

Weed resistance a problem in peanuts

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Glyphosate resistant pigweed has gotten the bulk of media coverage recently, and though the herbicide is rarely used for cleanup treatments on peanuts, pigweed resistance, combined with other more direct affects create a big challenge for growers in the Southeast in 2007.

Weed resistance to dinitroanalin herbicides, commonly used in pre-emergence and at-planting treatments on peanuts has been well documented for a number of years. While weed resistance to ALS-inhibiting herbicides has been known to occur for several years, research in Georgia and North Carolina in 2006 indicates the problem is much more widespread than previously thought.

Among the most popular ALS-inhibiting herbicides used on peanuts are Cadre and Strongarm. Cadre controls over 34 grasses and broadleaf weeds, including nutsedge, pigweed and morningglory. Strongarm offers broad-spectrum control against tough broadleaf weeds, including morningglory, cocklebur, tropic croton, Florida beggarweed, common ragweed, copperleaf, eclipta, pigweed and more.

Throw in excellent crop safety for both popular herbicides and competitively low prices, and it's easy to see how these materials have become staples for peanut production.

Cadre and Strongarm are far from the only ALS-inhibiting herbicides available to peanut growers — over 20 such products are currently on the market. Herbicides that target the enzyme acetolactate synthase (ALS) are among the most widely used in the world. These herbicides are also notorious for their ability to select resistant weed populations.

Because of the success of these products, and their subsequent widespread use on a number of crops, there are more weed species that are resistant to ALS-inhibiting herbicides than to any other herbicide group.

In most cases, resistance to ALS-inhibiting herbicides is caused by an altered ALS enzyme. In addition to volume of use, resistance problems with ALS inhibitors can be attributed to how they have been used and the strong selection pressure they exert because of their soil residual activity.

Data has shown significant yield losses can occur in peanuts from various weeds at a population density of only one plant per meter of row. In the study, common cocklebur reduced yields by up to 70 percent; common ragweed, 40 percent; wild poinsettia, 31 percent; Florida beggarweed, 24 percent; tropic croton, 20 percent and bristly starbur, 14 percent.

Peanut growers who rotate with cotton should be aware of the mode of action of the products used on both crops. In some cases the trade name is different, but the active ingredient is the same. Regardless of the crop, weeds with resistance to one ALS-inhibiting herbicide will be resistant to similar products with the same active ingredient.

Speaking at the recent annual South Carolina Peanut Production Meeting, University of Georgia Weed Scientist Eric Prostko recommended using Prowl or Sonolan on every acre of peanuts. These herbicides have their own set of resistance problems, but will reduce the overall use of ALS-inhibiting materials.

Prostko says Solicam, which was previously sold under the trade-name Zorial, is another option, but points out a common problem associated with using older herbicides. Solicam has had crop injury issues in the past, he says, but that was on Florunner and other varieties of peanuts that are rarely grown these days.

There is little research on many of these older products on the newer varieties that are grown today. There could be more crop injury or less injury, we don't know how some of these herbicides will interact with newer varieties.

Many pre-Roundup Ready herbicides are still available and labeled for use on peanuts, but the Georgia weed scientist says there is too little known about these products. He suggests trying these products on small areas before going full scale with them.

Pigweed is well justified in getting the publicity it is getting, according to Prostko. "I can visit with a grower on one day and recommend treatment for Palmer amaranth pigweed, and if the grower doesn't spray for three or four days, that recommendation probably won't work," Prostko says.

The high price of corn and subsequent increase in acreage will be good for peanut production. The use of atrazine in corn will be especially good in breaking up the use of ALS-inhibiting herbicides, he points out.

In fields where ALS-resistance is documented, the use of popular herbicides, like Cadre and Strongarm, will only make the problem worse. In this scenario, growers will not only fail to control the target weed, especially pigweed, but will also spread the number and severity of resistant weeds.

Among the options are postemergence applications of Cobra, Blazer and Ultra Blazer. However, Prostko points out these materials have not done well in multi-year, multi-state trials on large pigweed. Once pigweed get more than 3-4 inches tall there is no guarantee these herbicides will work, he says.

In tests in Georgia, Prostko says, he planted pigweed known to be not glyphosate resistant and did a good job of controlling taller pigweed with Cobra. By adding 2,4-DB to the mix, he says control of mature pigweed increased 10-15 percent.

Valor, Spartan and Reflex are all protoporphyrinogen oxidase inhibitors, or PPO herbicides. There is no known resistance in the Southeast to this family of herbicides and most are not labeled for use on peanuts. However, weed scientists across the Southeast and manufacturers of these herbicides urge growers to use them wisely, and to rotate these materials with other families of products with different modes of action to avoid resistance problems.

Prostko says peanut growers should not use Reflex, a PPO herbicide that does a good job of controlling pigweed in cotton for two very good reasons. First, it's illegal and second it has some serious tolerance questions on peanuts.

In 2006, researchers documented resistance to both ALS and glyphosate containing herbicides in the same pigweed plant. If this dual resistance becomes widespread, growers in the Southeast with a peanut-cotton rotation will have more problems. Regardless of whether pigweed are resistant to either or both family of herbicides, it will require pre-emerge and post-emerge herbicides to manage the problem.

Key to most pre-emerge herbicides is moisture. Valor, for example, is a good option to suppress pigweed in peanuts, but without adequate moisture it will not prevent a vigorous first flush of pigweed and other weed species.

With pre-emerge herbicides the big question is moisture, with post-emerge materials it is timing. Once pigweed get more than 3-4 inches, the options a grower has for control are significantly limited, Prostko notes.

With peanut acreage expected to be down significantly in the Southeast and stable, or slightly down in the Virginia-Carolina belt, growers may have more rotation options, especially if the big jump in corn acreage occurs as is expected.

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