

TARNISHED PLANT BUG CONTROL IN NORTHEAST ARKANSAS
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Abstract

The efficacy of several insecticides and insecticide combinations against tarnished plant bug was evaluated at the Northeast Research and Extension Center in Keiser, AR. Temporary control was attained by all materials tested after one application, but plant bug numbers began to rebound in the majority of treatments. At 7 days after the second application all treatments reduced populations with the exception of the Karate Z and Trimax treatments. The Intruder at 0.05 lb ai + crop oil, Vydate, Centric and Leverage treatments all resulted in a significant yield increase.

Introduction

With the success of boll weevil eradication, the tarnished plant bug is becoming a major pest of cotton in the Mid-South. This pest causes damage by feeding on small squares and terminal buds (Johnson et al. 1996), resulting in yield loss and crazy cotton. The tarnished plant bug occurred in high numbers in Arkansas in 2003. Many growers made multiple applications to control this pest. Treatment level for this pest in Arkansas cotton is dependent on the condition of the field. In fields with normal fruiting activity (small square set of 75-80% or higher), treatment is initiated when plant bug numbers reach 1 per row foot. In problem fields (square set below 75%) treatments are applied when plant bugs reach 1 bug per 3 row feet. Many fields were well above treatment level during the 2003 growing season. Efficacy trials were conducted at the Northeast Research and Extension Center in Keiser, AR to determine what insecticides were giving the best control.

Materials and Methods

Plots of PM1218 BB/RR cotton were planted in plots 8-rows wide by 30 feet long on 38-inch row spacing on 28 May. Plots were arranged in a RCB with 4 replications. Mustard was planted in strips between replicates to build up plant bug populations. Plots were maintained with conventional tillage practices. Plots were irrigated and maintained according to University of Arkansas Cooperative Extension Service recommendations for weed and insect control. Plots were sprayed with a small plot sprayer fitted with TX-8 hollowcone nozzles calibrated to deliver 11 gpa through 2 nozzles per row. Pesticides were mixed and sprayed from 3-gallon stainless steel cans pressurized to 62 psi with a gas powered air compressor. Plots were sprayed on 4 and 13 Aug. Plots were evaluated on 7, 11, 15 and 20 Aug by counting the number of plant bugs per 2 shake sheet samples in each plot. Yields were taken by harvesting the center four rows of each plot. Data were analyzed with Agricultural Research Manager 6.1.12 (Gylling Data Management, Inc.).

Results and Conclusions

The numbers of plant bugs per 6 row feet are recorded in Table 1. After the first application, all treatments were showing significant control at 3 days. However, control began to breakdown at 7 days in many of the treatments. Only Intruder at 0.038 + crop oil, Karate Z, Double Threat and Trimax were still holding populations below treatment level of 1 plant bug per row foot. The majority of plant bugs found on the 7 DAT evaluations were nymphs that had apparently hatched out after insecticides were applied. After a second application was applied to the plots, the majority of treatments once again held populations below treatment level at 2 days, with the exception of Intruder and Trimax. However, by 7 days, all treatments were below economic treatment level with the exception of Trimax.

Yields were variable, with Intruder at 0.05 lb ai, Vydate, Centric and Leverage giving a significant increase (150-200 lbs lint) in yield over the untreated control (P=0.05). None of the other treatment yields were significantly different from the untreated check.

All the materials tested gave some level of control throughout the study. All gave quick reduction in numbers after the first application, but many were unable to keep numbers below treatment level by 7 DAT with the exception of a few which may indicate a longer level of residual control with these compounds. After 2 applications all materials tested showed a good level of control at 7DAT with the exception of Trimax, which was showing a rebound in plant bug numbers by this time. Although many of the treatments did show good control, only 4 had a significant increase in yield at the end of the season (Intruder, Vydate, Centric & Leverage).

References

Johnson, D.R., R.E. Caron, R.B. Head, F.G. Jones, and J.S. Tynes. 1996. Insect and mite pest management in the mid-south. *In Cotton Insects and Mites*, E. King, J.R. Phillips and R.J. Coleman, Eds. The Cotton Foundation, Memphis, TN.

Table 1. Number of tarnished plant bugs per 2-shake sheet samples at various treatment intervals and yields.

Insecticide and Rate lb ai/acre	First Application		Second Application		Yield
	3 DAT	7 DAT	2 DAT	7 DAT	Lbs/acre
Untreated	12.25 a	10.75 ab	9.50 a	8.50 a	691.15 cd
Intruder 0.05	2.75 bcd	7.75 abc	4.00 cd	2.50 bcd	822.8 abc
Intruder 0.038 + Crop oil (CO)	2.50 bcd	4.25 c	6.00 abc	3.75 bcd	829.8 abc
Intruder 0.05 + Crop oil	3.00 bcd	6.00 bc	2.75 cd	2.00 bcd	888.62 a
Vydate C-LV 0.25	5.50 b	13.25 a	1.50 d	1.25 cd	858.10 ab
Intruder 0.025 + Vydate C-LV 0.25	3.00 bcd	9.5 abc	3.00 cd	1.50 cd	811.05 a-d
Intruder 0.025 + Vydate 0.25 + CO	1.75 cd	7.75 abc	1.50 d	1.50 cd	757.00 a-d
Centric 0.05	2.00 cd	7.00 bc	1.75 cd	0.75 d	893.32 a
Steward 0.107	2.75 bcd	5.50 bc	2.25 cd	2.50 bcd	806.34 a-d
Denim 0.008	2.75 bcd	7.00 bc	5.75 a-d	3.25 bcd	808.70 a-d
Karate Z 0.023	2.50 bcd	5.00 bc	4.50 cd	5.00 abc	710.00 bcd
Leverage 3 oz	0.75 d	5.50 bc	3.00 cd	2.75 bcd	869.82 ab
Double Threat 4.2 oz	3.75 bcd	3.50 c	4.00 cd	3.50 bcd	717.01 bcd
Double Threat 3.2 oz	2.00 cd	9.50 abc	3.50 cd	3.25 bcd	825.15 abc
Curacron 0.5	1.50 cd	5.75 bc	3.25 cd	3.25 bcd	665.29 cd
Vydate C-LV 0.33 + Intruder 0.05	2.25 bcd	6.00 bc	5.00 bcd	4.25 bcd	684.10 cd
Trimax 0.047	4.75 bc	4.50 bc	8.75 ab	6.00 ab	655.90 d

Means within a column followed by the same letter do not significantly differ (P=0.05).