GROWER PERCEPTIONS ON TILLAGE PRACTICES WITH ROUNDUP-READY CROPPING SYSTEMS IN MISSISSIPPI AND NORTH CAROLINA COTTON

S.B. Clewis
W.J. Everman
D.L. Jordan
J.W. Wilcut
North Carolina State University
Raleigh, NC
D.R. Shaw
Mississippi State University
Stoneville, MS
M.K.D. Owen
Ames, IA
B.G. Young
Department of Plant, Soil and General Agriculture
Carbondale, IL
S.C. Weller
West Lafayette, IN
W.G. Johnson
West Lafayette, IN
R.G. Wilson
Scottsbluff, NE

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, Nebraska, and North Carolina. 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 poster focused on the tillage portion of the survey.

Continuous RR soybean and continuous cotton rotation data were complied from Illinois, Indiana, Mississippi, and North Carolina. Prior to RR soybean registration, 30, 25, and 45% of 278 growers were in no-, reduced-, and conventional-tillage, respectively, with 55, 24, and 21% of the growers currently in no-, reduced-, and conventional-tillage, respectively. These growers averaged 6, 7, and 11 years in no-, reduced-, and conventional-tillage, respectively. Forty percent of these growers felt shifting tillage practices had positively impacted their weed pressure on their farms. Prior to the introduction of RR cotton, 18, 11, and 71% of 97 continuous RR cotton growers were in no-, reduced-, and conventional-tillage, respectively, with 38, 36, and 26% of the growers currently in no-, reduced-, and conventional-tillage, respectively. These growers averaged 6, 5, and 16 years in no-, reduced-, and conventional-tillage, respectively. Forty-six percent of the growers felt shifting tillage practices had positively impacted their weed pressure on their farms. Data for the remaining rotations were complied from Iowa, Illinois, Indiana, Mississippi, North Carolina, and Nebraska. Prior to the introduction of RR corn/RR soybean rotations, 30, 44, and 26% of 378 growers were in no-, reduced-, and conventional-tillage, respectively, with 44, 41, and 15% of the RR corn/RR soybean rotation growers currently in no-, reduced-, and conventional-tillage, respectively. These growers averaged 8, 10, and 18 years in no-, reduced-, and conventional-tillage, respectively. Thirty-nine percent of

these growers felt shifting tillage practices had positively impacted their weed pressure on their farms. Prior to the introduction of RR soybean/non-RR crop rotation, 21, 39, and 40% of 405 growers were in no-, reduced-, and conventional-tillage, respectively, with 33, 46, and 21% of the growers currently in no-, reduced-, and conventional-tillage, respectively. These growers averaged 7, 9, and 16 years in no-, reduced-, and conventional-tillage, respectively. Forty percent of the growers felt shifting tillage practices had positively impacted their weed pressure on their farms. Prior to the introduction of RR corn/non-RR crop rotation, 23, 60, and 17% of 35 growers were in no-till, reduced-, and conventional-tillage, respectively, with 51, 40, and 9% of the growers currently in no-, reduced-, and conventional-tillage, respectively. These growers averaged 4, 12, and 17 years in no-, reduced-, and conventional-tillage, respectively. Fifty-four percent of the growers felt shifting tillage practices had positively impacted their weed pressure on their farms. Adaptation of RR technology increased hectarage in no- and reduced-tillage production practices in continuous cotton and continuous soybean by 24 and 45%.

After planting a RR crop rotation there was a reduction in conventional-tillage practices with a concomitant increase in no-till. At least 70% of growers in all 5 of the rotations, felt shifting tillage practices had reduced their weed pressure and control on their farms. Growers also cited reduced costs for using less tillage on their farms. The registration of RR technologies has allowed in a number of cropping rotations to move towards more sustainable reduced and no-till cropping production systems.