

Benchmark Study

Glyphosate Resistance Management

2009 – Report #3



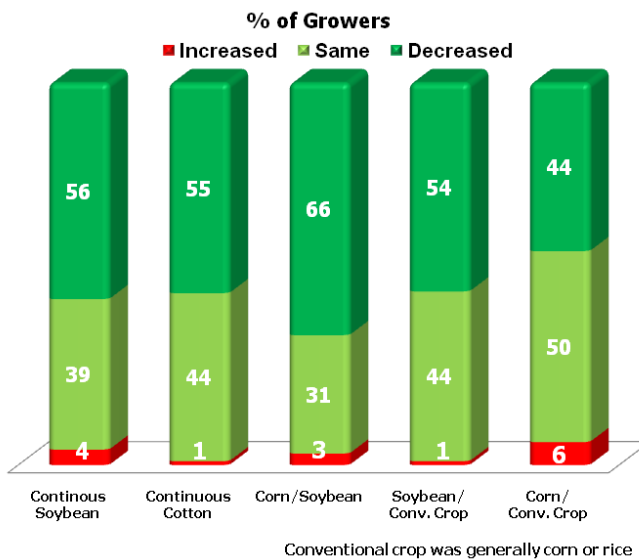
Weed Pressure and Problem Weeds Have Changed with the Adoption of Roundup Ready® Crops*

Wide-spread adoption of Roundup Ready cropping systems has occurred since the first Roundup Ready crop was introduced in 1996. University weed scientists developed a grower survey to understand grower perceptions of weed pressure and problematic weed species before and after adoption of Roundup Ready cropping systems. Approximately 1200 growers in six states (approximately 200 per state in Iowa, Illinois, Indiana, Mississippi, North Carolina, and Nebraska) were surveyed by telephone in the winter of 2005-2006.

Weed Pressure in Roundup Ready Cropping Systems

Over all tillage systems investigated, 44-66% of the growers indicated the weed pressure decreased, 31-50% indicated it remained the same and 1-6% indicated increased weed pressure after adopting Roundup Ready crops (Figure 1). Grower perceptions of changes in weed pressure varied substantially depending on their cropping system. Growers planting Roundup Ready corn and soybean in rotation were the most likely to observe a decrease in weed pressure. Growers rotating Roundup Ready corn with a conventional crop were the least likely to indicate a decrease in weed pressure (44%).

Figure 1. Grower Perceptions of Weed Pressure After Adopting Roundup Ready Cropping Systems



Forty-nine to 67% of the growers indicated their weed pressure was light, 27-43% was moderate and only 3-10% indicated heavy weed pressure depending on the Roundup Ready cropping system used by the grower (Figure 2). Only 5% or less of the growers in the survey using Roundup Ready cropping systems for 3 to 5 years believed they had heavy weed pressure. None of the growers indicated their weed

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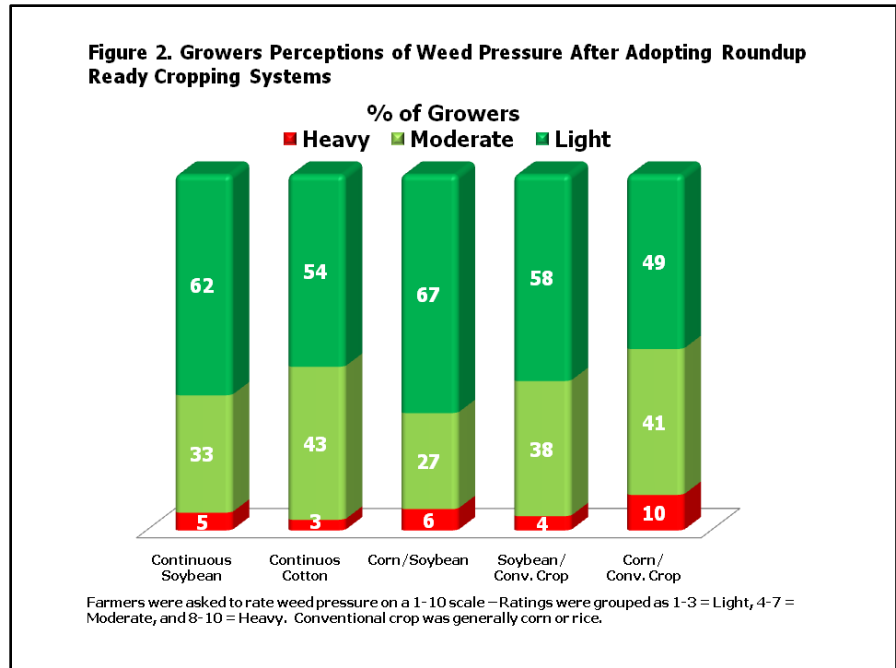
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pressure was heavy when fields were in Roundup Ready crops for more than five years.

Problematic Weeds in Roundup Ready Cropping Systems

As expected, when growers were asked to identify the three most problematic weeds in their field, their responses varied greatly due to difference in cropping systems and location. Twenty-five to 39% of the growers utilizing Roundup Ready cropping systems indicated they have no major weed problems. The scientists suggests that the data from this survey indicate that most weed species,

except for morningglory and pigweed species, present before Roundup Ready crops were introduced continue to be problematic weeds, but to a reduced degree after implementing Roundup Ready cropping systems. The most commonly mentioned problematic weeds for all Roundup Ready cropping systems and across all states were ragweed species, johnsongrass, velvetleaf, morningglory species, sicklepod, and pigweed species. In Illinois and Iowa, common waterhemp was mentioned most frequently by growers as the most problematic weed. In Indiana, ragweed species were mentioned most frequently. In Nebraska, velvetleaf and common waterhemp were most mentioned problem weeds. In Mississippi and North Carolina, morningglory species, sicklepod, and pigweed species were most common.



Summary of Weed Pressure and Problematic Weeds in Roundup Ready Cropping Systems

- Over all tillage systems, 44-66% of the growers indicated the weed pressure decreased, 31-50% indicated it remained the same and 1-6% indicated increased weed pressure after adopting Roundup Ready crops.
- None of growers surveyed indicated weed pressure was heavy when fields were in Roundup Ready crops for more than 5 years.
- Most weed species, except for morningglory and pigweed species, present before the introduction of Roundup Ready crops continue to be problematic weeds, but to a reduced degree after adopting Roundup Ready cropping systems.

*Greg R. Kruger, William G. Johnson, and Stephen C. Weller – Purdue University; Micheal D. K. Owen – Iowa State University; David R. Shaw – Mississippi State University; John W. Wilcut and David L. Jordan – North Carolina State University, Robert G. Wilson and Mark L. Bernards – University of Nebraska; and Bryan G. Young – Southern Illinois University. 2009. U.S. Grower Views on Problematic Weeds and Changes in Weed Pressure in Glyphosate-Resistant Corn, Cotton, and Soybean Cropping Systems, *Weed Technology* 23:162-166.

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