2003 BELTWIDE COTTON CONFERENCES, NASHVILLE, TN – JANUARY 6-10

EVALUATION OF ENVOKE/INSECTICIDE COMBINATIONS FOR BROADLEAF WEED AND THRIPS CONTROL

D.K. Miller, R.G. Downer, E. Burris, R.W. Costello, D.R. Lee, and K. Sanders
LSU AgCenter
Baton Rouge, LA
J.W. Wilcut
North Carolina State University
Raleigh, NC

Abstract

Field studies were conducted at the Northeast Research Station near St. Joseph, La in 2002 to evaluate broadleaf weed and thrips (*Frankliniella spp.*) control with tankmix combinations of Envoke (trifloxysulfuron-sodium) and various insecticides. Experimental design for all studies was a randomized complete block with four replications in weed control studies and six replications in insect control studies. In repeated weed control studies, Envoke was applied at 0.1 oz/A alone or in combination with the following insecticides: Orthene (acephate) at 5.9 oz/A; Vydate (oxamyl) at 11.2 oz/A; Karate (*lamda*-cyhalothrin) at 1.9 oz/A; Intruder (acetamiprid) at 0.9 oz/A; Centric (thiamethoxam) at 2.6 oz/A; Phaser (endosulfan) at 14 oz/A; Steward (indoxacarb) at 11.3 oz/A; Denim (emamecpin benzoate) at 1 oz/A; Intrepid (methoxyfenozide) at 3.8 oz/A; Tracer (spinosad) at 2.1 oz/A; and S-1812 at 3.2 oz/A. Application was to a natural population of hemp sesbania (*Sesbania exaltata*), sicklepod (*Senna obtusifolia*), and redroot pigweed (*Amaranthus retroflexus*) ranging from 10 to 12 inches in height and nursery grown pitted morningglory (*Ipomoea lacunosa*) ranging from six to eight inches in height. A nonionic surfactant at 0.25% was included with all treatments. Treatments were applied at 15 GPA to each two row, 6.67' x 10' naturally infested plot and each 10 inch diameter nursery container. Visual weed control was determined 14 and 28 DAT and above ground dry weight was recorded 28 DAT from 10 randomly selected field plants or each nursery grown plant. Dry weight data was converted to a percent reduction from a nontreated control prior to analysis. In repeated thrips control studies, previously listed insecticide treatments were applied either alone or in combination with Envoke at 0.15 oz/A to cotton when thrips economic threshold was reached. Nonionic surfactant was included at 0.25% with all treatments. Treatments were applied at 10 GPA to each four row, 13.33' x 45' plot. Larvae and adult thrips number was determined five DAT after collection of five randomly selected cotton terminals and counting with a binocular microscope. Data were converted to a percent reduction from a nontreated control prior to contrast analysis.

Averaged across experiments, hemp sesbania, sicklepod, and redroot pigweed control 14 DAT with Envoke was reduced with addition of Karate (75 vs 69%), Intrepid (77 vs 46%), and both Intrepid (75 vs 51%) and Tracer (75 vs 61%), respectively. Pitted morningglory control was not reduced by addition of any insecticide. Averaged across experiments, control of hemp sesbania and sicklepod 28 DAT with Envoke was reduced with addition of Vydate (83 vs 69%) and both Intrepid (78 vs 41%) and S-1812 (78 vs 27%), respectively. Pitted morningglory control was unaffected by insecticide addition (73 vs 55 to 80%). Redroot pigweed control with Envoke 28 DAT was reduced with addition of insecticides Orthene (85 vs 68%), Centric (85 vs 69%), Intrepid (85 vs 48%), and Tracer (85 vs 61%) in experiment one. In the second experiment, control was reduced only with addition of S-1812 (74 vs 30%). Dry weight reduction of sicklepod and pitted morningglory 28 DAT, averaged across experiments, was lower for Envoke tankmixed with S-1812 (86 vs 36%) and Steward (89 vs 74%), respectively, compared with herbicide applied alone. Dry weight reduction for hemp sesbania, averaged across experiments (89 vs 84 to 93%), and redroot pigweed in experiment one (95 vs 81 to 95%), was unaffected by insecticide addition compared to reduction with Envoke alone. In experiment two, redroot pigweed dry weight reduction was affected only with addition of S-1812 (96 vs 44%).

In experiment one, adult thrips number reduction from a nontreated control for each insecticide was lowered with addition of Envoke for only the insecticide Steward (61 vs 23%). Adult thrips number reduction in experiment two and thrips larvae reduction averaged across both experiments was unaffected by Envoke addition when compared to each insecticide applied alone.

Pitted morningglory was the only broadleaf weed that showed no negative effect from tankmixture of Envoke and insecticides based on both visual control and dry weight reduction with application made to larger weeds. Steward/Envoke combination resulted in lower adult thrips reduction in one of two experiments. Negative effects were not observed with any insecticide/herbicide combination with respect to reduction in adult thrips numbers in the second experiment and for reduction in thrips larvae numbers.