

Rebuttal to Attachment 5 - Request for Rule Making

443rd State Plant Board Quarterly Meeting

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I. Introduction

- a. As holder of a Doctorate of Agronomy – Weed Science (U of AR, 2007) and Arkansas agriculture industry scientist and agronomist since September 2007, Arkansas citizen and property owner I respectfully debate a portion of the comments put forward in Attachment 5 – Request for Rule Making at the 443rd State Plant Board Meeting held on March 3, 2021, which was used as justification for the proposed rule change.
- b. For full disclosure: I am employed by Corteva Agriscience covering cotton growing areas of Arkansas and Missouri. I assert that I am not writing on behalf or in association with my employer. All comments below are my own.

II. Rebuttal

- a. **Concerning high adoption of Xtend and XtendFlex systems:** Petitioner asserted that 90% of cotton and soybean acres under his care are planted to dicamba-tolerant varieties. I do not dispute that fact. However, I contend that all those acres would not be planted to dicamba-tolerant varieties, if the farmers in that area had a true choice. In 2017 dicamba was the causal agent identified in 900 cases filed with the Arkansas State Plant Board (ASPB), followed by 166 cases in 2018, 158 cases in 2019, and finally 78 cases filed in 2020. In total, since 2017, 1,302 cases have been filed with ASPB where dicamba was the causal agent. Of these 1,302 cases no label violation was noted in 872 of these cases.¹ Stated another way, since 2017 67% of the cases where dicamba was the causal agent resulted in no cited violations and therefore no recourse for the affected farmer. With little recourse for crop damage associated with dicamba off-target movement, farmers have been forced to protect their livelihood from their neighbors' weed control practices by adopting the dicamba-tolerant crops. Refusal to adopt dicamba-tolerant crops exposes farmers to potential yield loss and lower farm income with little to no recourse for compensation. Ramifications of forced adoption of dicamba-tolerant soybean and cotton include reduced competition among seed companies, thereby raising the cost of seed inputs. Additionally growers desiring to collect a premium selling price for conventional non-GMO or food grade soybeans are denied their right to farm these crops because of their neighbors' dicamba-based weed control strategies and subsequent dicamba off-target movement.
- b. **Concerning soybean yield loss from dicamba exposure:** Although petitioner debated published research by citing anecdotal personal experience, a brief literature review confirmed that dicamba exposure can reduce soybean yields, and yield loss severity is variable based on the dicamba exposure rate, exposure timing relative to soybean growth stage, and the growing environment following exposure.²
- c. **Concerning weed herbicide resistance management:** I agree with petitioner that Palmer amaranth is one of the most prominent, prolific, and problematic weed species in the Natural State. However, I debate that basing weed control strategies on over-the-top applications of dicamba for 90% of cotton and soybean acres is valid method of herbicide resistance management. Mixing herbicide modes of action in an application is

- a proven method of slowing the development of herbicide resistance in a weed population.³ There is no legal tank mix option for dicamba in the Xtend or XtendFlex weed control systems. Each weed control application in the Xtend or XtendFlex systems must rely on only one effective mode of action when targeting glyphosate resistant Palmer amaranth. Forced adoption of a singular weed control option will accelerate herbicide resistance, ultimately leaving farmers with fewer tools to combat Palmer amaranth.
- d. **Concerning alternative weed control options:** There are readily available alternatives to dicamba-based weed control strategies in both cotton and soybean. The Enlist Weed Control System is offered in corn, cotton, and soybean. According to federal and state guidelines this system is flexible, allowing for 2,4-D choline, glyphosate, and glufosinate to be applied alone or in combination throughout the growing season and in conjunction with many soil applied residual herbicides.³ Also, another alternative is the Liberty Link system that uses glufosinate in combination with soil applied residual herbicides, for both cotton and soybean production.⁴ Another option for Palmer amaranth control is crop rotation to corn where many other herbicide modes of action are available. Furthermore, in areas of low dicamba damage within the state, conventional soybeans and food grade soybeans are being grown that do not use GMO herbicide traits. Continuing to force a singular weed control option does nothing to help farmers. Sustainable integrated pest management requires options for pest control. Palmer amaranth can be controlled without sole reliance on dicamba.
 - e. **Concerning buffer zones around USDA and university research facilities:** These buffer zones are currently insufficient to prevent injury to non-dicamba tolerant soybean grown at these facilities. In 2019 there was severe dicamba injury noted on the University of Arkansas Northeast Research Center in Keiser, AR and the investigations are a matter of public record.⁶ In 2020 I personally saw dicamba injury again while visiting the center, although I do not know if a formal complaint was made to the ASPB.
 - f. **Concerning the 2020 federal labels for XtendiMax, Engenia and Tavium :** On Monday March 8, 2020 Michal Freedhoff, the new acting assistant administrator for EPA's Office of Chemical Safety and Pollution Prevention stated, "I think we felt like we need a growing season worth of data under our belts to see what happens and make sure the measures put in place in 2020 were the right ones."⁷ Clearly the EPA is unsure that the 2020 label restrictions are sufficient to handle issues brought forward since 2017. If the federal label is in question, Arkansas should not be the experiment.
 - g. **Concerning ecological damage:** Petitioner asserts that he has never seen a tree killed by dicamba. In the suit *Bader Farms, Inc. v. Monsanto Co.*, Bader Farms asserted that dicamba off-target movement caused widespread damage to their peach orchard in Campbell, MO. After hearing arguments from both sides, the jury agreed with Bader Farms and awarded \$256 million in damages.⁸ Then there is Reelfoot Lake, just across the Mississippi River in Tennessee where the Tennessee Department of Agriculture confirmed that dicamba did cause injury to the lake's iconic cypress trees.⁹ Dicamba off-target movement can damage trees, but injury potential is species specific. Let me be frank in stating that row crop farmers exist inside a larger community. Each member of a community has a responsibility to steward communal resources. Shared resources such

as forests, rivers, swamps, and other public access areas are valuable to our society. There are many outdoorsmen and hunters in the Natural State and we wish to pass on to future generations a Natural State with all its beauty. Surely, we all agree that preserving our natural treasures is a worthy goal.

III. Argument Summation

- a. Xtend and XtendFlex weed control systems are not the only effective method of Palmer amaranth control. There are other viable options readily available in the market today. Integrated pest management requires open access to multiple weed control options, which widespread dicamba off-target movement severely limits.
- b. The EPA is questioning the sufficiency of the restrictions in the federal labels and admits to past political pressure leading to a rushed, ill-informed decision. The federal labels may not be sufficient to prevent dicamba off-target movement onto susceptible plant species.
- c. Dicamba does have more scrutiny than other herbicides and for good reason. 67% of dicamba injury claims since 2017 have no cited violations, suggesting that even when applied correctly dicamba doesn't remain in the target field.
- d. Ecological damage can go beyond non-dicamba tolerant soybean fields. In the midsouth there has been documented impacts from dicamba off-target movement to non-row crop areas including public natural areas, fruit and vegetable production, vineyards, and many other dicamba sensitive areas.

IV. Action Requested of Arkansas State Plant Board

- a. **Deny rule change** allowing use of reduced volatility formulations of dicamba according to federal label without additional restrictions



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Information Cited

1. ASPB Dicamba Case Study: <https://www.agriculture.arkansas.gov/wp-content/uploads/2021/03/Dicamba-Case-Status-Update-Summary.pdf>
2. Eglin et al. (2014) A meta-analysis on the effects of 2,4-D and dicamba drift on soybean and cotton. Weed Sci. 62:193-206. <https://doi.org/10.1614/WS-D-13-00025.1>
3. Mix together effective modes of action to decrease herbicide resistance development. <https://growiwm.org/mix-together-effective-modes-of-action-to-decrease-herbicide-resistance-development-2/>
4. Enlist Weed Control System: <https://www.enlist.com/en>
5. LibertyLink: <https://agriculture.bASF.us/crop-protection/products/libertylink.html>
6. In Arkansas, herbicide's damaging effect brings research to a halt: <https://www.ualrpublicradio.org/post/arkansas-herbicides-damaging-effects-bring-research-halt>
7. EPA: Politics tainted dicamba decision: <https://www.dtnpf.com/agriculture/web/ag/crops/article/2021/03/12/epa-ignored-science-past-dicamba-new>
8. Bader Farms wins \$256 Million judgment in dicamba lawsuit against Bayer, BASF: <https://www.agriculture.com/news/business/bader-farms-wins-dicamba-lawsuit-against-bayer-bASF>
9. Trees at Reelfoot Lake damaged by drifting herbicide dicamba, state analysis shows: <https://www.commercialappeal.com/story/news/2017/09/14/trees-reelfoot-lake-damaged-drifting-herbicide-dicamba-state-analysis-shows/647593001/>