
Dealing with Glyphosate Resistance

Glyphosate or Roundup is a very effective weed killer. It is relatively in expensive, effective and quite safe for human health as well as safe in the environment. In farm fields glyphosate resistant corn and soybeans have become widely adopted. They improve weed control and are much safer of the environment and the safety of the operators. Glyphosate has also become a staple in the homeowner market for use on sidewalks, parking lots, under fences, and for spot treatments of problem weeds.

Mother Nature has a way of coping with every threat to random diversity. It is not surprising that the challenges to glyphosate have begun. This column will outline some of those challenges and suggest management methods farm operators and homeowners can cope with glyphosate resistant and glyphosate tolerant weeds.

Currently in Nebraska marestalk or horseweed is the only confirmed weed having populations resistant to glyphosate. I collected seed samples of marestalk from farm fields Northeast of Pickrell in 2008. University of Nebraska tests have confirmed that a 12X rate of glyphosate had no effect on plants grown from these collections. At this time glyphosate resistant marestalk is not widespread in Southeast Nebraska, but I am aware of three or four locations where it appears likely. Other weeds in which resistance has been found in the Midwest include waterhemp, common ragweed, giant ragweed, Palmer amaranth, Johnsongrass, and kochia. Samples of kochia are being tested at this time by the University of Nebraska.

An emerging concern across the country is the recent emergence of stacked resistance. This means weeds resistant to multiple modes of action of herbicides. An example is waterhemp in Missouri resistant to amino acid inhibitors (glyphosate, First Rate, Permit, etc.) plus cell membrane disruptors (Aim and Authority). If these kinds of weeds become widespread it could force the industry to increase research for new chemistries and for certain protect the use of long-term effective products like atrazine, 2,4-D, and dicamba.

The best way to prevent Mother Nature from destroying your weed control program with diversity is to embrace diversity in your crop, or homeowner weed control program. I am not talking about letting the weeds grow. I am talking about using crop rotation, different crops different weeds and different growing seasons. Change herbicide mode of action combinations in your weed control plans. The seed bank is an important part of weed control. If you allow resistant weed to go to seed unmolested, the problems are going to escalate rapidly. Look for herbicide or weed control options to kill potentially resistant weeds before they go to seed.

Controlling weeds when they are small is an important first step. The University of Nebraska Guide for Weed Management available at the Extension Office for \$10 provides all the current research-based information to help you plan

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