DOES THE ADDITION OF STAPLE LX IMPROVE WEED CONTROL IN AN ENLIST SYSTEM?

Z.D. Lancaster
J.K. Norsworthy
N. Steppig
M.L. Young
Department of Crop, Soil, and Environment Science, University of Arkansas
Fayetteville, AR

Abstract

With the continuous spread of herbicide-resistant weeds across the Midsouth, especially glyphosate-resistant Palmer amaranth (*Amaranthus palmeri*), new technologies are needed to effectively control these troublesome weeds. The introduction of the Enlist™ technology provides an additional mode of action to combat these difficult-to-control weeds, but proper stewardship will need to be taken to slow the development of resistance to this new technology. The addition of residual herbicides is essential to proper stewardship of a technology. Staple LX™ (pyrithiobac) is a residual herbicide which can be used pre-plant and postemergence in cotton. An experiment was conducted in the summer of 2015 at the Lon Mann Cotton Research Station near Marianna, AR to determine if the addition of Staple LX to the Enlist system improves season-long weed control. The experiment was set up as a single factor randomized complete block design with the factor being herbicide program. Treatments were applied to a bare-ground field with applications at preemergence (PRE), early postemergence (EPOST – 14 to 21 days after PRE), and mid-postemergence (MPOST - 14 to 21 days after EPOST). Treatments consisted of combinations of Cotoran 4™ and Staple LX applied PRE; Roundup PowerMax™, 2,4-D Amine, Dual Magnum™, and Liberty™ applied EPOST, and Roundup PowerMax, 2,4-D, Staple LX, and Liberty applied MPOST. Data were collected on Palmer amaranth, barnyardgrass (*Echinochloa crus-galli)*, large crabgrass (*Digitaria sanguinalis*), goosegrass (*Eleusine indica*), entireleaf morningglory (*Ipomoea purpurea*), and pitted morningglory (*Ipomoea lacunosa*) control at 14 to 21 days after each application. Data were analyzed with JMP 12.1 using Proc Mixed, with means separated using Fisher's protected LSD (α=0.05). Treatments including Staple LX were found to have no significant difference in weed control when compared to treatments containing the industry standard of Dual Magnum. All herbicide programs showed no significant difference for late season Palmer amaranth control, except for the program of Staple LX/Cotoran (PRE) followed by Roundup PowerMax/2,4-D/Dual Magnum (EPOST), followed by Liberty/Staple LX (MPOST) which resulted in lower control at 85%. The industry standard treatment (no 2,4-D) showed equally effective control of Palmer amaranth compared to the most effective 2,4-D-containing programs. This research shows that Staple LX does not bring added value to the Enlist system compared to currently used residual herbicides, and that current industry standards without 2,4-D are still able to provide exceptional season-long weed control.