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SECTION 14

Evaluation of foliar-applied insecticides to control potato leafhoppers (*Empoasca fabae*) and tarnished plant bugs (*Lygus lineolaris*) in Illinois, 2011

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Location

We established one trial located on a University of Illinois Animal Sciences farm near Urbana (Champaign County).

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 20 ft x 20 ft. Densities of potato leafhoppers and tarnished plant bugs were estimated by taking 25 sweeps per plot with a 15-inch diameter sweep net. After the application of insecticides, densities were assessed on 5, 12, and 18 August (7, 14, and 20 days after treatment [DAT], respectively).

Insecticide Application

Insecticides were applied on 26 July with a CO₂ backpack sprayer and a four-row boom. TeeJet TTJ60-1102VP spray

tips were calibrated to deliver a volume of 20 gallons per acre (gal/A). Active ingredients for all insecticides are listed in Appendix II.

Climatic Conditions

Temperature and precipitation data are presented in Appendix III.

Statistical Analysis

Data were analyzed using ARM 8 (Agricultural Research Manager), revision 8.3.4 (Copyright© 1982–2011 Gylling Data Management, Inc., Brookings, SD).

Results and Discussion

Mean numbers of potato leafhoppers and tarnished plant bugs per plot are reported in Table 14.1. Densities of both potato leafhoppers and tarnished plant bugs were minimal during this trial. Significant differences in the mean number of these insects per plot were only observed on 12 August (14 DAT) for tarnished plant bugs. The mean number of tarnished plant bugs for the Nufos + Warrior II treatment was greater than for the Cobalt, Mustang Max, and untreated check (UTC) treatments. However, this trend was not observed on the subsequent sampling date (20 DAT).

TABLE 14.1 • Evaluation of foliar-applied insecticides to control potato leafhoppers and tarnished plant bugs, Urbana, University of Illinois, 2011

Product	Rate ¹	Mean no. potato leafhoppers per plot ^{2,3}				Mean no. tarnished plant bugs per plot ^{2,3}			
		29 July (0 DAT ⁴)	5 Aug (7 DAT ⁴)	12 Aug (14 DAT ⁴)	18 Aug (20 DAT ⁴)	29 July (0 DAT ⁴)	5 Aug (7 DAT ⁴)	12 Aug (14 DAT ⁴)	18 Aug (20 DAT ⁴)
Cobalt	38	1.0 a	7.0 a	13.0 a	19.0 a	0.0 a	1.5 a	1.5 b	3.8 a
Mustang Max	4	1.5 a	4.3 a	0.8 a	8.5 a	0.0 a	0.3 a	0.5 b	5.3 a
Nufos	32	0.0 a	1.0 a	2.3 a	5.5 a	0.0 a	1.8 a	2.0 ab	5.3 a
Nufos + Mustang Max	16 2.24	0.0 a	2.3 a	5.0 a	13.5 a	0.0 a	1.5 a	2.5 ab	5.0 a
Nufos + Warrior II	16 1.28	1.0 a	3.8 a	3.3 a	9.8 a	0.0 a	1.8 a	3.8 a	5.8 a
Warrior II	1.92	0.0 a	4.3 a	4.8 a	6.3 a	0.0 a	0.3 a	1.8 ab	4.0 a
UTC ⁵	—	0.5 a	2.0 a	2.3 a	4.5 a	0.0 a	2.0 a	0.8 b	5.3 a

¹ Rates of application for foliar insecticide are ounces (oz) of product per acre.

² Means were derived from the numbers of insects per 25 sweeps in each plot in each of four replications.

³ Means for the same date and followed by the same letter do not differ significantly ($P = 0.05$, Duncan's New Multiple Range Test).

⁴ DAT = days after treatment (with insecticide).

⁵ UTC = untreated check.