there's a column called assay.
589:1 What does an -- what does assay mean?

EXHIBIT 479.1.10

589:2 A. That is a general title for that type of
589:3 study.

589:4 Q. Is assay a word for test? Like --

589:5 A. For test, study. They're all kind of
589:6 interchangeable.

589:7 Q. And in that column we see Ames. What is
589:8 the Ames assay?

589:9 A. The Ames assay is an in vitro test using
589:10 bacterial cells, and it was named after Bruce Ames, who
589:11 invented it.

589:12 Q. And are these tests standard genotoxicity
589:13 tests that are done on many substances?

589:14 A. Yes.

589:15 Q. And you told us what the description or
589:16 product column is. The last column is positive or
589:17 negative. When referring to genotoxicity tests, what
589:18 does positive mean?

EXHIBIT 479.1.11

589:19 A. That there was evidence of genotoxicity.

589:20 Q. The test showed some genotoxic effect?

589:21 A. Correct.

589:22 Q. And what does negative mean as to a
589:23 genotoxicity test?

589:24 A. There was no evidence of genotoxicity.

EXHIBIT 479.1.12

590:1 Q. What were the results of the genotoxicity
590:2 studies that Monsanto has done on surfactants?

590:3 A. They were all showing no evidence of
590:4 genotoxicity.

590:5 Q. And is that designated by the negative
590:6 column, negative in the last column?

590:7 A. Yes, it is.

590:8 Q. On this chart. Okay. Thank you. Now,

590:9 - 590:19

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590:9 aside from the genotoxicity test, did Monsanto do other
590:10 testing of surfactants?

clear

590:11 A. Yes.

590:12 Q. Describe those generally.

590:13 A. We would do acute testing, as we talked
590:14 about before, and we also did some animal testing.

590:15 Q. And what did the tests of surfactants that
590:16 Monsanto has done show? What were the results?

590:17 A. In those animal tests?

590:18 Q. Well, in all of the tests. Can you speak
590:19 generally about all of them?

590:22 - 593:13

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DF2_COMBINED_06.156

590:22 A. Again, from the genotox, there was no
590:23 evidence of genotoxicity. When we gave it to pregnant
590:24 rats and looked at their offspring, there was no
591:1 evidence of production of birth defects.

591:2 And when we gave it to them over a period
591:3 of time in doses in their diets, there was no evidence
591:4 of what we would call target organ toxicity, that the
591:5 surfactants weren't targeting like a kidney or a liver,
591:6 and the predominant finding we would see would be

591:7 gastrointestinal irritation.

591:8 Q. (By Mr. Hall) Did Monsanto reach a
591:9 conclusion as to whether or not the surfactants it used
591:10 in glyphosate products was genotoxic?

591:11 A. We concluded it was not genotoxic.

591:12 Q. Were all of the tests that you've just
591:13 described that Monsanto did, were those tests that you
591:14 yourself were involved in?

591:15 A. I was involved in not all of them but a
591:16 number of them.

591:17 Q. And are those tests -- for the ones that
591:18 you weren't involved in, are you familiar with the test
591:19 study reports?

591:20 A. Yes.

591:21 Q. Let's move to the Roundup -- or the
591:22 formulated product testing, the glyphosate product
591:23 testing that Monsanto did. You've told us about
591:24 Monsanto's testing of glyphosate, the active
592:1 ingredient, the testing of surfactants done by
592:2 Monsanto.

592:3 I want to ask you now about the formulated
592:4 product testing. What categories of testing has
592:5 Monsanto done of the formulated glyphosate products?

592:6 A. We have done the acute testing that we
592:7 talked about, we've done genotoxicity, and we have done
592:8 some animal testing and some worker exposure studies.

592:9 Q. Let's talk about the acute toxicity tests
592:10 again. Are these the same five or six toxicity tests
592:11 you've described, the LD50 and similar tests?

592:12 A. Yes.

592:13 Q. Are those sometimes referred to as
592:14 six-pack tests?

592:15 A. Yes.

592:16 Q. And you told us those are standard
592:17 toxicity tests; true?

592:18 A. Yes.

592:19 Q. What have those acute toxicity tests of
592:20 formulated product, the tests that Monsanto has done,
592:21 what did they show?

592:22 A. That it has low toxicity and is not

Page/Line	Source	ID
	592:23 irritating.	
	592:24 Q. That's consistent with the LD 5,000 --	
	593:1 LD50 5,000 or so measure you described early on?	
	593:2 A. Yes.	
	593:3 Q. Let's talk move to the genotoxicity tests	
	593:4 of the formulated products that Monsanto has done. Has	
	593:5 it done the same kind of genotoxicity tests of the	
	593:6 formulated product that you described for glyphosate	
	593:7 itself? That is, the laboratory in vitro petri dish	
	593:8 and in vivo in animal tests?	
	593:9 A. Yes.	
	593:10 Q. Same kinds of tests?	
	593:11 A. Yes.	
	593:12 Q. All right. Let me show you another chart.	
	593:13 [Exhibit 69 marked for identification.]	
593:14 - 593:14	Farmer, Donna 01-24-2019 (00:00:03)	DF2_COMBINED_06.157
	593:14 Q. Handing you Deposition Exhibit 69.	
593:17 - 594:6	Farmer, Donna 01-24-2019 (00:00:38)	DF2_COMBINED_06.158
	593:17 Q. (By Mr. Hall) Dr. Farmer, I've handed you	
	593:18 Deposition Exhibit 69.	
	593:19 Are you familiar with this chart?	EXHIBIT 480.1.1
	593:20 A. Yes.	
	593:21 Q. Describe for us generally what it shows.	
	593:22 It's titled formulated products, genotoxicity studies,	EXHIBIT 480.1.2
	593:23 conducted by Monsanto.	
	593:24 A. Yes. So this -- instead of having the	EXHIBIT 480.1.1
	594:1 surfactant over-under, description of product, or test	
	594:2 substance -- this would be an indication of the type of	
	594:3 formulation that they were being testing. It again has	
	594:4 the list of all the types of tests, and then it has the	
	594:5 results, and then the different organisms that were	
	594:6 tested.	
594:11 - 594:14	Farmer, Donna 01-24-2019 (00:00:10)	DF2_COMBINED_06.159
	594:11 MR. HALL: These are charts that have been	
	594:12 prepared for -- they're summary charts of documents	
	594:13 that have been produced as identified by the Bates	
	594:14 numbers, in Bates number columns.	
594:15 - 597:14	Farmer, Donna 01-24-2019 (00:02:59)	DF2_COMBINED_06.160
	594:15 Q. (By Mr. Hall) This summary chart, Exhibit	
	594:16 69 -- does Exhibit 69 list genotoxicity studies that	

594:17 Monsanto has done of formulated glyphosate products?

594:18 A. Yes.

594:19 Q. And we see the Bates columns, the two

594:20 columns on the far left.

594:21 Do you see that?

594:22 A. Yes.

594:23 Q. Do those identify the Bates numbers of the

594:24 various studies as they have been produced in this

595:1 litigation?

595:2 A. That's my understanding, yes.

595:3 Q. And we see the author. Tell us a little

595:4 bit about the authors of these tests. What does that

595:5 mean?

595:6 A. The authors are the individual that was in

595:7 the laboratory that is designated as the study

595:8 director. They're the ones that conducted the study,

595:9 and they're the ones then that wrote the report.

595:10 Q. The year. Is that the year of the report?

595:11 A. Yes.

595:12 Q. Would that correspond to the year of the

595:13 test, or not necessarily?

595:14 A. Not necessarily.

595:15 Q. The year of the test might be a year

595:16 before, or --

595:17 A. Yes.

595:18 Q. -- the same year. Okay. The title seems

595:19 self-explanatory. The test organisms. Tell us what

595:20 that means, please.

595:21 A. This is the type of organism. If it's in

595:22 a petri dish and it's identified as like salmonella

595:23 typhimurium, which is a bacteria -- you'll see there

595:24 are mouse erythrocytes, you'll see there are human

596:1 lymphocytes, so this is going to identify the type of

596:2 cell and will also tell you which kind of study was

596:3 done, whether it was done in mice or whether it was

596:4 done in a rat. It tells you the whole animal that was

596:5 tested.

596:6 Q. And so the genotoxicity test of formulated

596:7 products that Monsanto did included tests of bacteria

596:8 cells?

EXHIBIT 480.1.3

EXHIBIT 480.1.4

EXHIBIT 480.1.5

EXHIBIT 480.1.6

EXHIBIT 480.1.7

596:9 A. Uh-huh. Yes.

596:10 Q. Did it include tests of the effects of
596:11 formulated product on mice cells?

596:12 A. Yes.

596:13 Q. Did it include the effects of formulated
596:14 products, testing the effects of formulated products on
596:15 human cells?

596:16 A. Yes.

596:17 Q. And we see that word again, assay. Does
596:18 that list the kind of genotoxicity test that was done?

596:19 A. That's the name -- yes, the name of the
596:20 test.

596:21 Q. And you told us the description of the
596:22 product. That's the reference to the formulation
596:23 itself that was tested in these genotoxicity tests?

596:24 A. Yes.

597:1 Q. All right. And then we see the column
597:2 positive or negative. As to the genotoxicity test of
597:3 formulated products, what would a positive test result
597:4 indicate?

597:5 A. That there was some indication of
597:6 genotoxicity in the test.

597:7 Q. Were any of the genotoxicity tests that
597:8 Monsanto did of formulated products, did they result in
597:9 a positive finding -- that is, a finding of
597:10 genotoxicity?

597:11 A. No.

597:12 Q. Were all of them negative as shown in this
597:13 chart?

597:14 A. Yes.

598:15 - 599:22

Farmer, Donna 01-24-2019 (00:01:38)

598:15 Q. (By Mr. Hall) Let's move to animal
598:16 testing of formulated products. Did Monsanto do any
598:17 animal testing, that's the testing required by the EPA
598:18 and other regulators of animals, for formulated
598:19 products?

598:20 A. Yes.

598:21 Q. Now, you told us about the animal testing
598:22 of glyphosate -- that is the introduction into the food
598:23 of the substance and the testing over various periods

EXHIBIT 480.1.8

EXHIBIT 480.1.9

EXHIBIT 480.1.10

EXHIBIT 480.1.11

DF2_COMBINED_06.161

clear

598:24 of time. As a general matter, was similar testing done
599:1 of the formulated product?

599:2 A. Yes.

599:3 Q. Was there any exception to that?

599:4 A. Some of the testing of the formulated
599:5 product is done dermally, put on the skin, because that
599:6 is a route of exposure to people who work with the
599:7 product. Another one is inhalation, through breathing,
599:8 because they may be breathing parts of it when they're
599:9 out spraying.

599:10 Q. And tell us a bit about the doses of the
599:11 formulated products in these animal studies. You told
599:12 us in the animal studies of glyphosate itself, the
599:13 doses were much, much higher -- the doses for the
599:14 animals were much, much higher than what has been
599:15 measured as human doses for using glyphosate. Is the
599:16 same true for the animal testing of the formulated
599:17 product?

599:18 A. Yes.

599:19 Q. Give us some idea of the comparison
599:20 between the doses used in the animal testing of
599:21 formulated product and the doses that someone would
599:22 obtain actually using glyphosate.

600:1 - 604:22

Farmer, Donna 01-24-2019 (00:05:11)

DF2_COMBINED_06.162

600:1 A. If you look at the dermal study, the dose
600:2 that was put on was 1,000 milligrams per kilogram, and
600:3 you would have someone who would be exposed to, say,
600:4 .004, so you're looking at, what, several thousand-fold
600:5 higher in the animal study than you would have a human
600:6 being exposed to.

600:7 Q. (By Mr. Hall) Okay. Thousands of times
600:8 higher?

600:9 A. Yes. Uh-huh.

600:10 Q. All right. Now, did -- you mentioned that
600:11 in the testing of glyphosate -- the animal testing of
600:12 glyphosate -- Monsanto did the two-year studies that
600:13 were aimed at testing to see if the substance caused
600:14 cancer in the animals. Do you recall that?

600:15 A. Yes.

600:16 Q. Did Monsanto do similar two-year studies

600:17 of the formulated product?

600:18 A. No.

600:19 Q. Why not?

600:20 A. I think there's two things to address

600:21 that. One is the existing data didn't give us any

600:22 indication of any concern. And the second one is is

600:23 that conducting that study would be difficult in

600:24 conducting it and in interpreting the results from that

601:1 study.

601:2 Q. Let's focus on those two reasons. You

601:3 said first, the existing test -- testing that Monsanto

601:4 had done -- well, let me ask another question first.

601:5 Does the EPA and other regulators around the world

601:6 require two-year testing, two-year animal testing of

601:7 the formulated product?

601:8 A. No.

601:9 Q. Now, you mentioned that you saw two

601:10 reasons why Monsanto did not do that test, which you've

601:11 told us is not required. The first one is that other

601:12 testing gave no indication that a two-year test would

601:13 be called for. What do you mean by that? Tell us a

601:14 little bit more about that.

601:15 A. As we talked about, we had the chronic

601:16 study with glyphosate, where we saw no evidence of

601:17 carcinogenicity.

601:18 Q. When you say the chronic study, what study

601:19 are you referring to?

601:20 A. Chronic -- sorry. Chronic in -- study in

601:21 mice, long-term studies in mice and long-term studies

601:22 in rats.

601:23 Q. Those are the two-year studies?

601:24 A. Yes.

602:1 Q. Okay.

602:2 A. We saw no evidence of carcinogenicity in

602:3 those studies.

602:4 Q. Of glyphosate itself?

602:5 A. Of glyphosate itself.

602:6 Q. Okay.

602:7 A. We then look at the genotox data. In all

602:8 of the studies that we had done with glyphosate, there

602:9 was no evidence of genotoxicity.

602:10 Q. You mentioned that there was a second
602:11 reason why Monsanto did not do these two-year animal
602:12 studies of the formulated product. What is that second
602:13 reason?

602:14 A. It's the difficulty in conduct and
602:15 interpretation of the study. As we talked about with
602:16 the surfactants, when we did the surfactants we saw no
602:17 evidence of genotoxicity in any of the studies with any
602:18 of the surfactants, and when we did the animal studies,
602:19 the primary finding was gastrointestinal irritation.
602:20 So whether we gave it to them for 30 days
602:21 or we gave it to them for 90 days, all we saw was
602:22 gastrointestinal irritation, irritation to their GI
602:23 system. We didn't see what we talked about as a target
602:24 organ.

603:1 So if we were to do a test of the
603:2 formulated product -- if we -- the EPA wants us to get
603:3 those doses really, really high to elicit that
603:4 response, the surfactant would be so disruptive to the
603:5 animal's GI system that they may not eat the food or
603:6 they may just be really sick.

603:7 Q. When you say the surfactant is disruptive
603:8 to the animal's GI system, what do you mean? Tell us a
603:9 little more about what that actually means as far as
603:10 the animal ingesting surfactant or the formulated
603:11 product that includes surfactant.

603:12 A. Surfactants are named for surface-acting
603:13 substances, because they act on the surface of cells,
603:14 and unlike when you have surfactants in body soap, you
603:15 have a tough layer of skin that helps protect your
603:16 other cells from that.

603:17 Your GI system doesn't have that
603:18 protective layer, so those surfactants are very
603:19 disruptive to those really delicate cells that are in
603:20 the lining of the GI system. So again, to get a dose
603:21 high enough to meet that -- what they call the maximum
603:22 tolerated dose with a surfactant, we would be really
603:23 pushing GI irritation significantly on these animals.

603:24 Q. Well, why is that a factor or why is that

604:1 a potential issue in an animal test -- that is, if the
604:2 animal has significant digestive irritation or
604:3 problems?

604:4 A. Because they're so sick that it
604:5 complicates the interpretation of the results of the
604:6 study. So we don't know if the findings that we're
604:7 seeing at the end of the study are due to the test
604:8 material directly or due to that the animals are so
604:9 sick during the study.

604:10 Q. All right. So you've said that Monsanto
604:11 did not do long-term animal studies of the formulated
604:12 product. Are there any long-term studies of the
604:13 formulated product in existence?

604:14 A. Yes.

604:15 Q. What are those?

604:16 A. Epidemiology studies.

604:17 Q. And epidemiology studies are long-term
604:18 studies of the use of formulated products by people?

604:19 A. That's -- I'm not an epidemiologist, but
604:20 that's my understanding, is that they're looking at
604:21 people who were using products and following them
604:22 long-term.

612:4 - 614:6

Farmer, Donna 01-24-2019 (00:02:46)

DF2_COMBINED_06.163

612:4 Q. Let me move to a different subject. I've
612:5 been asking about the testing that Monsanto did of
612:6 glyphosate, surfactants, and formulated products. I
612:7 now want to shift to what the regulators around the
612:8 world have said about Monsanto's glyphosate products
612:9 and glyphosate. Okay?

612:10 A. Okay.

612:11 Q. Have you been involved, as a regulatory
612:12 toxicologist, in the submissions that Monsanto has made
612:13 of its test data to the EPA and regulators in the
612:14 European Union and many other countries around the
612:15 world?

612:16 A. Yes.

612:17 Q. For how long?

612:18 A. Off and on for the 20-some -- 25 years
612:19 that I've supported glyphosate. Because sometimes
612:20 there were other toxicologists involved after me and

612:21 some before me, but I've been involved with them.
 612:22 Q. Tell us, please, a little bit about the
 612:23 process here. You have described all the testing that
 612:24 Monsanto has done. What does Monsanto do with those
 613:1 tests?
 613:2 A. So we look at what the regulators want.
 613:3 So there's a lot of other subjects -- so they want
 613:4 ecotox studies, and environmental fate studies, and
 613:5 efficacy studies, and product chemistry studies, and
 613:6 they want toxicology studies.
 613:7 So our job in the product safety center,
 613:8 as a regulatory toxicologist, is to understand what
 613:9 studies do they want for toxicology for them to
 613:10 evaluate the safety. So we make sure that those
 613:11 studies are conducted.
 613:12 The EPA has a very specific list, and they
 613:13 have very specific ways they want those studies
 613:14 conducted. So we make sure that we get the studies
 613:15 that they want and conducted according to how they want
 613:16 them done. We then give them to our reg affairs
 613:17 managers, and they're the ones who then formalize the
 613:18 submission to the agencies.
 613:19 Q. I want to ask about your understanding
 613:20 then about what the agencies, the EPA and the other
 613:21 regulators around the world, do with the test data that
 613:22 you provide. Do they have -- does the EPA have its own
 613:23 scientists who review the tests that Monsanto submits?
 613:24 A. Yes.
 614:1 Q. Do other -- the other regulators around
 614:2 the world also have scientists who review and evaluate
 614:3 the testing data you submit?
 614:4 A. Yes.
 614:5 Q. Let me show you Exhibit 70.
 614:6 [Exhibit 70 marked for identification.]
 614:10 Q. And Exhibit 70 is
 614:11 a document that on the first page has a United States
 614:12 Environmental Protection Agency authentication, and it
 614:13 is followed by a title page EPA reregistration
 614:14 eligibility decision, RED glyphosate. And it is a

614:10 - 616:2

Farmer, Donna 01-24-2019 (00:02:11)

DF2_COMBINED_06.164

EXHIBIT 481.1.1

EXHIBIT 481.2.1

614:15 document of several hundred pages.

614:16 First, Dr. Farmer, are you familiar with

614:17 this document?

614:18 A. Yes.

614:19 Q. What is it?

614:20 A. The EPA, like all regulatory agencies do

614:21 periodic reviews, and this was their rereview of

614:22 glyphosate in 1993, and it's called the reregistration

614:23 eligibility decision -- or shorthand, the RED -- on

614:24 glyphosate.

615:1 Q. What does it mean when the EPA registers

615:2 or reregisters a particular substance that's used in

615:3 herbicides like glyphosate?

615:4 A. It meets the safety standard that is in

615:5 place that day and we are able to sell the product.

615:6 Q. Do you have an understanding of what it is

615:7 that the EPA is evaluating when it is considering --

615:8 when it considers the registration of glyphosate?

615:9 A. Yes.

615:10 Q. Give us in general terms what that -- what

615:11 the EPA is evaluating.

615:12 A. They're looking at the safety of it from

615:13 the human safety side, they're looking at the

615:14 ecological safety side, because it's going to be used

615:15 in the environment.

615:16 They look at is it safe to the

615:17 environment, to water, soil. They look at how people

615:18 are going to use it. They look at whether it's going

615:19 to be in their diet. They look at the quality of the

615:20 product itself. So they look at a very big, very

615:21 significant package of data.

615:22 Q. In the course of considering the

615:23 registration or reregistration of glyphosate, did the

615:24 EPA evaluate Monsanto's testing methods, the quality of

616:1 its testing, and the data produced?

616:2 A. Yes.

616:11 - 616:19

Farmer, Donna 01-24-2019 (00:00:29)

616:11 Q. (By Mr. Hall) Does Exhibit 70, the EPA

616:12 reregistration decision document for glyphosate,

616:13 include summaries of Monsanto's actual testing of

clear

DF2_COMBINED_06.165

616:14 glyphosate?

616:15 A. This has summaries, yes.

616:16 Q. And does this Exhibit 70, this RED,
616:17 reregistration eligibility decision, does it include
616:18 the EPA's scientific -- scientists' evaluation of
616:19 Monsanto's testing of glyphosate?

617:21 - 618:10

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617:21 A. Yes.

617:22 Q. How?

617:23 A. We would use it as a confirmation of the
617:24 conclusions that we came to about our product.

618:1 Q. Did the EPA's reregistration decision for
618:2 glyphosate have an impact on the company's conduct of
618:3 its business?

618:4 A. No.

618:5 Q. Did the -- when you say that you relied on
618:6 the document, did the reregistration decision in 1993,
618:7 did it inform -- help inform Monsanto's views that
618:8 glyphosate and glyphosate products are not
618:9 cancer-causing?

618:10 A. Yes.

618:14 - 619:12

Farmer, Donna 01-24-2019 (00:01:02)

DF2_COMBINED_06.167

618:14 Q. (By Mr. Hall) When you say the EPA's
618:15 reregistration decision helped inform Monsanto's views
618:16 that glyphosate and glyphosate products did not cause
618:17 cancer, how did it do that? Explain that.

618:18 A. In here, they talk about their decision on
618:19 their carcinogenicity evaluation of glyphosate.

618:20 Q. And did they have scientists who reviewed
618:21 the same tests that Monsanto had performed?

618:22 A. Yes.

618:23 Q. Did they come to the conclusion that
618:24 glyphosate is not genotoxic?

619:1 A. Yes.

619:2 Q. Did they -- what else did they conclude
619:3 with respect to glyphosate as it relates to whether or
619:4 not it causes cancer?

619:5 A. They put it into Group E, which is
619:6 evidence of non-carcinogenicity.

619:7 Q. Did this reregistration decision permit

619:8 Monsanto to sell glyphosate products?

619:9 A. Yes.

619:10 Q. Let me ask you about another regulatory

619:11 document.

619:12 [Exhibit 71 marked for identification.]

619:13 - 620:9

Farmer, Donna 01-24-2019 (00:01:12)

DF2_COMBINED_06.168

619:13 Q. You have a document that our reporter has

619:14 marked as Deposition Exhibit 71. This also has an EPA

619:15 authentication on the first page. And then on the

619:16 second page, it has an EPA letterhead document entitled

619:17 subject, alkyl amine polyalkoxylates. I'm not a

619:18 chemist.

619:19 A. That's good.

619:20 Q. Are you familiar with Exhibit 71?

619:21 A. Yes.

619:22 Q. What is Exhibit 71?

619:23 A. The EPA -- this is about inerts, and the

619:24 alkyl amine polyalkoxylates are a group of surfactants

620:1 that are used in glyphosate products. And the EPA --

620:2 before a pesticide manufacturer can put inert into

620:3 their pesticide formulation, they have to be approved

620:4 by the EPA, and this is a review of one of those types

620:5 of inerts.

620:6 Q. And when you're referring to inerts here,

620:7 this -- is Exhibit 71 addressing surfactants that

620:8 Monsanto include -- has included in glyphosate

620:9 products?

620:24 - 622:22

Farmer, Donna 01-24-2019 (00:02:12)

DF2_COMBINED_06.169

620:24 A. Yes.

621:1 Q. (By Mr. Hall) Tell us -- give us an

621:2 overview understanding of what Exhibit 71, the EPA's

621:3 review of surfactants, shows.

621:4 A. They show that there was no concern for

621:5 genotoxicity, that the animal studies showed the GI

621:6 irritation that we had talked about before, and that

621:7 they had no concern for carcinogenicity.

621:8 Q. Did this Exhibit 71, the EPA's -- is it a

621:9 registration of surfactants? What is it called?

621:10 A. They call it an a exemption from a

621:11 requirement of a tolerance?

clear

EXHIBIT 482.1.1

EXHIBIT 482.2.1

621:12 Q. Is it an approval?

621:13 A. It would be an approval, yes.

621:14 Q. Does the EPA's approval of the surfactants

621:15 in Exhibit 71, did it include evaluations by EPA

621:16 scientists of the tests on surfactants that had been

621:17 done by the manufacturers of surfactants, the other

621:18 companies you were referring to earlier?

621:19 A. Yes.

621:20 Q. Did it include the EPA's evaluation of

621:21 certain tests that Monsanto itself did on surfactants

621:22 as well?

621:23 A. Yes.

621:24 Q. Is Exhibit 71 a document you're familiar

622:1 with and have used and relied on in the course of your

622:2 work as a regulatory toxicologist?

622:3 A. Yes.

622:4 Q. Did the EPA reach any conclusion or

622:5 evaluation of the question of whether surfactants are

622:6 carcinogenic?

622:7 A. They did.

622:8 Q. What conclusion did they reach?

622:9 A. That they had no -- it's in a paragraph in

622:10 here. But the bottom line is they had no concern for

622:11 carcinogenicity for these surfactants.

622:12 Q. If you turn to Page 15 of 94. Is that

622:13 where the EPA addressed that question?

622:14 A. Yes.

622:15 Q. And what does the first sentence of

622:16 Section 4.4 of the EPA's approval of surfactants say?

622:17 A. There is no evidence that the AAPs are

622:18 carcinogenic.

622:19 Q. And does the AAPs there refer to

622:20 surfactants Monsanto has used in glyphosate products?

622:21 A. Yes.

622:22 [Exhibit 72 marked for identification.]

622:23 - 623:22

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622:23 Q. The reporter has handed you Deposition

622:24 Exhibit 72, Dr. Farmer. Exhibit 72's first page is

623:1 titled -- it's on a letterhead of European Commission

623:2 Health and Consumer Protection, directorate-general.

EXHIBIT 482.16.1

EXHIBIT 482.16.2

DF2_COMBINED_06.170

clear

EXHIBIT 483.1.1

623:3 Do you see that?

623:4 A. Yes.

623:5 Q. And it's dated January 21st, 2002;

623:6 correct?

623:7 A. Correct.

623:8 Q. By the way, do you recall -- I asked you

623:9 about the EPA's reregistration document. Do you --

623:10 that was Exhibit 70. Do you recall the date of the

623:11 EPA's reregistration document?

623:12 A. 1993.

623:13 Q. And I don't know if I asked you about the

623:14 surfactant approval, the EPA's approval in Exhibit 71

623:15 as to the surfactants. Do you recall the date of the

623:16 EPA's -- that document?

623:17 A. I think around 2009.

623:18 Q. And this document here, the European

623:19 Commission document, Exhibit 72, is dated 2002.

623:20 Are you familiar with this document?

623:21 A. Yes.

623:22 Q. Tell us what Exhibit 72 is.

624:17 - 627:11

Farmer, Donna 01-24-2019 (00:03:19)

624:17 Q. (By Mr. Hall) Tell me what Exhibit 72 is,

624:18 Dr. Farmer.

624:19 A. This is a review for -- this is a review

624:20 report for the active substance -- glyphosate, and this

624:21 is their review for -- they called it the Annex 1

624:22 listing, basically the registration of glyphosate in

624:23 the European Union.

624:24 Q. Exhibit 72 reflects the European Union's

625:1 registration of glyphosate?

625:2 A. Evaluation and registration -- yes.

625:3 Q. And the European Union -- what is that?

625:4 A. Many of the countries in Europe all kind

625:5 of joined together to form the European Union. There's

625:6 about maybe 25 countries that have joined together. So

625:7 think about it, the United States has all the states

625:8 and we have the EPA. This would be similar.

625:9 Q. Okay. And the European Union would

625:10 include Germany, France, Switzerland, many other

625:11 countries in Europe?

EXHIBIT 481.2.2

EXHIBIT 482.2.2

EXHIBIT 483.1.1

DF2_COMBINED_06.171

EXHIBIT 483.1.2

clear

625:12 A. Yes.

625:13 Q. So this is the 2002 European Union
625:14 approval of glyphosate. Give us an overview of your
625:15 understanding of what the European Union looked at when
625:16 it considered glyphosate back at this time.

625:17 A. Similar to the U.S. EPA, it's -- on Page 3
625:18 it talks about the physical chemical properties, the
625:19 fate of it in the environment. They look at the
625:20 ecotoxicology to animals in the environment, mammalian
625:21 toxicology, the residues and analytical method, and so
625:22 it's a very similar data set, the data set meaning all
625:23 the studies are required by regulatory agencies to look
625:24 at the profile of glyphosate.

626:1 Q. Does the European Union have its own staff
626:2 of scientists who reviewed and evaluated glyphosate?

626:3 A. Yes.

626:4 Q. And did they, those scientists at the
626:5 European Union, review and evaluate the tests that
626:6 Monsanto did on glyphosate, surfactants, and formulated
626:7 products?

626:8 A. Yes.

626:9 Q. Now, in 2002, were there other companies
626:10 in addition to Monsanto who also sold glyphosate
626:11 products?

626:12 A. Yes.

626:13 Q. And give us a little understanding of how
626:14 it is that other products came to sell glyphosate
626:15 around that time.

626:16 A. Glyphosate went off patent around the
626:17 world before 2000. In the U.S. it went off patent in
626:18 2002. So there were other companies in Europe that had
626:19 developed their own glyphosate database, which is all
626:20 those studies we've talked about.

626:21 Q. Well, let me ask you about that database.
626:22 When other companies besides Monsanto began selling
626:23 glyphosate products, were these competitors to Roundup
626:24 and Monsanto's other glyphosate products?

627:1 A. Yes.

627:2 Q. When other companies began selling these
627:3 competing products, do you know, did they do their own

627:4 testing of glyphosate and the constituents of the
627:5 glyphosate products?

627:6 A. Yes.

627:7 Q. And in 2002, in Exhibit 72, the European
627:8 Union's evaluation of glyphosate -- did the European
627:9 Union scientists also review the tests of glyphosate,
627:10 glyphosate products, that had been done by other
627:11 manufacturers in addition to Monsanto?

627:15 - 627:15

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627:15 A. Yes.

627:18 - 629:14

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627:18 Q. (By Mr. Hall) It did include them?

627:19 A. Yes.

627:20 Q. Now, did Monsanto have anything to do with
627:21 the genotoxicity, animal testing, or any testing done
627:22 of glyphosate or glyphosate products that was done by
627:23 these other manufacturers who made competing products?

627:24 A. No.

628:1 Q. Did Monsanto have any input into that
628:2 testing?

628:3 A. No.

628:4 Q. Did Monsanto have any role at all in the
628:5 glyphosate and related testing done by these other
628:6 manufacturers who produced competing products?

628:7 A. No.

628:8 Q. Does Exhibit 72, the European Union's
628:9 evaluation and approval of glyphosate, include the
628:10 review by the European Union scientists of the testing
628:11 done by other makers of glyphosate products?

628:12 A. Yes.

628:13 Q. By the way, did those other glyphosate
628:14 product make -- manufacturers, did they use their own
628:15 scientists, their own laboratories, their own materials
628:16 in their testing of glyphosate and glyphosate products?

628:17 A. Yes.

628:18 Q. Did the fact that there were other tests
628:19 done by other companies that Monsanto had nothing to do
628:20 with, of glyphosate and glyphosate products -- well,
628:21 first of all, do you have an understanding of the
628:22 results of those tests?

628:23 A. Yes.

628:24 Q. How did you get that understanding?

629:1 A. When we were going through the European
629:2 Union, we worked with the other company to submit
629:3 summaries.

629:4 Q. And so you've seen summaries of the
629:5 glyphosate and glyphosate product testing by other
629:6 companies?

629:7 A. Yes.

629:8 Q. Have you seen the actual studies
629:9 themselves and the actual data?

629:10 A. No.

629:11 Q. How -- what did those summaries show
629:12 generally with respect to the testing done on
629:13 glyphosate and glyphosate products done by other
629:14 companies independent of Monsanto?

629:16 - 629:24

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629:16 A. They were very consistent.

629:17 Q. (By Mr. Hall) Did the fact that there
629:18 were other testing done by other companies in different
629:19 laboratories of glyphosate and glyphosate products, and
629:20 the tests came to consistent results -- did that help
629:21 inform Monsanto's view that glyphosate and glyphosate
629:22 products did not cause cancer in humans?

629:23 A. Yes.

629:24 Q. How? How did it bear on it?

630:6 - 631:3

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DF2_COMBINED_06.175

630:6 A. When you look at their genotox studies and
630:7 their carcinogenicity studies, they came out the same.
630:8 There was no evidence of genotoxicity and there was no
630:9 evidence of carcinogenicity.

630:10 Q. (By Mr. Hall) As a toxicologist, why does
630:11 it matter if there are independent tests done that come
630:12 to similar results?

630:13 A. It's consistent. I mean, if they -- what
630:14 we're seeing is that they had exactly the same results
630:15 we did. So a lot of times in experiments, you can have
630:16 different findings, but when they're coming out exactly
630:17 the same, it's very confirmatory that you have the
630:18 right responses and that they are consistent between

630:19 the studies in different labs with different animals

630:20 over different periods of time.

630:21 Q. Did the European Union in Exhibit 72, did

630:22 it come to a conclusion as to whether or not glyphosate

630:23 causes cancer?

630:24 A. Yes.

631:1 Q. In humans?

631:2 A. Yes.

631:3 Q. And what was their conclusion?

631:5 - 631:5

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631:5 A. It was not carcinogenic.

631:14 - 633:22

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631:14 Q. (By Mr. Hall) Dr. Farmer, staying with

631:15 Exhibit 72 for just a minute. That's the European

631:16 Union's approval in 2002 with respect to glyphosate.

631:17 Did Monsanto rely on that approval in some way in the

631:18 conduct of its business?

631:19 A. Yes.

631:20 Q. How?

631:21 A. With the approval, it allowed us then to

631:22 go to each member state to register the formulations in

631:23 those areas, and we also relied on the confirmatory

631:24 conclusions of the European Union.

632:1 Q. And when you say register the formulations

632:2 with member states, does that mean get the permission

632:3 then to sell glyphosate products within each of those

632:4 countries?

632:5 A. Yes.

632:6 Q. Going back for a minute to Exhibit 70.

632:7 That's the 1993 EPA reregistration document for

632:8 glyphosate that you described. Exhibit 71, which is

632:9 the 2009 EPA surfactant approval that you described,

632:10 and Exhibit 72, the European Union -- the 2002 European

632:11 Union Commissions's approval with respect to

632:12 glyphosate.

632:13 As to those three documents, did you

632:14 yourself rely on those documents in the course of your

632:15 work as a regulatory toxicologist for Monsanto?

632:16 A. Yes.

632:17 Q. How?

632:18 A. Well, every time we look at -- have
 632:19 questions about glyphosate or a new study comes out or
 632:20 someone asks us a question, we go back and we want to
 632:21 know what the regulatory agencies thought. We look at
 632:22 their opinions. And so time and time again, we will go
 632:23 back and look at all of these different regulatory
 632:24 agency documents when we prepare responses or review
 633:1 new data.

633:2 Q. And when you say look at regulatory
 633:3 opinions, what kind of opinions are you describing?
 633:4 Are they expressed in these regulatory documents,
 633:5 Exhibit 70, 71, and 72?

633:6 A. Yes. While you'll find that the
 633:7 conclusions of the studies are always the same, each
 633:8 scientist has a different way that they evaluate the
 633:9 studies, and so that's what we look at. Because the
 633:10 EPA scientists were different than the European
 633:11 scientists, that were different than the testing
 633:12 facilities' study directors that did them.
 633:13 So it's always good to come back and see
 633:14 what each evaluator thinks about the study, and the
 633:15 conclusions are always the same.

633:16 Q. Are the opinions of these regulator
 633:17 scientists included within these regulatory approval
 633:18 documents you've been describing, Exhibits 70, 71, 72?

633:19 A. Yes.

633:20 Q. Did you regularly rely on these documents
 633:21 in the course of your work for Monsanto?

633:22 A. Yes.

634:5 - 634:16

Farmer, Donna 01-24-2019 (00:00:40)

634:5 Q. (By Mr. Hall) Doctor, the reporter has
 634:6 handed you a document marked as Deposition Exhibit 73,
 634:7 I believe. This is titled pesticide residues in food,
 634:8 2004, joint FAO, WHO meeting on pesticide residues.
 634:9 Evaluations 2004, Part 2, toxicological.
 634:10 Do you see that?

634:11 A. Yes.

634:12 Q. Are you familiar with that document?

634:13 A. Very.

634:14 Q. All right. Let me hand you another 2004

DF2_COMBINED_06.178

EXHIBIT 484.1.1

634:15	document.	
634:16	[Exhibit 74 marked for identification.]	
634:24 - 637:24	Farmer, Donna 01-24-2019 (00:03:51)	DF2_COMBINED_06.179
634:24	Q. (By Mr. Hall) Exhibit 74 is entitled	EXHIBIT 485.1.1
635:1	report 2004, pesticide residues in food. And I want to	
635:2	ask you about Exhibit 73 and 74 together right now. Do	
635:3	you recognize both of those documents?	
635:4	A. Yes.	clear
635:5	Q. What are these 2004 documents, both of	
635:6	which bear the insignia of the World Health	
635:7	Organization?	
635:8	A. This is called -- what they call the JMPR.	
635:9	It's the joint meeting on pesticide residues. It's the	
635:10	joint meeting between the FAO, which is the Food	
635:11	Agricultural Organization, and the World Health	
635:12	Organization toxicology group.	
635:13	So what these are, periodically these	
635:14	joint meetings between FAO and WHO get together. The	
635:15	WHO evaluates the toxicology of the active ingredient,	
635:16	like glyphosate. The FAO looks at the residues that	
635:17	would be found in crop commodities. Then they come	
635:18	back together to do a joint review.	
635:19	Q. Do Exhibits 73 and 74 relate to each other	
635:20	in some way?	
635:21	A. Yes, they do.	
635:22	Q. Explain briefly how.	
635:23	A. Exhibit 73, where it says Part 2,	EXHIBIT 484.1.2
635:24	toxicological -- this has quite a few pages that go	
636:1	through all of the toxicology studies that are on	
636:2	glyphosate. This report, Exhibit Number 74, is then a	EXHIBIT 485.1.1
636:3	very shortened summary of the toxicological evaluation	
636:4	in context with the residues.	clear
636:5	Q. Now, you mentioned this JMPR organization.	
636:6	Is that part of the World Health Organization?	
636:7	A. Yes, it is.	
636:8	Q. And we have heard a lot about IARC. Is	
636:9	IARC also part of the World Health Organization?	
636:10	A. Yes, it is.	
636:11	Q. Is there a particular division or group	
636:12	within the World Health Organization that has primary	

636:13 responsibility for evaluating the safety of herbicides
636:14 and pesticides?

636:15 A. That is this joint meeting between the FAO
636:16 and the WHO. That is exactly their charge, is to look
636:17 at the toxicity of the pesticides, look at the residues
636:18 of those pesticides and commodities, and then determine
636:19 what is allowable to be in those commodities of that
636:20 pesticide.

636:21 Q. So it's the JMPR that has that primary
636:22 responsibility?

636:23 A. Yes.

636:24 Q. Give us an overview of what the JMPR did
637:1 in 2004 as it relates to glyphosate in Exhibits 73 and
637:2 74.

637:3 A. So it reviewed the toxicology studies that
637:4 we've been talking about. They don't look at the
637:5 ecotoxic or the environmental side because they are
637:6 really looking at what would be in food and what people
637:7 would eat, so they really concentrate on all of the
637:8 studies that regard human health.

637:9 Q. Did the JMPR have its own team of
637:10 scientists independent of Monsanto evaluating
637:11 glyphosate?

637:12 A. Yes, they did.

637:13 Q. Did they -- did those scientists evaluate
637:14 Monsanto's testing of glyphosate?

637:15 A. Yes, they did.

637:16 Q. Now, you mentioned earlier that as of
637:17 around 2000, there were other companies that had begun
637:18 selling glyphosate products in competition with
637:19 Monsanto; correct?

637:20 A. Yes.

637:21 Q. In this 2004 evaluation of glyphosate done
637:22 by the JMPR, did the JMPR scientists also evaluate the
637:23 testing on glyphosate and glyphosate products done by
637:24 those other companies independent of Monsanto?

638:2 - 640:4

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638:2 A. Yes.

638:3 Q. (By Mr. Hall) And is their evaluation
638:4 included in these Exhibits 73 and 74?

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638:5 A. Yes.

638:6 Q. What conclusion, if any, did the JMPR
638:7 reach with respect to glyphosate and whether or not it
638:8 is a carcinogen in 2004?

638:9 A. That it was not genotoxic and it wasn't
638:10 carcinogenic.

638:11 Q. Did Monsanto -- let me ask you. Did
638:12 you -- have you relied on Exhibits 73 and 74 in the
638:13 course of carrying out your responsibilities as a
638:14 regulatory toxicologist at Monsanto?

638:15 A. Yes, I have.

638:16 Q. How?

638:17 A. As we talked about with the other
638:18 documents, we go back to this evaluation in particular
638:19 because it had two other toxicology sets of glyphosate,
638:20 so that helped inform us. And we use it again as
638:21 references for other people who want to look at the
638:22 summaries of the glyphosate studies.

638:23 Q. When you say it had two other sets of
638:24 toxicological data, what are you referring to?

639:1 A. There were two other glyphosate
639:2 manufacturers who put their regulatory packages in for
639:3 review in this process.

639:4 Q. All right. Did the testing of those other
639:5 glyphosate product manufacturers and the JMPR's
639:6 evaluation of glyphosate in 2004, as reflected in
639:7 Exhibits 73 and 74, did that help inform Monsanto's
639:8 view that glyphosate and glyphosate products do not
639:9 cause cancer?

639:10 A. Yes.

639:11 Q. How?

639:12 A. Again, the data was very consistent. We
639:13 had three sets of studies, three sets of data packages
639:14 that were done by three different manufacturers that
639:15 occurred over -- in a different number of years in
639:16 different laboratories around the world, were conducted
639:17 by different study directors, and then you had a whole
639:18 different set of scientists reviewing the data, and
639:19 they all came to that same conclusion.

639:20 Q. And when you say data packages, I just

639:21 want to make sure we understand what you're referring
639:22 to. What do you mean?

639:23 A. Each regulatory -- there's a very specific
639:24 set of studies that the regulators would like to see to
640:1 evaluate the safety of a product, so it's the acutes
640:2 and the genotox and those animal studies we talked
640:3 about, and there's many of those, and they then
640:4 constitute that data package.

685:10 - 685:16

Farmer, Donna 01-24-2019 (00:00:31)

DF2_COMBINED_06.181

685:10 Q. (By Mr. Hall) All right. I'm going to
685:11 shift gears again, Dr. Farmer. I want to go back for
685:12 just a minute to Exhibit 68, which is the chart titled
685:13 surfactants, genotoxicity studies conducted by
685:14 Monsanto. And you walked us through the contents of
685:15 that chart earlier; correct?

EXHIBIT 479.1.1

685:16 A. Yes.

685:23 - 687:22

Farmer, Donna 01-24-2019 (00:02:22)

DF2_COMBINED_06.182

685:23 Q. (By Mr. Hall) And you told us -- you
685:24 walked through the information, Exhibit 68. I want to
686:1 ask you, were you involved in preparing the chart, the
686:2 information in that chart, Exhibit 68?

686:3 A. Yes.

686:4 Q. Are you familiar with all of the
686:5 genotoxicity studies of surfactants that are listed in
686:6 that chart?

EXHIBIT 479.1.13

686:7 A. Yes.

686:8 Q. Were you able to verify the correctness of
686:9 the information about those studies that is presented
686:10 in Exhibit 68?

686:11 A. Yes.

686:12 Q. And you say you're familiar with those
686:13 studies. Did you review those studies in the course of
686:14 your work at Monsanto --

686:15 A. Yes, I --

686:16 Q. -- as a regulatory toxicologist?

686:17 A. Yes, I have.

686:18 Q. Is that chart to the best of your
686:19 knowledge an accurate report of the genotoxicity
686:20 studies done by Monsanto on surfactants?

686:21 A. To the best of my knowledge.

686:22 Q. All right. Let me hand you Exhibit 69,
686:23 which is a chart titled formulated products,
686:24 genotoxicity studies, conducted by Monsanto. And
687:1 earlier you walked us through the contents of that
687:2 chart. I want to ask you, were you involved in
687:3 preparing that chart?

EXHIBIT 480.1.2

687:4 A. Yes.

687:5 Q. The studies there that are listed, the
687:6 genotoxicity studies of formulated products, are you
687:7 familiar with those studies?

EXHIBIT 480.1.12

687:8 A. Yes.

687:9 Q. Did you -- did you verify the accuracy of
687:10 the information about those studies that's presented on
687:11 Exhibit 69?

687:12 A. Yes, to the best of my ability.

687:13 Q. And you said you're familiar with the
687:14 studies. Are those studies that you have reviewed in
687:15 the course of your work for Monsanto as a regulatory
687:16 toxicologist?

687:17 A. Yes.

687:18 Q. Is Exhibit 69 an accurate chart listing --
687:19 does Exhibit 69 present an accurate account of the
687:20 information related to genotoxicity studies conducted
687:21 by Monsanto of formulated products?

687:22 A. To the best of my knowledge.

687:23 - 688:18

Farmer, Donna 01-24-2019 (00:00:51)

DF2_COMBINED_06.183

687:23 Q. Move to a different subject now, Dr.
687:24 Farmer. You used the word stewardship early on when
688:1 you were describing your role as a regulatory
688:2 toxicologist for Monsanto. Remind us again, please,
688:3 what do you mean by stewardship?

clear

688:4 A. So we talked about there were two buckets.
688:5 The regulatory side, we're required to do things for
688:6 our regulators for our products. And then there's
688:7 another side called product stewardship, and the first
688:8 baseline of product stewardship is follow all rules and
688:9 regulations.

688:10 And then the next one is what do we do
688:11 above and beyond that, and that's what we mean by
688:12 stewardship.

688:13 Q. And when you say two buckets, are you
688:14 referring to the two primary areas of your role as a
688:15 regulatory toxicologist at Monsanto?

688:16 A. Yes.

688:17 Q. And that's regulatory and stewardship?

688:18 A. Yes.

688:19 - 693:5

Farmer, Donna 01-24-2019 (00:05:41)

DF2_COMBINED_06.184

688:19 Q. Let me show you a document that you were
688:20 asked about by the plaintiff's lawyer. It's marked as
688:21 Deposition Exhibit 23. And it is a April 2002 e-mail
688:22 thread that involves you and others at Monsanto;
688:23 correct?

EXHIBIT 442.1.3

688:24 A. Yes.

689:1 Q. And you're familiar with this document?

689:2 A. Yes, I am.

689:3 Q. When you were asked questions by the
689:4 plaintiff's lawyer, you referred to a

689:5 four-part stewardship program. Do you remember that?

689:6 A. Yes, I do.

689:7 Q. I want to ask you about those -- the four
689:8 parts there. If you turn to Page 2 of Exhibit 23.

EXHIBIT 442.2.9

689:9 That's part of an e-mail that you sent to Dr. Heydens
689:10 and Richard Dirks; correct?

689:11 A. Correct.

689:12 Q. And in that e-mail you talk about the
689:13 stewardship program for glyphosate as a four-part
689:14 strategy.

689:15 Do you see that?

689:16 A. Yes.

689:17 Q. And I want to walk through those
689:18 four-part -- those four parts. First let me ask you,
689:19 is this e-mail the first time that four-part strategy
689:20 was referred to?

689:21 A. No, I think they've always had those
689:22 stewardship points, but I was kind of putting more of a
689:23 formality to it, but they had always been in some form.

689:24 Q. And I want to walk through each step in

690:1 the strategy. The first one is to publish relevant

EXHIBIT 442.2.10

690:2 toxicologic, ecotoxicological, and human information
690:3 about glyphosate in the peer-reviewed literature, like

690:4 Williams, Geisy, Acquavella.

690:5 Do you see that?

690:6 A. Yes.

690:7 Q. What is that referring to as part of the
690:8 stewardship program, this publishing of relevant
690:9 literature?

690:10 A. As we had talked about, we had our
690:11 regulatory studies that are not available for -- out in
690:12 the public as they exist. But we wanted then people to
690:13 know what were the findings of those studies -- how
690:14 were those studies conducted and what were the
690:15 findings.

690:16 And so that's why we then had the Williams
690:17 and the Geisy. Williams was human health, Geisy was
690:18 ecological, and then Acquavella was the farm family
690:19 exposure study, talking about what we knew about how
690:20 farmers were exposed to glyphosate.

690:21 So we wanted to get our regulatory
690:22 information out there, and as we had new data, new
690:23 information, we wanted to make that publicly available
690:24 to all of those who wanted to take a look at it.

691:1 Q. Williams, Geisy, and Acquavella refer to
691:2 articles that were published by -- published about
691:3 Monsanto testing data of glyphosate?

691:4 A. Yes. And there were others. This is just
691:5 an example.

691:6 Q. And why was it important to disseminate
691:7 this information about glyphosate testing to the world?
691:8 That's what you're doing when you're publishing;
691:9 correct?

691:10 A. Uh-huh. Uh-huh.

691:11 Q. Why was that part of the stewardship
691:12 program?

691:13 A. Glyphosate is used worldwide. A lot of
691:14 people have questions and curiosity about it, and we
691:15 wanted to make sure that we had our information out
691:16 there for people to take a look at. They may not be
691:17 able to get into the EPA website to look at the RED, so
691:18 we wanted to be able to have another form that they
691:19 could be able to get access to our information.

691:20 Q. And when you say access to the EPA website
 691:21 to look at the RED, what are you referring to?
 691:22 A. So when we talked about the EPA
 691:23 registration eligibility document, a lot of just the
 691:24 general public, that's not somewhere where they would
 692:1 go to look for that kind of information, so we wanted
 692:2 to be able to have these kinds of articles for people
 692:3 to use across society.

EXHIBIT 442.2.11

692:4 Q. The second part of the four-part testing
 692:5 after publishing toxicological and other information
 692:6 about glyphosate was reviewing -- you wrote review the
 692:7 literature regularly for glyphosate findings and
 692:8 respond when appropriate. Hardell, Stocco, and some
 692:9 others you list there. What is that referring to?

692:10 A. As we talked about, glyphosate, glyphosate
 692:11 products were widely used, and a lot of people had
 692:12 access to do testing with them and we were interested
 692:13 in what people were finding, and could we also
 692:14 communicate with them and contribute to information
 692:15 about what they were learning, and learn about what
 692:16 they were discovering as well.

692:17 Q. In your view why was it important for
 692:18 Monsanto to review the literature about glyphosate and
 692:19 studies done by others?

692:20 A. I think two reasons. One, we wanted to
 692:21 know what they were finding so that we would be aware
 692:22 of it, and another is sometimes there would be some
 692:23 misinformation or other things that were being
 692:24 published that didn't have the full picture of
 693:1 information, and we felt it was important to be able to
 693:2 watch all of that.

EXHIBIT 442.2.12

693:3 Q. Part 3 of the four-part strategy you wrote
 693:4 about in this e-mail is establishing a scientific
 693:5 network of prestigious --

693:9 - 697:9

Farmer, Donna 01-24-2019 (00:04:34)

DF2_COMBINED_06.185

693:9 Q. (By Mr. Hall) Scientists in key world
 693:10 areas and provide them the latest information about
 693:11 glyphosate. We have epi -- that's epidemiology?

693:12 A. Yes.

693:13 Q. Tox, toxicology. Exp. What's that?

693:14 A. Exposure.
693:15 Q. Exposure. Repro/dev?
693:16 A. Yeah, reproductive and developmental
693:17 toxicology.
693:18 Q. Clinical tox experts. What are you
693:19 referring to there, establishing this network of
693:20 prestigious scientists?
693:21 A. I think there's two things to look at with
693:22 this. One was to have them give us their opinion of
693:23 what they thought the data was, what we could do to
693:24 improve it, give us their input, their evaluations, and
694:1 the other one is they would be available if there were
694:2 questions by others around the world and they would
694:3 also have information to be able to interact with
694:4 others and communicate the science.
694:5 Q. Part 4 is assess data gaps and fund
694:6 appropriate research, and then it refers to three
694:7 things that I'm not sure what they refer to. So why
694:8 don't you explain what Part 4 is?
694:9 A. So the three things you're looking at
694:10 there -- the FFES is the farm family exposure study.
694:11 We recognize that while --
694:12 Q. Sorry, before you even get to that --
694:13 A. Yes.
694:14 Q. -- describe what assess data gaps and
694:15 fund appropriate research means.
694:16 A. What we would do is we would look out
694:17 there and ask is there any information that's missing
694:18 that we think would contribute to the overall
694:19 understanding of our product, and so that would be
694:20 considering looking at data gaps.
694:21 Q. All right. And now, what do FFES, MON
694:22 35050, and Stocco refer to?
694:23 A. So FFES -- sorry -- farm family exposure
694:24 study, and then Stocco was an author of an in vitro
695:1 study, and then MON 35050 was a formulation that there
695:2 were some studies conducted with that.
695:3 Q. All right. And so let's take them one at
695:4 a time. What is the farm family exposure study?
695:5 A. Well, we had information on people who use

EXHIBIT 442.2.13

695:6 it as part of their job, what we would call
695:7 occupational exposure. We did not have exposures to
695:8 farmers on what their exposure would be when they're
695:9 using it on their farm.
695:10 So that was recognized, we felt, as a data
695:11 gap -- what was the exposure that farmers had. So we
695:12 participated with a task force and helped fund that
695:13 particular exposure study.
695:14 Q. Did that fill that data gap?
695:15 A. Yes, it did.
695:16 Q. All right. MON 35050. What does that
695:17 refer to?
695:18 A. That was a formulation that was used by
695:19 some authors in Italy. They had injected the test
695:20 material, the formulation, 35050, directly into the
695:21 abdomen of the animals, and we felt the results of
695:22 those studies were because the formulation, which is
695:23 not a relevant round of exposure to people to have it
695:24 directly injected into their abdomen -- what would
696:1 happen if you gave it to them orally.
696:2 Q. So Monsanto conducted its own tests that
696:3 tried to replicate the Italian study you're referring
696:4 to?
696:5 A. Replicate it and then to do the oral
696:6 exposure.
696:7 Q. And was that a study required in any way
696:8 by regulators?
696:9 A. No.
696:10 Q. What does Stocco refer to?
696:11 A. That is an author of an in vitro study,
696:12 and there were some effects on cells that were in
696:13 vitro, and we believe that the results of that effect
696:14 were due to the surfactant in our formulated product,
696:15 and so we worked with a professor at another university
696:16 where we tested the product without Roundup -- without
696:17 glyphosate in it, and then we tested other surfactants
696:18 and found we had the exact same response.
696:19 Q. Did Monsanto, in your experience of
696:20 Monsanto, follow each of these four steps as part of
696:21 its stewardship program?

EXHIBIT 442.9

Page/Line	Source	ID
	696:22 A. We did.	
	696:23 Q. Were you personally involved in that?	
	696:24 A. Absolutely.	
	697:1 Q. Over what period of time has Monsanto	
	697:2 participated or implemented and followed this four-part	
	697:3 stewardship program?	
	697:4 A. Stewardship is -- product stewardship has	
	697:5 been around way before I got there. I think I	
	697:6 formalized it, because that was kind of for me to do	
	697:7 that that way, but it was followed again before me	
	697:8 without this formalization. This is how I was working	
	697:9 with it, and it's continued through today.	
715:21 - 716:1	Farmer, Donna 01-24-2019 (00:00:12)	DF2_COMBINED_06.186
	715:21 Q. (By Mr. Hall) After Monsanto received Dr.	
	715:22 Parry's recommendations in August 1999, did Monsanto	
	715:23 take steps to consider and address the recommendations?	
	715:24 A. Yes.	
716:2 - 716:4	716:1 [Exhibit 82 marked for identification.] Farmer, Donna 01-24-2019 (00:00:14)	DF2_COMBINED_06.187
	716:2 Q. Showing you Exhibit 82, which is a kind of	EXHIBIT 493.1.1
	716:3 oversized four-page chart titled Dr. Parry's	EXHIBIT 493.1.2
	716:4 recommendations, 8-18-99. What is this chart?	
717:3 - 717:12	Farmer, Donna 01-24-2019 (00:00:33)	DF2_COMBINED_06.188
	717:3 Q. (By Mr. Hall) What is this chart, Exhibit	
	717:4 82, Dr. Parry -- Dr. Farmer? Excuse me.	
	717:5 A. This has Dr. Parry's recommendations of A	
	717:6 through -- I think it's I, included on here, and then	
	717:7 as we talked about, we continued to work with Professor	
	717:8 Parry and look at what data we had that would be	
	717:9 responsive to each of those points.	
	717:10 Q. Does Exhibit 82 provide in the bold quotes	EXHIBIT 493.1.3
	717:11 next to letters A through I the actual recommendations	
	717:12 by Dr. Parry in August 1999?	
717:14 - 717:14	Farmer, Donna 01-24-2019 (00:00:00)	DF2_COMBINED_06.189
	717:14 A. Yes.	
717:22 - 721:6	Farmer, Donna 01-24-2019 (00:03:53)	DF2_COMBINED_06.190
	717:22 Q. (By Mr. Hall) I think you said it	
	717:23 includes Dr. Parry's actual language of his	
	717:24 recommendations in A through I from August 1999?	
	718:1 A. In the bold, yes.	

718:2 Q. And generally what is the information --
718:3 just to orient us as to the chart, what is the
718:4 information provided after each of the bold quoted
718:5 recommendations of Dr. Parry?
718:6 A. Those were information that was -- studies
718:7 or information existing at that time that would address
718:8 that particular recommendation, and then below it you
718:9 can see that following that there would be -- these
718:10 studies continued ongoing and they would -- we would
718:11 have studies that would continually over time still
718:12 address Professor Parry's recommendations.
718:13 Q. Let's break that down a little bit. As a
718:14 general matter after each recommendation, is there --
718:15 are there listed studies that address the
718:16 recommendation?
718:17 A. Yes.
718:18 Q. And there is for some of the responsive
718:19 information below the recommendations a line that says
718:20 that it divides the information, and it has 8-18-99,
718:21 for example, in response to Recommendation A/B on Page
718:22 1.
718:23 A. Yes.
718:24 Q. What does that line, 8-18-99, indicate?
719:1 A. So the studies above the line were studies
719:2 that were available at the time when we were working
719:3 with Professor Parry that addressed his Endpoints A and
719:4 B. Those below the line are studies that have been
719:5 generated over years following with Professor Parry
719:6 that would still then be addressing his points in A and
719:7 B.
719:8 Q. And 8-18-99 indicates the date of Dr.
719:9 Parry's recommendations?
719:10 A. That was the August -- yes.
719:11 Q. Now, who prepared this chart, Exhibit 82?
719:12 A. I worked with the lawyers on this.
719:13 Q. Right. Who is -- who put together the
719:14 content of the chart?
719:15 A. That would have been me.
719:16 Q. Did you check each of the entries --
719:17 A. Yes.

EXHIBIT 493.1.4

Page/Line

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719:18 Q. -- on Exhibit 82?

719:19 A. Yes.

719:20 Q. Let's walk through the chart, and at some

719:21 level of detail, and you can just describe, please,

719:22 what the information represents. First, let me ask

719:23 you -- Recommendations A and B on Page 1 of Exhibit 82

719:24 are combined together. Why does the chart include both

720:1 A. and B in that first entry?

720:2 A. It just is representing all of the

720:3 different studies that are involved in in vitro

720:4 cytogenetic studies.

720:5 Q. Were A and B, his recommendations, related

720:6 to each other?

720:7 A. Yes. He had -- one was in vitro

720:8 cytogenetic data on the glyphosate formulations, and

720:9 then he talks about in vitro micronucleus studies in

720:10 human lymphocytes, and that's another type of a in

720:11 vitro cytogenetic study.

720:12 Q. Did the information that's provided below

720:13 Recommendations A and B -- it's in three different

720:14 buckets, it looks like. Cytogenetic assays?

720:15 A. Yes.

720:16 Q. In vivo test for chromosomal aberrations

720:17 in mammals.

720:18 Do you see that?

720:19 A. Yes.

720:20 Q. And studies evaluating DNA damage. Those

720:21 three areas.

720:22 Do you see that?

720:23 A. Yes. Yes.

720:24 Q. Why the three buckets? What is this

721:1 information -- how does this information at a general

721:2 level address Dr. Parry's Recommendations A and B?

721:3 A. What he was talking about at the very top

721:4 was cytogenetic data. We can have studies that are in

721:5 vitro, like we talked about before, and we can have it

721:6 in mammals. He also talked about he wanted to have --

721:11 - 724:21

Farmer, Donna 01-24-2019 (00:04:10)

721:11 A. Professor Parry talked about providing in

721:12 vitro cytogenetic studies, those that are in petri

EXHIBIT 493.1.1

EXHIBIT 493.1.5

EXHIBIT 493.1.6

EXHIBIT 493.1.7

EXHIBIT 493.2.1

EXHIBIT 493.2.2

EXHIBIT 493.1.7

EXHIBIT 493.2.1

EXHIBIT 493.2.2

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EXHIBIT 493.1.8

721:13 dishes. There are other studies that are in vivo that
721:14 provide the same information in a whole animal.

721:15 Q. As a general matter in the field of
721:16 toxicology, all things equal, is in vitro superior to
721:17 in vivo evidence, in vivo superior to in vitro, or does
721:18 it matter? Can you generalize?

721:19 A. In vivo would be considered a higher order
721:20 of study.

721:21 Q. Why is that?

721:22 A. It's in a whole animal, and whole animals
721:23 have the ability to do repair as well as everything
721:24 else, and how the test material might get to them. So
722:1 it's considered a more robust assay.

722:2 Q. Than in vitro, which is --

722:3 A. Than in vitro.

722:4 Q. -- in a petri dish?

722:5 A. Yes.

722:6 Q. Is that why you included in vivo
722:7 information in response to Recommendations A and B?

722:8 A. Yes, because we really did more in vivo
722:9 studies than we did in vitro studies back in those
722:10 times.

722:11 Q. All right. Moving to the third page,
722:12 which is -- includes Recommendations C and D. Do those
722:13 list below those recommendations work that was
722:14 available to Monsanto or that Monsanto did addressing
722:15 those recommendations?

722:16 A. Yes.

722:17 Q. Why for Recommendation E of Dr. Parry is
722:18 there an N/A there?

722:19 A. Because he did not recommend any
722:20 additional work for that particular endpoint.

722:21 Q. What was that endpoint? What do you mean
722:22 by endpoint?

722:23 A. He said he did not recommend repeat of any
722:24 sister chromatid exchange studies. As you see, he said
723:1 there was -- the data that we provided him will take
723:2 priority over that.

723:3 Q. Tell us at a general level what the
723:4 information following Recommendation F shows.

clear

EXHIBIT 493.3.1

EXHIBIT 493.3.2

EXHIBIT 493.3.3

EXHIBIT 493.3.4

723:5 A. So he had recommended doing a COMET assay,
723:6 and we had other assays that we believed would address
723:7 the same endpoint. We didn't use a COMET assay, but we
723:8 had other assays that responded to the same endpoint.

723:9 Q. Why didn't you use a COMET assay?

723:10 A. In our experience in that time, the COMET
723:11 assay didn't have a guideline, it wasn't a robust
723:12 protocol, there were some -- you could put 30 minutes
723:13 on a StairMaster and get a positive COMET assay, so we
723:14 felt that the studies that we had were a better study
723:15 at that time to respond to his endpoint.

723:16 Q. What were the studies that you had at that
723:17 time?

723:18 A. We --

723:19 Q. What kind were they?

723:20 A. Yeah. They -- you can see down there the
723:21 Shirasu study was one of them, in 1978 had been done
723:22 before. It's a type of a bacterial assay. And then
723:23 there was another study in Li and Long that addressed
723:24 that same endpoint.

EXHIBIT 493.3.5

724:1 Q. Were the types of assays used in the
724:2 information below Recommendation F superior, the same
724:3 as, or inferior in quality to COMET assays, in your
724:4 view?

724:5 A. I would say at that particular time that
724:6 they were better than.

724:7 Q. For G and H they is N/A. Is that because
724:8 in G and H he really didn't have any recommendations?

724:9 A. Correct.

EXHIBIT 493.3.6

724:10 Q. Then on the last page is Recommendation I,
724:11 which is provide comprehensive in vitro data on
724:12 surfactants. Describe that information generally and
724:13 explain to us why you have both in vitro data and in
724:14 vivo data in Chart 82.

EXHIBIT 493.4.1

724:15 A. His recommendation was provide the
724:16 comprehensive in vitro data on surfactants of which we
724:17 did have a number of studies, but as we talked about a
724:18 minute ago, we felt that the whole animal study was a
724:19 more robust study, and we had a lot of studies -- we
724:20 had a number of studies on that that we provided for

Page/Line	Source	ID
724:22 - 725:1	724:21 him as well. Farmer, Donna 01-24-2019 (00:00:13)	DF2_COMBINED_06.192
	724:22 Q. Does Exhibit 82 contain an accurate 724:23 summary of testing that is in your view responsive to 724:24 the recommendations of Dr. Parry that existed both 725:1 before and after August 1999?	clear
725:7 - 725:11	Farmer, Donna 01-24-2019 (00:00:13)	DF2_COMBINED_06.193
	725:7 A. Yes. 725:8 Q. (By Mr. Hall) Now, you said Dr. Parry 725:9 continued -- I'm sorry, Monsanto continued to work with 725:10 Dr. Parry after September 1999. 725:11 [Exhibit 83 marked for identification.]	
725:12 - 730:9	Farmer, Donna 01-24-2019 (00:05:48)	DF2_COMBINED_06.194
	725:12 Q. Handing you Exhibit 83, which is a 725:13 two-page series of e-mails, Bates number MONGLY02626553 725:14 to 6554. These are e-mails from February 2001.	EXHIBIT 154.1.1 - EXHIBIT 154.1.2
	725:15 Are you familiar with these e-mails, Dr. 725:16 Farmer?	
	725:17 A. Yes.	
	725:18 Q. Did you receive them back in February 725:19 2001?	
	725:20 A. Yes.	
	725:21 Q. Now, this is about a year-and-a-half after 725:22 Dr. Parry's August 1999 report?	
	725:23 A. Yes.	
	725:24 Q. And some two -- more than two years -- is 726:1 it more than two years after you originally contacted 726:2 him?	
	726:3 A. We started around late 1998, early 1999.	
	726:4 Q. And at the top the subject line says 726:5 meeting Professor Parry, February -- 15 February 2001.	
	726:6 Do you see that?	
	726:7 A. Yes.	
	726:8 Q. And do you recall receiving a report of a 726:9 meeting with Dr. Parry that Monsanto had back in 726:10 February 2001?	
	726:11 A. Yes.	
	726:12 Q. All right. Let's turn to the second page 726:13 of Exhibit 83, which is an e-mail from Richard Garnett 726:14 to you and others at Monsanto. Who is Richard Garnett?	EXHIBIT 154.2.1

726:15 A. He was our reg affairs manager in Europe.

726:16 Q. And he's reporting on this meeting with

726:17 Professor Parry; is that correct?

726:18 A. Correct.

726:19 Q. And he -- I want to just walk through this

726:20 report of this meeting with Professor Parry. He

726:21 reports to you and others that the overall tone of the

726:22 meeting was positive after a negative start, because

726:23 Professor Parry found the tone of the Williams and

726:24 Cantox paper to be very dismissive of other

727:1 researchers' work and overdefensive in his attitude.

727:2 The presentation of the results of the MON

727:3 3505 study changed the mood because it clarified

727:4 certain effects found in the Bolognesi and Peluso

727:5 papers.

727:6 Do you see that?

727:7 A. Yes.

727:8 Q. I want to see if we can translate that

727:9 from toxicology to language that those of us who aren't

727:10 toxicologists could better understand. You mentioned

727:11 earlier this MON 3505 study, and it's referred to here

727:12 as changing the mood because it clarified effects found

727:13 in Bolognesi and Peluso.

727:14 What are Bolognesi and Peluso papers,

727:15 first of all, referred to there?

727:16 A. Those are two of the four studies that we

727:17 asked Professor Parry to review the first time we

727:18 contacted him.

727:19 Q. And what did the MON 3505 study -- what

727:20 was it? Remind us again what is that. Who did it and

727:21 what is it?

727:22 A. It's the code, the MON number for our

727:23 Italian formulation.

727:24 Q. And the study is a study by whom?

728:1 A. So this was a study -- we were -- we

728:2 didn't believe there was --

728:3 Q. First question, sorry. Who did this

728:4 study?

728:5 A. Monsanto.

728:6 Q. Monsanto did this MON 3505 study?

728:7 A. Yes.

728:8 Q. What did the MON 3505 study address?

728:9 A. We wanted to know how the findings in the
728:10 Bolognesi study and Peluso studies, how they came out
728:11 the way they did.

728:12 Q. And those were two of the four studies

728:13 that when you saw published in the literature caused
728:14 you some questions?

728:15 A. Yes.

728:16 Q. And at a general level, what was it about
728:17 those studies that caused you to wonder about them and
728:18 to reach out to Dr. Parry?

728:19 A. They were showing there was some evidence
728:20 of genotoxicity and another endpoint we would call
728:21 oxidative stress, but the interesting part for us, one
728:22 we wouldn't normally see those findings, was that the
728:23 animals were injected this formulation directly into
728:24 their abdomens.

729:1 Q. As opposed to eating the material?

729:2 A. Yes.

729:3 Q. And why does it matter if the animals --
729:4 or why did it cause you to wonder about these tests if
729:5 the animals were injected in the abdomen with
729:6 glyphosate as opposed to eating it?

729:7 A. We had always based on the data concluded
729:8 that glyphosate and the formulations were not
729:9 genotoxic, and so we felt it was just the conditions of
729:10 the study, the injection into the abdomen, as to why
729:11 they were getting the findings that they were getting.

729:12 Q. And what did the MON 3505 study address as
729:13 it relates to these Bolognesi and Peluso papers where
729:14 the animals were injected in the stomach with
729:15 glyphosate?

729:16 A. One of the things that we did is we
729:17 repeated their study. We actually injected the
729:18 formulation directly into the abdomen of the animals,
729:19 but what we did also is we did an evaluation of the
729:20 condition of the animal's abdomen, and we found that
729:21 there was -- there was gunk, is all I can -- stuff
729:22 sitting on the livers and the kidneys of the animals.

clear

729:23 We then did an evaluation of the condition
 729:24 of those livers and the kidneys and found that they had
 730:1 been damaged by that precipitation by this white
 730:2 material that had been sitting on both of those organs.
 730:3 And we believed that the findings that
 730:4 they were getting from the liver and the kidney that
 730:5 were representing genotoxicity were really secondary to
 730:6 the liver and the kidney being hurt by the physical
 730:7 presence of that material just sitting on them.

730:8 Q. Was that a result of the fact that they
 730:9 had been injected in the abdomen with the glyphosate?

730:11 - 731:9

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730:11 Q. (By Mr. Hall) Well, explain -- why did
 730:12 you reach the conclusion that it was -- the cell damage
 730:13 observed was the result of the material on the surface
 730:14 of the cell as opposed to something else?

730:15 A. Because then we repeated the study, and we
 730:16 gave it to them orally and we did not have the same
 730:17 results.

730:18 Q. There was no genotoxicity as a result of
 730:19 that study?

730:20 A. We did not see damage of the livers and
 730:21 the kidneys, no.

730:22 Q. Did you have an understanding why -- well,
 730:23 first of all, the MON 3505 study, was that done as a
 730:24 result of Dr. Parry's recommendations?

731:1 A. No, we had started doing that prior to
 731:2 Professor Parry.

731:3 Q. Was he aware that Monsanto was doing that
 731:4 study when he init -- when he provided his
 731:5 recommendations in August 1999?

731:6 A. I do not believe he was aware.

731:7 Q. Do you have an understanding of what Dr.
 731:8 Garnett meant when he said the results of that study
 731:9 changed the mood within the meeting with Dr. Parry?

731:12 - 733:7

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EXHIBIT 154.2.3

DF2_COMBINED_06.196

731:12 A. I think Professor Parry was pleased to see
 731:13 that we had undertaken that study and repeated the
 731:14 study, did a different study, and were able to explain
 731:15 the findings.

731:16 Q. (By Mr. Hall) Moving down in Dr.
731:17 Garnett's e-mail. He lists some results, and I just
731:18 want to ask you about a few of the results, the main
731:19 ones. When he listed the results of this meeting with
731:20 Professor Parry, to your understanding what were the
731:21 most significant ones that you saw here?
731:22 A. I think the very first one that says
731:23 acceptance that glyphosate is not genotoxic.
731:24 Q. What other results of this meeting with
732:1 Dr. Parry did you find significant, to your
732:2 understanding of glyphosate?
732:3 A. The recognition of the difference of the
732:4 toxicity between the IP or intraperitoneal and oral
732:5 routes.
732:6 Q. And that has to do with the MON 3505
732:7 study --
732:8 A. Yes.
732:9 Q. -- 35050 study that you just described?
732:10 A. Yes.
732:11 Q. All right. Any other significant results
732:12 to your understanding as it relates to glyphosate and
732:13 genotoxicity testing in this summary?
732:14 A. The last one, no longer requested any
732:15 studies on the final formulation.
732:16 Q. All right. And did you understand these
732:17 results reflected Dr. Parry's views at the conclusion
732:18 of this meeting?
732:19 A. Yes.
732:20 Q. Now, after this 2001 meeting occurred with
732:21 Dr. Parry, did you happen to see Dr. Parry yourself at
732:22 any time?
732:23 A. Yes.
732:24 Q. Tell us about that.
733:1 A. I was at a symposia I think around in 2002
733:2 at Greene's College in the UK. Professor Parry was an
733:3 invited speaker.
733:4 Q. He was an invited or was not?
733:5 A. He was an invited speaker to present on
733:6 genotoxicity, and I had an opportunity to see him at
733:7 that meeting.

EXHIBIT 154.2.4

EXHIBIT 154.2.5

EXHIBIT 154.2.6

EXHIBIT 154.2.7

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734:6 - 734:13

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734:6 Q. (By Mr. Hall) I'll ask the question
734:7 again. Based on your 25 years, more than 25 years of
734:8 working as a toxicologist at Monsanto, and your many
734:9 years of working with glyphosate and glyphosate
734:10 products, I want to ask you to describe for the jury
734:11 how you assess the quality of the scientific work you
734:12 were involved in at the company and you saw firsthand
734:13 as it related to glyphosate and glyphosate products.

734:15 - 734:19

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734:15 A. I -- we have always acted on believing in
734:16 sound science and high-quality science, and in looking
734:17 at it from a broad perspective, I'm very proud of what
734:18 we've done because I do believe it has been high
734:19 quality and very solid science.

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