

Written Comments about Proposed Dicamba Rule Changes by the Arkansas State Plant Board
Jeremy Ross, PhD
Extension Agronomist – Soybean/Professor
University of Arkansas System Division of Agriculture
Department of Crop, Soil, and Environmental Sciences
Cooperative Extension Service

I would like to voice my concern about the proposed changes to the current Arkansas regulations that govern the use and application of registered over-the-top dicamba products on row-crops. Prior to the current proposed changes to the dicamba label, the Arkansas State Plant Board (ASPB) has been presented data generated over several years of research from University of Arkansas System Division of Agriculture's scientists that documented the concern with the in-season use of these new dicamba formulations. The ASPB has used these unbiased, replicated, published research findings to develop Arkansas specific regulations for the in-season use of dicamba that are currently in place. This is not an uncommon practice for the ASPB. This group of herbicides has been shown to volatilize from the fields where they were applied and move off-target causing injury and yield loss to non-dicamba crops and other plant species. These volatility events have not only been researched and documented in Arkansas but in other states where these herbicides have been used. As the Extension Soybean Agronomist, I see every year the impact that uncontrolled weeds have on soybean production and the added cost for dealing with herbicide-resistant weeds. I believe that every row crop producer has the right to grow whichever crop he or she wishes to grow, and I don't want to see row-crop producers lose any herbicide or tool that can be used to manage their soybean crop. However, I have had major concerns about the dicamba technology from its introduction and have personally seen the damage and soybean yield loss that off-target movement of these new dicamba herbicides have caused.

I have heard many individuals make the statement that the dicamba technology is the only option that Arkansas soybean producers have to combat glyphosate resistant weed issues, and in my professional opinion this statement is false. Currently there are three additional herbicide technologies that can be used in fields that have glyphosate resistant weeds without the application of dicamba. These technologies are LibertyLink (able to use glufosinate), LLGT27 (able to use glufosinate), and Enlist (able to use glufosinate and 2,4-D labeled products). Each year, the University of Arkansas System Division of Agriculture's Variety Testing Program evaluates several hundred soybean varieties. Seed companies and public soybean breeding programs pay an entry fee for each soybean variety they would like tested. Each soybean variety is tested across multiple locations, soil textures, and screened in other tests including metribuzin tolerance, disease and nematode reactions, and chloride tolerance. It is known that individual soybean varieties will perform differently under different environmental conditions, and this is the reasoning for establishing these tests at multiple locations.

In 2020, there were 25 Enlist and 67 Roundup Ready 2 Xtend (RR2X) soybean varieties entered into the 2020 Late Maturity Group 4 Soybean Test (entries ranged from Maturity Group 4.5 – 4.9). This test was used for this analysis due to the large number of varieties within each herbicide technology, and this range in maturity groups represents the majority of the soybean grown in Arkansas. Because of the unbalanced number of entries for the Enlist and RR2X technologies, only the varieties yielding in the top 10% from each location from the two herbicide technologies were used to develop Table 1. Varieties making up the top 10% differed from location to location for both technologies. When the average yield for the 25 Enlist and 67 RR2X entries were compared, the RR2X varieties had higher yield averages at 4 of the 5 locations. With the yield differences ranging from 1.9 to 12.0 bu/ac. A similar pattern is seen when only the top 10% yielding varieties were compared. However, when statistics were used to

compare the top 10% yielding varieties, no statistical difference was observed at three of the locations (Kibler, Marianna, and Pine Tree) for the top yield varieties in the two technologies. At the Stuttgart location, two out of the three Enlist soybean varieties were not significantly different than the top yielding RR2X varieties. The data from the Rohwer location showed four of the seven RR2X varieties were not significantly different and all the Enlist varieties used for this analysis had significantly lower yields.

This simple comparison shows that there are Enlist soybean varieties that will yield statistically the same as RR2X soybean varieties under similar environmental conditions. Even though it was not shown in this comparison, if the yield data for the LibertyLink varieties (only two LibertyLink soybean varieties were entered into the 2020 Late MG-4 Test) is observed, one individual LibertyLink variety had the highest grain yield at two irrigated location (Kibler and Rohwer) compared to every soybean variety tested in the 2020 Late MG-4 Test and was not statistically different than the highest yield variety at two other locations (Pine Tree and Stuttgart). This data does not support the argument that I have heard that the Xtend technology is the only option soybean producers have for producing a high yielding soybean crop.

Due to the volatility and off-target movement problems with the dicamba products labeled for in-season use, and the availability of soybean varieties that have comparable yield potential to RR2X varieties in other herbicide technologies, I would ask that the Arkansas State Plant Board keep the current dicamba regulations with the May 25 cutoff on applications, buffers restrictions around University of Arkansas System Division of Agriculture's Research Stations, and the prohibit the tank mixing of glyphosate with any dicamba product.

Table 1. Comparison of top 10% Enlist and Roundup Ready 2 Xtend Soybean Entries from 2020 University of Arkansas System Division of Agriculture's Soybean Performance Tests from five irrigated locations.

	Enlist				
	Kibler	Marianna	Pine Tree	Rohwer	Stuttgart
	bu/ac				
Avg. Yield for all entries (N=25)	67.8	67.8	67.8	67.8	67.8
Avg. Yield for Top 10% (N=3)	73.6	73.6	73.6	73.6	73.6
Top 10% entries within 1 LSD (5%)	3	3	3	0	2
	Roundup Ready 2 Xtend				
	Kibler	Marianna	Pine Tree	Rohwer	Stuttgart
	bu/ac				
Avg. Yield for all entries (N=67)	71.2	64.7	75.9	69.6	79.7
Avg. Yield for Top 10% (N=7)	76.5	73.4	81.9	79.1	86.2
Top 10% entries within 1 LSD (5%)	7	7	7	4	7