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Dicamba Drift Stirs Pot of Farm Trouble

July 26, 2016 01:02 PM



“Some farmers have blatantly done what they want to do. They think they won’t get caught, but they don’t understand the power of dicamba,” says crop consultant Bob Griffin.

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Bob Griffin was rolling down Highway 49’s carpet of farmland when he saw the damage. Nothing in particular caught his eye, but the initial suspicion compelled him to pull onto a

turnrow splitting 100 acres of soybeans outside of Marvell, Ark. Something was just off about the crop. He walked into R3 soybeans, already podded up, and saw cobra-headed damage on leaves tapering across the field. Griffin's consultant instinct was inescapable: telltale signs of dicamba drift.

In a farming age where the grip of Palmer amaranth intensifies and expands each season, dicamba controversy is exploding beyond fields of Monsanto's Xtend soybeans in northeast Arkansas and the Missouri Bootheel. Yield loss is merely the bottom rung of concern. Growers fear repercussions could cut off access to desperately needed dicamba-related technology.

Producer Curtis Storey didn't panic when Griffin brought the dicamba news. Storey sought out a neighboring farmer growing Xtend soybeans and was assured the damage was a one-off. But Griffin's initial 100-acre report was only the beginning. A week later, 85 additional acres of damage was discovered. Then, tack on 48 more acres. Then 62; 115; 50; 35. Today, almost 500 acres of Storey's land is affected in varying degrees by dicamba damage, with no guarantee the numbers won't climb higher.

Storey farms 4,800 acres in Phillips County, Ark., and points to a massive gap between typical drift-related issues and off-label dicamba applications.

"This was illegal spraying and something entirely different. It was also done in repeated applications over time," he explains. "No farmer, and I mean not a single one, can plead ignorance. Everyone knows not to use dicamba over the top. I'm paying the costs for someone else's pigweed control."

When Monsanto debuted Xtend soybean technology in 2016, seed sales were accompanied with concise and clear warnings: Do not apply dicamba yet. Xtend crops are designed to withstand dicamba, but with no label approval for a new formulation, the herbicide tolerance is technically academic. However, a quick look at eastern Arkansas soybean fields suggests "technicality" is trumped by human nature. Placing a pigweed weapon just beyond the legal reach of producers has proved too tempting for some.

"In-crop use of dicamba is still in review by the EPA. The EPA has indicated review will be completed by late summer or fall," says Kyel Richard, product communications lead with Monsanto. Monsanto has developed low-volatility dicamba formulations containing VaporGrip Technology to help limit the chances of off-target movement, he adds. "Dicamba will be an important part of The Roundup Ready PLUS Crop Management Solutions platform, but until approved, it's against the law to use dicamba in-crop with Roundup Ready 2 Xtend soybeans or Bollgard II XtendFlex cotton."

Dicamba Bomb

"I already know of five farmers affected by dicamba drift just in Phillips County, but we're talking about a great deal of acreage across parts of Arkansas, Missouri and Tennessee. It's like a dicamba bomb going off," says Griffin. "Some farmers have blatantly done what they want to do. They think they won't get caught, but they don't understand the power of dicamba."

Whether via physical drift or the vapor of volatilization, soybeans are extremely sensitive to dicamba. "All it takes is about one-and-a-half hundredths of an ounce per acre is to get damage and symptomatology," Griffin notes.

Growers sometimes inadvertently load the dicamba gun aimed at their own crops. In 2016, one of Griffin's farmer clients used a mini-bulk container containing Dicamba residue to spray Prefix herbicide across a soybean field after emergence. No drift or volatility was required to hammer 1,000 acres of soybeans.

Robert Goodson, Phillips County Extension row crops agent with the University of Arkansas, echoes Griffin's concerns on dicamba potency.

"Just three one-hundredths of an ounce can result in a 30% to 40% yield loss," he says. "Even an incredibly low rate can cause major yield loss at the right stage of production."

And what will be the overall effect on Storey's fields? Dicamba's hormonal chemistry causes tissue to elongate as plants essentially grow themselves to death. Affected leaves take the cupped appearance of a hooded snake head. Soybean growth stage (maximum susceptibility occurs during R1) and dicamba concentration are critical to tallying damage, but Griffin can only estimate probable yield loss.

"I think the bare minimum will be 10%, but that's absolute minimum," he says. "It could be far worse at harvest."

Far worse, indeed. Storey finds himself staring into yield darkness, uncertain about percent damage and even unsure if his affected soybeans will remain below 500 acres. University specialists and industry experts have pegged potential losses in parts of his fields at 50%.

"Money cleaned out of my pocket and pigweed cleaned out of someone's field," he says.

As the affected acreage mounted, Storey found himself with few options and contacted the Arkansas State Plant Board.

"I've never been involved with class actions suits or any of that mess," he says. "I didn't want to do this, but my hand was forced. Even Monsanto told me to report it to the Plant Board."

And the Plant Board? The maximum penalty is a \$1,000 fine; a veritable slap on the wrist. However the Plant Board has formed a civil penalty study group to consider raising the maximum fine. Susie Nichols, agri division manager for the Plant Board, says the organization has received 24 complaints in 2016 regarding dicamba drift in soybeans, peanuts and watermelons: "These cases are still under investigation so I cannot yet confirm dicamba."

Storey takes no solace in small penalties.

"\$1,000 fine? Sure, that'll stop them," he says with heavy dismay. "I've had people tell me to keep quiet or we may lose the technology. That's false reasoning to blame me since I'm not the

one breaking the law. Multiple people have continued making dicamba applications over the top. This is going on in other counties and states. Everybody knows it.”

No Anomaly

“We’ve got 230,000 acres of soybeans in Phillips County, but there’s nothing unique about our situation,” adds Goodson. “This is no anomaly and we all know it’s happening in lots of places.”

The Missouri Department of Agriculture is conducting investigations into 100-plus dicamba-related complaints in 2016 spread across four southeast counties.

“This is well above the average of 75 general complaints that we typically see statewide,” says Sarah Alsager, public information officer.

Scotty Frasier, a salesman with Famers Supply in Marvell, says the ripple effect could reach beyond affected fields.

“We’re all wondering what the ramifications will be, but one thing is for sure, the noise is getting louder,” he says.

The stakes are extremely high as the 2016 growing season unfolds: dicamba soybean purchases at local grain elevators, international market questions, the prospect of a further tightening of the regulatory noose, or even the loss of dicamba technology. Storey says anyone who claims his concerns are overblown is ignorant of the grain chain: “My ultimate question is the foreign market. The granary will handle my beans mixed with my neighbor’s dicamba beans?”

Storey’s question hangs in the air and requires a great deal of navel gazing. Why? Nobody knows what may crawl out of Pandora’s grain box. When Monsanto released Xtend technology, growers were given explicit instructions on the illegality of dicamba applications. However, the company also released a technology knowing chemicals were only a shelf away. Simple human nature: A small percentage of growers will cheat and other growers will pay the price. Dangle a pigweed killer in front of farmers, and someone will use it, regardless of legality.

“Chemical companies should not put folks on the honor system,” Storey says. “Did Monsanto really believe all farmers would be honest? It’s tough for me to believe they didn’t see this abuse coming.”

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How Monsanto And Scofflaw Farmers Hurt Soybeans In Arkansas

August 1, 2016 7:00 AM ET



[Dan Charles](#)



These soybean leaves show evidence of damage from dicamba. It could cut the the harvest by 10 to 30 percent.

Courtesy of the University of Arkansas

When Tom Barber, a scientist at the University of Arkansas who studies weeds, drives the country roads of eastern Arkansas this summer, his trained eye can spot the damage: soybean leaves contorted into cup-like shapes.

He's [seeing](#) it in field after field. Similar damage is turning up in Tennessee and in the "boot-heel" region of Missouri. Tens of thousands of acres are affected.

This is no natural phenomenon of weather or disease. It's almost certainly the result of a crime. The disfigured leaves are evidence that a neighboring farmer sprayed a herbicide called [dicamba](#), probably in violation of the law.

Dicamba has been around for decades, and it is notorious for a couple of things: It vaporizes quickly and blows with the wind. And it's especially toxic to soybeans, even at ridiculously low concentrations.

Damage from drifting pesticides isn't unfamiliar to farmers. But the reason for this year's plague of dicamba damage is unprecedented. "I've never seen anything like this before," says [Bob Scott](#), a weed specialist from the University of Arkansas. "This is a unique situation that Monsanto created."

The story starts with Monsanto because the St. Louis-based biotech giant launched, this year, an updated version of its herbicide-tolerant soybean seeds. This new [version](#), which Monsanto calls "Xtend," isn't just engineered to tolerate sprays of glyphosate, aka Roundup. It's also immune to dicamba.

Monsanto created dicamba-resistant soybeans (and cotton) in an effort to stay a step ahead of the weeds. The strategy of planting Roundup-resistant crops and spraying Roundup to kill weeds isn't working so well anymore, because weeds have evolved resistance to glyphosate. Adding genes for dicamba resistance, so the thinking went, would give farmers the option of spraying dicamba as well, which would clear out the weeds that survive glyphosate.

There was just one hitch in the plan. A very big hitch, as it turned out. The Environmental Protection Agency has not yet approved the new dicamba weedkiller that Monsanto created for farmers to spray on its new dicamba-resistant crops. That new formulation of dicamba, according to Monsanto, has been formulated so that it won't vaporize as easily, and won't be as likely to harm neighboring crops. If the EPA approves the new weedkiller, it may impose restrictions on how and when the chemical may be used.

But, Monsanto went ahead and started selling its dicamba-resistant soybeans before this herbicide was approved. It gave farmers a new weed-killing tool that they couldn't legally use.

Monsanto says it did so because these seeds weren't just resistant to dicamba; they also offered higher yields, which farmers wanted. In an email to The Salt, Phil Miller, Monsanto's vice president for global regulatory and government affairs, wrote that "there's incredible value in the Xtend technology independent of herbicide applications: There is great demand for strong yield performance and our latest industry leading genetics." Monsanto says it also made it clear to farmers that they were not allowed to spray dicamba on these dicamba-resistant beans.

Farmers themselves, however, may have had other ideas. Robert Goodson, an agricultural extension agent in Phillips County, Ark., believes that some farmers were hoping that the EPA would approve the new dicamba weedkiller in the course of the growing season, so they'd get to spray it over their crops.

Or maybe some farmers secretly intended to violate the law, using regular old dicamba, even without EPA approval.

Farmers in this part of the country are struggling to control a weed called Palmer amaranth, also known as pigweed. Many of the weedkillers they've used in the past don't work anymore. Weed expert Bob Scott says they're desperate for new tools. "If we didn't need this so bad, we wouldn't be having this conversation," he says.

"Maybe in the back of their mind they thought, 'Well, I'm not going to hurt anything if I do [spray dicamba],' " says Tom Barber. "Some of these guys may have thought they didn't have an option, they had to use dicamba or they'd lose the crop. I don't know what they were thinking."

Whatever the original motivation for buying Xtend seed, some scofflaw farmers did try to take advantage of it by spraying dicamba on their soybean fields. Swaths of vulnerable soybeans on neighboring fields are [showing](#) the damage. "There's a tremendous amount of injury on soybean fields," says Barber. There also are reports of damage to vegetable crops.

Barber says farmers whose fields are damaged are especially angry, because they're already under economic stress because of low crop prices. "They see their soybeans out there all cupped up and stunted, their reaction is not good," Barber says. "We've seen cases of herbicide drift before. Usually the farmers work it out among themselves. But it's getting to the point now, it's made a lot of farmers upset with their neighbors. It's an unfortunate thing."

More than 100 farmers in Missouri have filed formal complaints with the state's Department of Agriculture. In Arkansas, 25 complaints have been filed. If investigators decide that a farmer has sprayed dicamba illegally, the farmer can be fined. In Arkansas, the maximum fine for a violation is \$1,000, but "our fines aren't stopping them," says Susie Nichols, who is in charge of pesticide regulation for Arkansas. State regulators are considering raising that to \$5,000 or even more.

Nichols says the Arkansas Plant Board also is considering new regulations that could drastically restrict the use of dicamba, even if the EPA does approve the use of Monsanto's new and reformulated version.

Weed scientists from the University of Arkansas believe that the new version of dicamba also could damage nearby soybean fields. So if any farmers are permitted to use it on soybeans, other farmers may be forced to buy Monsanto's dicamba-resistant soybean varieties just to protect themselves.

According to Barber, that threat is adding to farmers' frustration. "They're afraid that they're not going to be able to grow what they want to grow. They're afraid that they're going to be forced to go with that technology."

There's one final and, for farmers, unwelcome twist to this story. If they do manage to limit dicamba's collateral damage, and start to use it widely, there's new [evidence](#) that the chemical may quickly become ineffective.

[Jason Norsworthy](#), a weed expert at the University of Arkansas, wanted to see if pigweed could evolve resistance to dicamba. In a greenhouse, he sprayed pigweed plants with light doses of dicamba — not enough to kill most of the plants, but enough to give an advantage to any individual plants that might be slightly resistant to the herbicide. He recovered seeds from surviving plants and repeated the process. After just three generations, he found pigweed plants that were able to survive full-dose sprays of dicamba. Most likely, the same process would occur rather quickly in field conditions, leaving farmers once again desperate for a new solution to their pigweed problem.

Extension agent Robert Goodson says that in the long run, farmers in Arkansas may be forced to take a different approach to managing weeds, probably by growing different crops. Instead of soybeans, farmers may grow more sorghum, rice or other crops.