# Explained: Dicamba and its formulations

Nov. 21, 2016

By Ryan McGeeney

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**Fast Facts:**

- Dicamba, not new, but part of new formulations being made
- Scott: Dicamba one of the oldest chemistries used in agriculture

**(Newsrooms: One of three stories on dicamba in Arkansas. With 11-18-2016-Ark-Dicamba-Overview and 11-18-2016-Ark-Dicamba-Looking-to-the-Future)**

LITTLE ROCK — As growers across Arkansas and the Mid-South wrestle with how best to combat increasingly herbicide-resistant weeds in cotton, soybeans and other major row crops, weed scientists at the University of Arkansas System Division of Agriculture are striving to shed light on dicamba, one of the potential new tools today in the fight against Palmer amaranth, commonly known as pigweed.

Dicamba has been used as an herbicide to manage about 200 broadleaf weeds for about 50 years. It's a Group 4, auxin-based herbicide that kills target plants by disrupting normal growth patterns. It is also a benzoic acid. In an "unmixed" state, it has a relatively high degree of volatility, meaning that once applied to an area, it easily evaporates and can become wind-borne, which can lead to off-target drift.

This is key to understanding how growers' use of dicamba can be a concern to neighboring farmers — the herbicide can prove highly damaging to crops, especially soybeans, which aren't resistant to dicamba.

**Four formulations**

Bob Scott, professor of weed science for the Crop, Soil and Environmental Science Department at the University of Arkansas System Division of Agriculture, said there are currently four formulations of dicamba on the market.

"Dicamba was developed a long time ago, and is one of the oldest chemistries we use in agriculture," Scott said. "The 'acid formulation' is dicamba in its most volatile form. Think of it as just the dicamba molecule by itself, without anything attached to it. It's still sold and used in various formulated products."

Scott said successive formulations of dicamba have come along in the decades since, each adding progressively larger, heavier salts. Banvel herbicide, for example, is dicamba combined with dimethylamine, or DMA, salt.

Clarity herbicide was later developed by BASF, combining dicamba with diglycolamine, or DGA salt. Monsanto is now marketing this same formulation as Xtend, Scott said.

BASF will soon begin marketing an herbicide known as Engenia, which is dicamba combined with sodium methylamine, or BAPMA salt.

"The BAPMA salt doesn't have anything to do with an additive," Scott said. "It's an actual change in the salt attached to the dicamba molecule. They've added some stuff to that molecule, and they've significantly reduced the volatility of the dicamba molecule itself."

Although Engenia hasn't received a federal label yet, industry experts and weed scientists expect a positive decision by the end of the year.

The Arkansas State Plant Board is scheduled to meet Nov. 21 and hold a public comment hearing on proposed changes to regulations governing the use of dicamba herbicides in Arkansas.

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