GROWER AWARENESS OF GLYPHOSATE-RESISTANT WEEDS AND RESISTANCE MANAGEMENT STRATEGIES FOR COTTON PRODUCTION SYSTEMS IN MISSISSIPPI AND NORTH CAROLINA

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Abstract

A 6-state project assessing the long-term viability of Roundup Ready (RR) technology as a foundation for corn, cotton, and soybean production began in 2006 in Illinois, Iowa, Indiana, Mississippi (MS), Nebraska, and North Carolina (NC). The survey was used to gain information on the short- and long-term performance of RR crops and glyphosate use and to determine if critical data and information is being generated through previous commercial experience. The objectives were to characterize the historical utilization of RR crops, discern herbicide use patterns, gain grower insight on the performance of glyphosate-based weed control systems, and identify any practices which may lead to greater weed management challenges and/or to determine practices that may lead to sustainability. The project surveyed 1,195 growers about their perceptions of RR cropping systems across the 6 states representative of some of the US production regions. The grower survey was selected from Monsanto's historical base of RR trait licenses and was conducted from November 2005 to January 2006 by Marketing Horizons, Inc. and academia. The growers represented a cross-section of seed brands and were randomly selected from the list. Growers requirements included: growers still had to be actively involved in farming, responsible for decision-making, not employed in crop protection or seed industry, farming a minimum of 250 acres of soybean, cotton, or corn, and had been planting a RR trait for a minimum of 3 years. The survey covered a broad range of topics from current and future practices, cropping systems, tillage systems, herbicide resistance, and resistance management strategies. This talk focused on the cotton production portion of the survey conducted across MS and NC.

Cotton production data was collected from 178 growers in MS and 207 from NC. MS cotton growers planted 97% of 20,645 ha in 2005 and 93% of 19,629 ha in 2006 to RR technology. NC cotton growers planted 97% of 17,313 ha in 2005 and 92% of 18,174 ha in 2006 to RR technology. Cotton growers in MS and NC averaged 5 years with RR cotton in production of their farms. Prior to the introduction of RR technology, 48 and 40% of MS and NC growers, respectively, ranked their weed pressure as very light to moderate. Eighty-five and 92% of MS and NC growers, respectively, ranked their current weed pressure as very light to moderate. Eighteen, 11, and 71% of 97 continuous RR cotton growers were in no-till, reduced, and conventional tillage, respectively, prior to the introduction of RR cotton with 38, 36, and 26% of the growers currently in no-till, reduced, and conventional tillage, respectively. Forty-six percent of the growers felt shifting tillage practices had positively impacted their weed pressure on their farms. Seventy-eight and 86% of MS and NC growers, respectively, made 2 to 5 applications of glyphosate to cotton in 2005. Sixteen and 22% of MS and NC growers, respectively, have not made a non-glyphosate application in the last 3 years to cotton. Greater than 90% of the cotton growers surveyed were aware of the potential for weeds to develop resistance to glyphosate herbicides. However, when asked how serious of a

problem they thought glyphosate resistant was, only 36 to 52% of the growers rated the resistance as 'very serious'. Fifty-six and 64% of MS and NC growers, respectively, were aware of specific weeds in their home states that have been documented as resistant to glyphosate. Twenty-nine and 20% of MS and NC growers, respectively, had personally experienced weeds resistant to glyphosate. Sixty-two and 63% of MS and NC growers, respectively, were currently incorporating management programs to minimize the potential for weeds to develop resistance to glyphosate on their farms. Growers in both MS and NC ranked "Using correct label rates at proper timing for size and type of weeds present" and "Rotating crops" 1 and 2 as very effective was to manage potential glyphosate weed resistance, while "tillage" was ranked last. MS and NC cotton growers recognized the potential for glyphosate resistance; however the majority continued to use only glyphosate as their primary weed control year after year. These data also show almost an unparalleled satisfaction with the RR cotton technology as documented with this survey and the percentage of cotton acreage planted in RR cotton in both states.