Control of Tarnished Plant Bug with Tankmix and Premix Insecticides

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RESEARCH PROBLEM

The tarnished plant bug (TPB), Lygus lineolaris, is the most important insect pest of cotton in Arkansas. It is imperative for growers to have tools available to them to combat this pest and maintain the upper hand before increasing populations grow beyond their control. In order to inform growers of which tools are the most effective, it is crucial that trials are conducted to make that determination.

BACKGROUND INFORMATION

From 2003 to 2009 the tarnished plant bug caused more yield loss than any other pest averaging a loss of over 50,000 bales in Arkansas (Williams, 2009). Plant bug populations in the past several years have been extremely high and currently labeled insecticides are not providing the level of control needed to reduce plant bug numbers below economic threshold with one application (Lorenz, et al., 2011). To make matters worse resistance to multiple insecticides has been found across the Midsouth U.S. (Snodgrass, 1996; Snodgrass et al., 2009). Use of insecticide premixes and tankmixes have been shown as an effective way to increase control (Thrash et al., 2012). A total of 33 trials from the 2009–2012 growing seasons were used to evaluate the control of insecticide mixes compared to single products.

RESEARCH DESCRIPTION

Trials were conducted during the 2009–2012 growing season. Treatments were applied with a Mud Master fitted TXVS-6 hollow cone nozzle. Spray volume was 10 gallons per acre (GPA) at 40 psi. Plot sizes were 12.5 ft. (4 rows) by 50 ft. Insect numbers were determined by using a 2.5 ft. drop cloth and taking

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2 samples per plot for a total of 10 row feet per plot. Data were processed using Agriculture Research Manager V. 8 (Gylling Data Management, Inc., Brookings, S.D.), analysis of variance, and Duncan’s New Multiple Range Test \( (P = 0.10) \) to separate means. Data was compared between tests by converting each treatment's season total plant bug numbers to their respective untreated checks season total to provide a percent control. The number of data sets used for each individual treatment's average is designated by \( n = \# \).

**RESULTS AND DISCUSSION**

Insecticide mixes usually increased TPB control when compared to individual compounds. All treatments showed an increase in efficacy when single products were mixed with bifenthrin (Fig. 1). An average efficacy increase of 14% was observed when selected insecticides were combined with bifenthrin. All selected insecticides showed an increase in efficacy when novaluron (6 oz/acre) was mixed with single products except Transform (Fig. 2). Tankmixes containing novaluron (6 oz/acre) showed an average increase of 15% when compared to single products. When selected insecticides were mixed with Transform, control was increased an average of only 2% (Fig. 3), which was not substantial enough to warrant the extra cost. Transform (2.5 oz/acre) provided the best control in the trial “Got Plant Bugs?”, though no insecticide or mix provided significantly better control than any other (Fig. 4). Mixes that included Diamond regularly provided the best control of all treatments. Transform provided exceptional control when compared to all other single products. The results of these studies show insecticide mixes are an effective way to increase control of tarnished plant bug with existing products.

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**LITERATURE CITED**


Fig. 1. Tarnished plant bug control with mixes of bifenthrin. UTC = untreated control.
Fig. 2. Tarnished plant bug control with tankmixes and premixes of Mayhem. UTC = untreated control.
Fig. 3. Tarnished plant bug control with mixes of sulfoxaflor. UTC = untreated control.
Fig. 4. Got Plant Bugs? Trial 2012.
UTC = untreated control.