

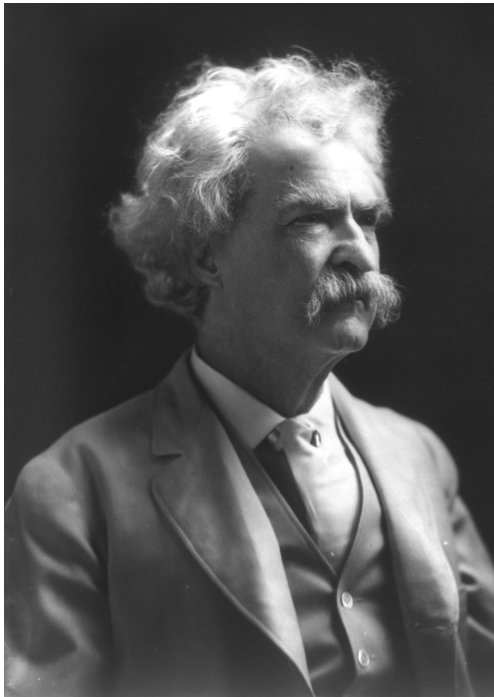
Where do we go from here? A University Perspective.

...along with some help from some famous Missourians



Never before has there been so much divisiveness in this industry.

“When angry, count to four; when very angry, swear.”



1) farmer to farmer

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Weedkiller dicamba unlocks record harvests — and a web of conflict among divided farmers

By Bryce Gray St. Louis Post-Dispatch Oct 17, 2017 (2) 8 min to read



"This is the enemy right here," said farmer Jason Bean as he stands next to a pig weed plant at the edge of his soy bean field on Wednesday, Oct. 12, 2017, at his farm near Peach Orchard, Missouri. Bean is busy harvesting his soybeans, rice, and cotton this month. Photo by J.B. Forbes/forbes@post-dispatch.com

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A Pesticide, A Pigweed And A Farmer's Murder

6:49 June 14, 2017 · 5:11 AM ET Heard on Morning Edition

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Transcript

One farmer's improper use of an herbicide damaged another's field and led to a shooting. The dispute reveals divisions among neighbors and economic tradeoffs over the right way to farm.

Transcript

STEVE INSKIP, HOST:

There's a weed in Arkansas that can put a farmer out of business. It's called pigweed. You get one plant in your field, and that one plant can produce more than a million seeds. Many of the seeds become new plants that can choke your fields. Arkansas farmers are in a constant battle with pigweed. And last year, that battle pitted farmer against farmer. Marianne McCune from our Planet Money podcast has the story of how a war with a weed led to murder.

MARIANNE MCCUNE, BYLINE: Mike Wallace was shot dead last October on a quiet county road at the edge of his field. His widow, Karen, and their son are still growing cotton and soybeans, keeping their heads up - even without Mike.

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Monsanto's Weed Killer, Dicamba, Divides Farmers

Twenty-five million acres have been planted with genetically modified seeds to encourage the spraying of the chemical. Farmers worry about damage to crops.

By DANNY HASKIN SEPT. 21, 2017

2) farmers and companies

Farmers sue Monsanto, other producers over drifting herbicide

Tom Charlier, USA TODAY NETWORK – Tennessee Published 6:00 a.m. CT July 28, 2017 Updated 10:55 a.m. CT July 28, 2017



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(Photo: Brad Vest/The Commercial Appeal)

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After wading into waist-high soybeans that on the surface appear healthy, Mark Baioni reaches deep into the plants to show their true condition.

"Here's the cupping," he said, holding some leaves that look puckered and withered.

Baioni, 60, who farms 2,500 acres near Marion, Arkansas, is among a group of East Arkansas farmers suing the makers of a herbicide that they say has drifted from the fields where it was sprayed and settled onto their crops, causing major damage.

In the class-action suit, the farmers say [Monsanto Co.](#), along with [BASF Corp.](#) and [DuPont](#), placed greed ahead of responsibility in persuading growers to spray their fields with dicamba, a product known to be highly volatile and prone to drift.

Filed in U.S. District Court in St. Louis, the suit represents a new phase of a controversy that has roiled the rural Mid-South, spawning hundreds of farmer complaints, prompting emergency state restrictions and even precipitating a fatal shooting.

Dicamba, a weed-killer sold under a number of brand names, has been around since the 1940s, but this is the first year it's been fully legal to spray on cotton and soybeans that already have sprouted. The product is sold in conjunction with seeds that have been genetically modified to tolerate it, which allows farmers to spray the herbicide directly on their rows without damaging crops.

BUSINESS

Missouri's largest peach farmer sues Monsanto over alleged damage from illegal herbicide use

By Bryce Gray St. Louis Post-Dispatch Dec 6, 2016 (5)



Maria Herrera plucks peaches from a conveyor belt and packs them for shipment. Bader Farms is the state's largest producer of peaches, which it distributes across a vast swath of the Midwest and the South. photo by Bryce Gray, bgray@post-dispatch.com

3) farmers and university weed scientists



*Photo courtesy of Dr. Amit Jhala, University of Nebraska.

4) non-ag public and farmers, companies, etc.

Trees at Reelfoot Lake damaged by drifting herbicide dicamba, state analysis shows

Tom Charlier, USA TODAY NETWORK – Tennessee Published 11:21 a.m. CT Sept. 14, 2017 | Updated 3:28 p.m. CT Sept. 14, 2017

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the salt WHAT'S ON YOUR PLATE


FOOD HISTORY & CULTURE

A Wayward Weedkiller Divides Farm Communities, Harms Wildlife

4:54

October 7, 2017 · 5:52 AM ET
Heard on Weekend Edition Saturday

DAN CHARLES



Richard Coy inspects one of his hives near Burdette, Ark. Honey production at this location fell by almost half this year — which he attributes to the drifting of weedkiller dicamba to nearby flowering plants.

Dan Charles/NPR

DICAMBA

Complaints Surge About Weed Killer Dicamba's Damage To Oak Trees

By Johnathan Hettinger/Midwest Center for Investigative Reporting October 11, 2017

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Darrell Hoemann/The Midwest Center for Investigative Reporting

Louis Nelms with a white oak tree that may have been damaged by herbicide drift in rural Atlanta, Illinois, on Saturday, September 30, 2017.

5) companies and university weed scientists

Bloomberg BNA
August 30, 2017

As Dicamba Dust Settles, Scientists and Industry Spar

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MONSANTO LEVELS CRITICISM AT ARKANSAS WEED SCIENTISTS

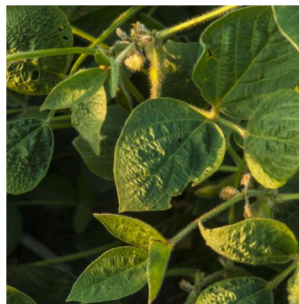
“SAD DAY IN WEED SCIENCE,” SAYS ONE EXTENSION WEED SCIENTIST

By [Gil Gullickson](#)
9/11/2017

Monsanto has taken off the gloves in its effort to advance its dicamba-tolerant technology. Last week, the St. Louis-headquartered firm filed a [petition with the Arkansas State Plant Board](#) to halt what it calls an “unwarranted and misinformed ban” on dicamba in Arkansas.

Within that petition, they criticized the efforts of two well-known Arkansas weed scientists—Ford Baldwin and Jason Norsworthy. Baldwin is a retired University of Arkansas (U of A) Extension weed scientist who now does consulting work. Norsworthy is a U of A weed scientist.

The petition is related to an August 7 directive that Governor Asa Hutchinson (R-AR) gave to the Arkansas agriculture secretary and plant board director to convene and cochair a dicamba task force to develop recommendations for future use of dicamba. The task force recommended that the Arkansas State Plant Board impose a flat ban on over-the-top use of all dicamba formulations after April 15 in 2018. (In 2017, only BASF’s Engenia formulation of dicamba marketed as lower in volatility than other dicamba forms was labeled for use in Arkansas)



FOOD FOR THOUGHT

Monsanto Attacks Scientists After Studies Show Trouble For Weedkiller Dicamba

October 26, 2017 - 4:57 AM ET
Heard on Morning Edition

 DAN CHARLES [Twitter](#)

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U.S. Scientists to Skip Monsanto Summit on Controversial Weed Killer

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Brian Smith and his cousin Hughes, stand in soybean fields their family tend to that show signs of having been affected by Dicamba use on Aug. 9, 2017. The Washington Post/Getty Images

By [Reuters](#) September 27, 2017

6) and apparently even between companies and regulatory agencies

Monsanto fights to sell Arkansas farmers herbicide linked to crop damage

Tom Polansek

6 MIN READ



CHICAGO (Reuters) - Monsanto Co (MON.N) filed a petition on Thursday asking Arkansas agricultural officials to reject a proposed date next year that would end sprayings of the herbicide dicamba, which has been linked to crop damage across the U.S. farm belt.



FILE PHOTO: John Weiss looks over his crop of soybeans, which he had reported to the state board for showing signs of damage due to the drifting of Monsanto's pesticide Dicamba, at his farm in Dell, Arkansas, U.S. July 25, 2017. REUTERS/Karen Puffer Foch

Make your voice heard on dicamba-tolerant technology.

Growers need this valuable tool to help obtain clean fields and bigger yields.

The Arkansas State Plant Board recently voted on banning applications of dicamba from April 16, 2018, through October 31, 2018. A public hearing is scheduled for November 8 this year, and BASF encourages growers to make their voices heard.

Restricting the use of approved, proven dicamba-tolerant technology is a major step backward for Arkansas farmers. Plan to attend the hearing on November 8, 2017, and speak your mind. In the meantime, contact your Plant Board member and let them know you don't want to lose this important tool to help keep your fields clean for bigger yields.

BASF
We create chemistry

Arkansas State Plant Board public hearing is November 8.

© 2017 BASF Corporation. All rights reserved. APR 17, 01:00P

Monsanto sues Arkansas over proposed herbicide limits

Tom Polansek

3 MIN READ



CHICAGO (Reuters) - Monsanto Co sued Arkansas agricultural officials on Friday to stop a proposed summer ban on a weed killer linked to widespread crop damage beyond the major farm state's borders.



FILE PHOTO: Monsanto logo is displayed on a screen where the stock is traded on the floor of the New York Stock Exchange (NYSE) in New York City, U.S., May 9, 2016. REUTERS/Brendan McDermid/File Photo

Monsanto alleges dicamba bias, seeks to disqualify state Plant Board member at hearing

By Stephen Steed

This article was published November 3, 2017 at 4:30 a.m.



PHOTO BY BLOOMBERG NEWS/DANIEL ACKER
A sign for Monsanto's Xtendimax herbicide, developed to kill weeds that have grown resistant to glyphosate herbicides, hangs at a Monsanto booth at the Farm Progress Show in Decatur, Ill., in August.

“If you don’t know where you’re going, you might wind up someplace else.”

Yogi Berra

What does **success** for dicamba look like in 2018?

1. A decrease in the number of off-target deposition events and complaints (the extent of the decrease required is highly debated).
2. Acknowledgement by all registrants that volatility plays a role and concerted efforts are made to do something about it.
3. Applicators have been trained and know how to use the technology appropriately.
4. Applicators actually observe the label requirements with regard to buffers, etc.
5. Bad actors are held accountable.



*Responses from numerous university weed scientists across the U.S.

What does **success** for dicamba look like in 2018?

6. Those suffering damage are compensated appropriately for their losses.



“The buck stops here.”



HARRY S. TRUMAN (1884 — 1973)
33RD PRESIDENT OF THE UNITED STATES (1945 — 1953)

But where is “here”?

Portion of letter from insurance company to farmer that sprayed Engenia and neighbor had damaged fields:

“We have a policy to defend our insured for his negligence against a third party, but if once our investigation is done and we show he did everything correctly, then the problem lies with the product and the liability with the manufacturer,” Steve Simmons, Nationwide Associate Vice President of Risk Management

What does **success** for dicamba look like in 2018?

6. Those suffering damage are compensated appropriately for their losses.
7. No discovery of dicamba-resistant weeds.
8. Dicamba used as a component of an integrated program w/effective soil-residual herbicides and w/only early POST applications of dicamba followed by other herbicide or non-herbicide tactics.
9. Realization that this issue is an indication of a failure to address the need for an integrated approach to weed management.



*Responses from numerous university weed scientists across the U.S.

What does **success** for dicamba look like in 2018?

10. A higher degree of transparency/
impartiality/integrity by all company
representatives when diagnosing off-
target movement of dicamba.
11. Renewal of auxin labels for use in 2019.



What does **failure** for dicamba look like in 2018?

1. A significant increase or the same level of agricultural off-target deposition events and complaints as observed in 2017 (the extent of the increase required is highly debated).
2. An increase in the number of non agricultural off-target deposition events.
3. Class-action lawsuits.
4. A continuation of audacious marketing claims that leads growers away from integrated weed management and towards a belief that this is the next “solution.”



*Responses from numerous university weed scientists across the U.S.

What does **failure** for dicamba look like in 2018?

5. Failure to recognize this as a valuable preplant tool for *Conyza*, *Ambrosia*, etc. in place of POST use on *Amaranthus* (long-term vs. short-term).
6. Failure to renew the auxin labels for 2019.



Mizzou® Weed science

Email: bradleyke@missouri.edu

Website: weedsience.missouri.edu

App: ID Weeds (free download)

The screenshot shows the Mizzou Weed Science website homepage. The header features the Mizzou logo, the text "WEED SCIENCE", and "Division of Plant Sciences — CAFNR". There are social media icons for Facebook, Twitter, and YouTube, and a search bar. The main content area includes a navigation menu on the left with links to Home, Weed ID Guide, Herbicide Injury, Publications, Slideshows, Videos, Research Results, and Personnel. The central focus is a large image of a Maypop passionflower with a caption: "Maypop passionflower (*Passiflora incarnata*) is an increasing problem weed in a number of Missouri pastures." To the right of the image is a "Fun Facts" section titled "weed science" which states: "Scotch thistle (*Onopordum acanthium*) is said to have helped win a battle. Norsemen came ashore planning to surprise sleeping Scottish forces and removed their boots for a quieter assault. A prickly patch of thistle growing between the two armies is said to have saved the day and became the Scottish national flower." At the bottom of the page, a welcome message reads: "Welcome to the University of Missouri's Weed Science homepage. Here you can find information related to our extension, research, and teaching programs or visit some of our web resources like the Missouri Weed Identification or Herbicide Injury Guides. In our 'Research Results' section, you can search results from our field research by year, herbicide, weed, or crop. Additionally, you can click on our publication section to see all of the publications and newsletter articles we provide as well as to view and/or listen to some of our power point presentations. We welcome your comments and/or suggestions about this site."



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