

**BROADLEAF WEED AND EARLY SEASON INSECT CONTROL
WITH ENVOKE AND INSECTICIDE CO-APPLICATIONS**

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Abstract

Research was conducted in 2002 at the Northeast Research Station in St. Joseph, La, and at 4 locations in North Carolina in 2003 to evaluate the influence of co-application of various insecticides and Envoke (trifloxysulfuron-sodium) on broadleaf weed and early season insect control. The insect control study, consisting of 2 experiments conducted in 2002, included the insecticides Orthene (acephate) at 0.33 lb ai/A, Vydate (oxamyl) at 0.33 lb ai/A, Karate Z (lambda-cyhalothrin) at 0.03 lb ai/A, Intruder (acetamiprid) at 0.04 lb ai/A, Centric (thiamethoxam) at 0.04 lb ai/A, Phaser (endosulfan) at 0.33 lb ai/A, Steward (indoxacarb) at 0.11 lb ai/A, Denim (emamectin benzoate) at 0.01 lb ai/A, Intrepid (methoxyfenozide) at 0.06 lb ai/A, Tracer (spinosad) at 0.067 lb ai/A or S-1812 (pyridalyl) at 0.1 lb ai/A applied alone or co-applied with Envoke at 0.007 lb ai/A. Nonionic surfactant was not included with any co-application. Application was made to each 4 row, 13.33' x 40' plot at heavy thrips infestation levels. At 4 days after application (DAT), adult thrips and larvae were counted from 10 randomly selected terminals. The weed control study, conducted in 2003, included Envoke applied alone at 0.0047 lb ai/A or co-applied with the previously mentioned insecticides at the rates indicated. Application was made to each 6' x 20' natural weed population using a CO₂ backpack sprayer. Nonionic surfactant was included with all treatments. Visual assessment of weed control was conducted 14 DAT. Weeds evaluated at each location included sicklepod (*Senna obtusifolia*), pitted morningglory (*Ipomoea lacunosa*), Palmer amaranth (*Amaranthus palmeri*), smooth pigweed (*Amaranthus albidus*), and common lambsquarters (*Chenopodium album*) at Goldsboro; pitted morningglory, tall morningglory (*Ipomoea purpurea*), smooth pigweed, Palmer amaranth, sicklepod, and common lambsquarters at Kinston; smooth pigweed, Palmer amaranth, common lambsquarters, entireleaf morningglory (*Ipomoea hederacea*), and tall morningglory at Rocky Mount, and jimsonweed (*Datura stramonium*), prickly sida (*Sida spinosa*), ivyleaf morningglory (*Ipomoea hederacea*), and pitted morningglory at Clayton. Weed size at application was as follows: sicklepod (cotyledon to 3 leaf), Palmer amaranth (2 to 16 leaf), common lambsquarters (8 to 20 leaf), entireleaf morningglory (cotyledon to 5 leaf), tall morningglory (cotyledon to 4 leaf), smooth pigweed (5 to 18 leaf), jimsonweed (cotyledon to 4 leaf), prickly sida (cotyledon to 4 leaf), ivyleaf morningglory (cotyledon to 3 leaf), and pitted morningglory (cotyledon to 4 leaf). Pairwise comparisons with insecticides alone and each Envoke/insecticide co-application for the insect study and with Envoke alone and the co-applications for the weed control study were conducted at the 0.05 level of significance. A nontreated control was included in the insect study to determine a percent thrips reduction for all treatments and also in the weed control study for visual rating reference, but was not included in the statistical analysis.

In the first experiment, adult thrips number reduction for each insecticide was negatively affected with the addition of Envoke for only the insecticide Steward (61 vs. 23%). Adult thrips number reduction in the second experiment and thrips larvae reduction averaged across both experiments was unaffected by Envoke addition when compared to each insecticide applied alone. Sicklepod, Palmer amaranth, common lambsquarters, entireleaf morningglory, tall morningglory, smooth pigweed, jimsonweed, prickly sida, ivyleaf morningglory, and pitted morningglory control with Envoke applied alone was 95, 73 to 87, 93 to 97, 95, 97 to 98, 82 to 97, 23, 24, 97, and 96 to 97%, respectively over all locations. With few exceptions, Palmer amaranth, smooth pigweed, common lambsquarters, jimsonweed, and prickly sida control was significantly reduced when Envoke was co-applied with all insecticides evaluated compared to the herbicide applied alone. Control of sicklepod and all morningglory species with Envoke was not affected by co-application with insecticides.

In conclusion, Palmer amaranth, smooth pigweed, common lambsquarters, jimsonweed, and prickly sida control with Envoke can be reduced when the herbicide is co-applied with insecticides evaluated in this study. Control of sicklepod and morningglory species evaluated is unaffected. Envoke co-applied with insecticides evaluated does not appear to have a negative impact on thrips control.