



For Immediate Release

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Glyphosate-Resistant Weeds: Can We Close the Barn Door?

Researchers say cost-competitive management techniques can slow weed resistance to the herbicide and improve crop yields

LAWRENCE, Kansas – November 18, 2009 – Glyphosate is the most widely used herbicide in the nation and a mainstay of weed control for both farmers and homeowners. Over the last 13 years, it has been applied to more than a billion acres. But there is a downside to the product's popularity. Scientists are increasingly concerned about the growing number of weeds developing resistance to glyphosate.

In a recent presentation to the U.S. Environmental Protection Agency, officials from the Weed Science Society of America (WSSA) reported that nine weed species in the United States now have confirmed resistance to glyphosate. Among these weeds are strains of common ragweed (*Ambrosia artemisiifolia*), common waterhemp (*Amaranthus rudis*), giant ragweed (*Ambrosia trifida*), hairy fleabane (*Conyza bonariensis*), horseweed (*Conyza canadensis*), Italian ryegrass (*Lolium multiflorum*), johnsongrass (*Sorghum halepense*), Palmer amaranth (*Amaranthus palmeri*) and rigid ryegrass (*Lolium rigidum*).

"Unfortunately it is too late to prevent glyphosate resistance from developing," says David Shaw, WSSA president. "It's a problem that is already with us. The challenge now is to adopt effective management techniques that can keep resistance from spreading."

The consequences of resistance are particularly troublesome for farmers who grow soybean, corn, cotton and sugar beet crops genetically engineered to tolerate glyphosate. Many of these farmers rely almost exclusively on glyphosate for weed control throughout the growing season. Using a single herbicide, though, increases the odds that the weed population will shift to resistant plants that are able to escape treatment and compete with crops for moisture and nutrients.

University scientists recommend a number of techniques for preventing or managing resistance. One of the most common recommendations is to rotate the types of herbicides used for weed control – making it tougher for weeds to adapt. Shaw says that initially many farmers were slow to recognize the seriousness of glyphosate resistance and to adopt this best management practice. However, educational programs in the last few years have greatly increased grower awareness and management efforts.

“One issue may have been the mistaken perception that adopting resistance management practices will cost more, since glyphosate tends to be very affordable,” Shaw says. “But studies show just the opposite is true.”

In a four-year research project now underway in six key agricultural states (Illinois, Indiana, Iowa, Mississippi, Nebraska and North Carolina), researchers are comparing the economics of university-recommended, herbicide resistance management programs with the use of glyphosate as an exclusive treatment for weed control. As of the end of the third year of the study, researchers say the net returns on fields managed according to recommended best practices are equal to or greater than the returns on those where glyphosate is used alone. Increased yields appear to offset any increase in herbicide costs.

“When glyphosate was first introduced for weed control, its unique way of inhibiting protein synthesis and growth in plants led many to believe that resistance would not be an issue,” Shaw says. “Obviously that prediction was wrong. However, best management practices can slow the development of resistant weeds, and one effective approach is to rotate glyphosate with herbicides that work very differently.”

Tips for Backyard Gardeners to Prevent the Development of Herbicide Resistance

Most backyard gardeners will recognize glyphosate as Roundup® – one of the many brand names for the popular herbicide. To delay the onset of resistance and maintain weed-free natural areas, flowerbeds and gardens, WSSA says homeowners should follow the same approach university researchers recommend for farmers. They should adopt a broad set of weed management tools and not rely on Roundup alone.

“By rotating the types of herbicides used and by complementing them with hoeing, hand-pulling, black plastic and other nonchemical weed control measures, we can prevent or delay resistance and preserve glyphosate as an effective weed control tool,” Shaw says.

About the Weed Science Society of America

The Weed Science Society of America, a nonprofit professional society, was founded in 1956 to encourage and promote the development of knowledge concerning weeds and their impact on the environment. The Weed Science Society of America promotes research, education and extension outreach activities related to weeds, provides science-based information to the public and policy makers, fosters awareness of weeds and their impact on managed and natural ecosystems, and promotes cooperation among weed science organizations across the nation and around the world. For more information, visit www.wssa.net.

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