In weed science and other disciplines surveys are often used to inquire about a group’s habits or decision practices. In 2003 and 2005, mail out surveys were sent to 3000 and 5000 growers in Indiana, 612 and 1330 were returned, respectively. The surveys asked a series of questions about burndown practices used in no-till soybean production in Indiana. Most of the growers responded that burndown applications were applied 7-14 days before planting (46%). Nineteen percent responded that they applied burndowns within 7 days of planting and 9% responded that they applied in the fall or over 30 days before planting. Growers averaged across farm size indicated that approximately 95% of their soybean acres were Roundup Ready®. However, there appeared to be a slight decrease in the percent of Roundup Ready® soybean grown compared to non-transgenic acres as farm became larger. Of these glyphosate-resistant soybean acres, an average of 26% received a residual preemergence treatment, indicating that a large percentage of Roundup Ready® soybeans are treated with only glyphosate. When broken down by farm size, larger farms (500 acres and above) were more likely to use a preemergent herbicide. This might be a result of time management. With more acres to cover, the use of a preemergence would increase the window for the application of postemergence herbicides.

The perceptions regarding weed-free periods and early season competition were uncertain. When asked if planting into a weed-free seedbed was important only 37%, thought it was important to plant into a weed-free seedbed. Fifty one percent of the growers surveyed responded that soybean could tolerate 1 to 2 weeks of weed competition without yield loss while 17% thought soybeans could tolerate 5 weeks or more of weed competition. When broken down by farm size, growers from larger farms were more likely to respond this way. Weeds are highly effective at allocating resources, one aspect of their “weedy” nature. Annual grasses emerging at the same time as corn will accumulate at much nitrogen as corn when the grasses are 3 inches in size, but if allowed to grow to 12 inches, annual grasses will accumulated 3 times the nitrogen as corn.

The majority of growers, 67%, indicated that they did two trips across a field for weed management.
Weed Science Survey II: Burndown and Application Timing

August 31, 2007

Horseweed/marestail escapes in a soybean field.

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Weed Science Survey II: Burndown and Application Timing

Horseweed/marestail escapes in a soybean field.

each year. While 33% only used 1 trip across the field to control weeds. Thirty percent of growers filling out the survey indicated that their postemergence applications were most often based on weed size. Although the Roundup Ready® weed management system can be somewhat flexible, the size of the weed and specific species involved can still be crucial to get control with glyphosate. The appropriate rate has to be applied to the appropriate size of the weed. This is most evident with problematic weeds such as morningglory, lambsquarters, and giant ragweed.

When asked in the survey about lambsquarters, 50% of the growers responded that they applied postemergence herbicides on lambsquarters at least 4 inches tall. Lambsquarters has a thick epicuticular wax, almost twice as much as common purslane and 37 times more when compared to velvet leaf1. It is this epicuticular wax that inhibits many of our herbicides from entering the plant. In the case of lambsquarters, epicuticular waxes become thicker and change their chemistry in response to light, temperature, relative humidity, and age. Lambsquarters is more difficult to control when it is more than 4 inches tall. Applications to lambsquarters in hot dry weather may also result in poor control. Over 30% of the growers indicated that they let giant ragweed reach 8 inches or more in height before spraying glyphosate.

The Roundup Weathermax® label (2007) states the maximum size for giant ragweed is 6, 12, and 18 inches when using 16 fl oz/A, 22 fl oz/A, 32 fl oz/A. Forty one percent of growers in this survey indicated that they applied glyphosate to 4 to 8.5-inch giant ragweed, and horseweed; however, 64% of growers indicated that they applied glyphosate to morningglory that was under 4 inches tall. Presently, the Purdue University and The Ohio State University recommend applying higher rates, 1.1 to 1.5 lb ae/A glyphosate, to common lambsquarters and giant ragweed that are 6-10 inches tall, then follow up with a 0.75 lb ae/A applications to survivors approximately three weeks later.

Soon to come, some results from a survey conducted that investigated growers perceptions of glyphosate resistance.

Lambsquarters in a soybean field.
References:

