THE GOOD THE BAD AND THE UGLY

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Abstract

In trying to manage Palmer amaranth, cotton and soybean growers in Arkansas, the Bootheel of Missouri, Mississippi and Tennessee embraced the Xtend weed management system. Roughly 85% of cotton and over 50% of soybean varieties planted were Xtend varieties. The weed control, particularly Palmer amaranth, was very good. Unfortunately, most growers in those states struggled to keep dicamba in the field.

The Department of Agriculture in each of these respective states were swamped with nearly 1,500 dicamba drift complaints to investigate. Weed scientists from those states estimated 1.9 million acres of non-Xtend soybeans alone were damaged by off-target dicamba. This does not count service calls Extension ran on trees, vineyards, truck patches, gardens and homeowner landscaping exhibiting dicamba injury symptoms.

A survey of Tennessee Extension agents concerning the causes of the drift can be categorized into five basic reasons. In listing from least frequent to most frequent cause of dicamba drift in their investigations, tank contamination was the least found cause followed by use of illegal dicamba formulation < dicamba misapplication < spraying into a temperature inversion < Xtendimax or Engenia volatilization.

Soybeans that were injured by off-target dicamba were at all different growth stages. The ones that were still in the vegetative growth stages seemed to recover in a few weeks. Soybean fields that were into flowering stages showed visual symptoms longer. In some cases, less fortunate fields that were drifted on multiple times never did completely recover.

The ramifications of all this off-target dicamba is still being assessed and probably will be on-going for years to come. Many sensitive soybean fields that were damaged and showed significant visual symptoms recovered by harvest time and farmers reported little or no yield loss. Still other fields, particularly those drifted on multiple times, were reported by growers to have lost 10 to 20% of their expected yield.

Extensive dicamba stewardship training took place in all four states prior to the 2017 growing season. For example in Tennessee alone there were 5,523 applicators who took either a 60-minute in-person or a 30-minute dicamba stewardship training on-line module, there were 16 dicamba classroom training sessions that 2,300 applicators attended, over 20 blog posts on UTCrops.com that were accessed over 25,000 times, and 16 in-season YouTube training videos that were viewed over 13,500 times. This plus all the education provided by Monsanto and BASF personnel would suggest that increased education alone cannot solve this issue.

Xtend cotton was also used extensively in Alabama, Georgia, North Carolina, South Carolina and Texas. Applicators in those states had much fewer issues with dicamba trespassing across the landscape. A reason giving for less problems was the extensive applicator training conducted in Alabama, Georgia and North Carolina. Perhaps but applicator training in South Carolina and Texas was similar to what occurred in Tennessee. Other reasons mentioned are the dramatically less soybean acres in most of those states. Non-Xtend soybean are in harm's way for drift for 3 months while most of the vegetable crops grown in Georgia have much shorter growing season and therefore are less exposed temporally to drift. Other opinions such as differences in topography and environment maybe causes. The bottom line is no one knows for sure.

The Environmental Protection Agency imposed new regulations for the use of dicamba in Xtend crops for the 2018 growing season in an effort to mitigate off-target dicamba. These rules include that applicators must maintain specific records of product use, dicamba products can only be applied at wind speeds less than 10 mph, new tank clean-out procedures are mandated, and now Engenia and Xtendimax are restricted use herbicides.

The new EPA rules are similar to the emergency State of Missouri rules that went into place in early July 2017. Based upon the fact that about half of the 310 official dicamba drift complaints reported to the Missouri Department of Agriculture came in after the emergency rules were implemented would suggest that off-target dicamba drift issues and complaints during the summer of 2018 will be significant again in many southern states.