ON-FARM GLYPHOSATE-RESISTANT PALMER AMARANTH MANAGEMENT IN RRF, LL, AND CONVENTIONAL COTTON VARIETIES

Michael. G. Patterson C. Dale Monks Brandon. A. Dillard William C. Birdsong William R. Goodman AL Coop. Ext. System Auburn University, Auburn, AL Andrew J. Price USDA-ARS Auburn, AL

Abstract

A replicated field trial was conducted on-farm in Barbour county, AL in 2010 to evaluate optimum weed management systems for Roundup Ready Flex (RRF), Liberty-Link (LL), and conventional (non-transgenic) cotton varieties in an area infested with glyphosate-resistant palmer amaranth (Amaranthus palmeri). Varieties used were DPL 1048 B2RF, FM 1845 LLB2, and CT 210. Cotton was planted in a reduced tillage field that had received a preplant foliar (burndown) application of Gramoxone Inteon (2 pts/A) + Diuron 4L (2 pts/A) with surfactant two weeks prior to planting on May 12. Seed of each variety were put into four planters on a 12-row planter and three passes were made the length of the field (800 ft). Seeding rate for all varieties was 2 seed/11.5 inches of row. Immediately after planting a pre-emergence application of Prowl (2 pts/A) plus Reflex (1 pt/A) was made in all varieties. Cotoran 4L was added to this mixture for the conventional variety (CT 210). Early post-emergence treatments were made prior to the 4-leaf cotton stage and before pigweed emergence. Roundup Power Max (22 fl oz./A) + Dual Magnum (1 pt/A), Ignite 280 (29 fl. oz/A) + Dual Magnum (1 pt/A), and Staple LX (3 fl. oz/A + surfactant) were applied to RRF, LL, and conventional cotton, respectively. A lay by treatment of Valor DF (2 oz/A) + Diuron 4L (2 pts/A) + MSMA 6 (2.7 pts/A) was made when cotton was approximately knee high. All treatments were activated by timely rainfall (within 7 days) following application. Weed control ratings of Palmer amaranth were made on June 11 after early post treatments (applied June 2) at which time control in all varieties was 99 percent, and on June 29 when lay by treatments were applied at which time control was 93, 92, and 88 percent for RRF, LL, and conventional varieties, respectively. Palmer amaranth escapes were counted in each plot on July 16 showing 45, 5, and 39 plants per acre for RRF, LL, and conventional varieties, respectively. These numbers were constant for the remainder of the season (cotton picked on Oct 5 and 6), primarily due to late-season drought. Lint yield for each variety was 1668, 1499, and 1331 lbs/A for RRF, LL, and conventional varieties, respectively. Input costs for seed and tech fees, herbicides, and hand weeding were \$142, \$89, and \$89 per acre for RRF, LL, and conventional varieties, respectively. Variable and fixed costs for all three varieties outside of weed management was \$447/A. Net returns to land, operator labor, and management at a lint price of \$0.95/lb were \$1.115 for RRF, \$1032 for LL, and \$854 for conventional. At \$0.55/lb, the net returns were \$305, \$286, and \$192 for RRF, LL, and conventional varieties, respectively.