

CONTROL OF TARNISHED PLANT BUG WITH SELECTED INSECTICIDES IN COTTON, 2016**W.A. Plummer****G.M. Lorenz III****N.M. Taillon****H.M. Chaney****J.L. Black****A.J. Cato****University of Arkansas Cooperative Extension Service
Lonoke, AR****Abstract**

In the last several years the tarnished plant bug (TPB) has become a more difficult pest to control. Multiple applications are needed to achieve control which makes it the most costly insect pest of cotton in Arkansas. A trial was conducted at the Lon Mann Cotton Research Station, Marianna, Arkansas to evaluate the efficacy of Carbine at the lowest labeled rate, highest labeled rate and an off label higher rate and Admire Pro at the highest labeled rate and two off label higher rates to see if the increased rates would provide a higher level of control of TPB than current labeled rates. Increased rates of Carbine did not appear to add much benefit for reducing plant bug populations. With the cost of Carbine at about \$30/acre at the 4.2 oz/acre rate, there is not enough increase in yield to justify the application. The current rate of Admire Pro is not sufficient to provide adequate control of plant bugs; increasing the rate did not give a consistent rate response for control of plant bugs or increase yield. Transform and Acephate, the standards used for comparison, provided the best level of control and continue to be a good choice for Arkansas growers and consultants for plant bug management in cotton.

Introduction

The tarnished plant bug (TPB) is the most damaging insect pest in cotton (Layton, 2002). From 2013-2015 the TPB cost growers anywhere from \$42.00/acre to \$54.0/acre in treatments, and was responsible for up to 83% of Arkansas' cotton yield loss by insect (Williams, 2013-2015). Growers and consultants have relied on repeated foliar applications to minimize TPB numbers in years past averaging ~6 insecticide applications per growing season for the control of TPB alone (Williams, 2013-2015). Efficacy data on new and currently labeled products will help in proper selection of treatments for consultants and producers.

Materials and Methods

Plot size was 12.5 ft by 40 ft with a 2 row buffer between plots, in a randomized complete block design with 4 replications. Insecticide treatments were applied with a Mud Master high clearance sprayer fitted with TX6 hollow cone nozzles at 19.5 inch spacing. Spray volume was 10 gal/a, at 40 psi. Treatments consisted of an untreated check (UTC); Carbine (flonicamid) at 1.7, 2.8, and 4.2* oz/a; Admire Pro (imidacloprid) at 1.7, 2.0*, 2.5*, 3* oz/a; Acephate 0.75 lb/a; and, Transform (sulfoxaflor) 2.0 oz/a (*=Off Label rates used for research purposes only). The first application was made on July 15, 2016. A second application was made July 18, 2016. Samples were taken 3 DAA (3 days after first application), 3 DAB (3 days after second application) 8 DAB, 11 DAB, and 14 DAB. Plant bug numbers were determined by taking 2 samples per plot with a 2.5 ft. drop cloth, for a total of 10 row ft. Data was processed using Agriculture Research Manager Version 9 (Gylling Data Management, Inc., Brookings, S.D.). Analysis of variance was conducted and Duncan's New Multiple Range Test (P=0.10) to separate means.

Results

At 3 days after the first application all treatments reduced TPB numbers below the UTC except Admire Pro (3 oz/a), although no treatments reduced numbers below threshold (6 TPB per 10 row feet) (Fig. 1). A second application was needed to achieve adequate control. Although no treatments were below threshold 3 days after the second application, all treatments were below the UTC; Acephate and Transform reduced TPB numbers below all other treatments (Table 1). At 8 days after the second application all treatments were below the UTC; Transform, Acephate and Admire Pro (2.5 oz/a) reduced plant bug numbers below threshold. All treatments were below the UTC 11 days after the second application; Acephate and Transform reduced numbers below all other treatments. At

14 days after the second application all treatments were below the UTC except for Admire Pro (1.7 oz/acre), Transform reduced numbers below all other treatments and was below threshold. Yield results indicated Transform, Acephate, Carbine (2.8 and 4.2 oz/acre), and Admire Pro (2 oz/acre) had higher yields than the UTC. Although not statistically different, Transform and Acephate increased yield by 160-670 lb seed cotton/acre compared to other treatments, and 756-786 lb/acre more than the UTC.

Summary

Adequate control of plant bugs is critical to maintaining potential yield. While off-label rates of flonicamid and imidacloprid did not improve control of plant bugs the current standards, Transform and acephate did provide an adequate level of control.

Acknowledgements

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References

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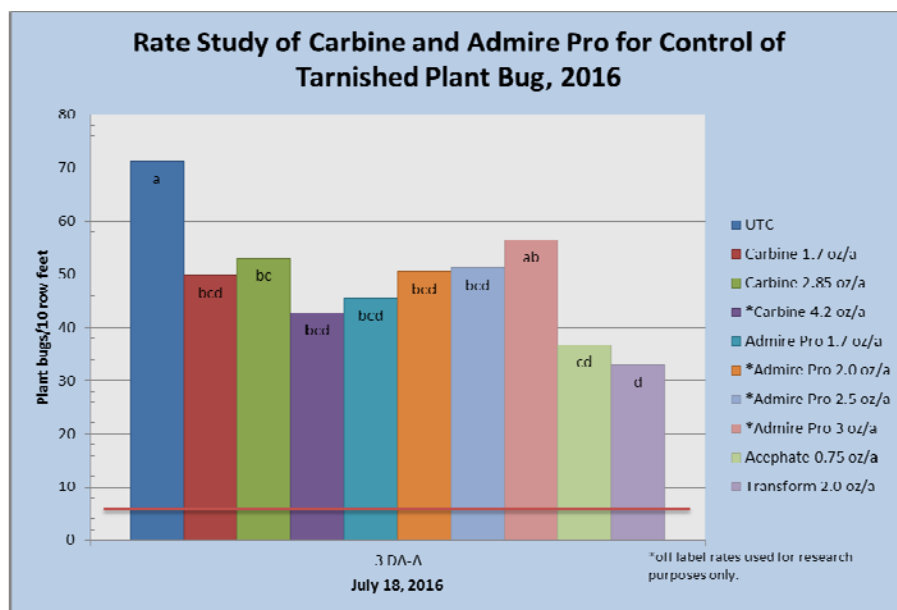


Fig. 1. Control of tarnished plant bug with selected insecticides

Table 1. Control of tarnished plant bug with selected insecticides in cotton

Treatments	Tarnished Plant Bug Totals after 2 nd application			
	3DAB	8DAB	11DAB	14DAB
UTC	69.15 a	29.29 a	39.90 a	32.40 a
Carbine 1.7 oz/a	33.06 b	18.43 b	14.81 bc	14.26 bc
Carbine 2.85 oz/a	25.08 b	12.62 bc	8.19 bc	10.93 c
*Carbine 4.2 oz/a	24.39 b	6.98 de	7.78 bc	13.67 bc
Admire Pro 1.7 oz/a	24.67 b	10.68 cd	12.80 bc	21.51 ab
*Admire Pro 2.0 oz/a	22.32 b	15.82 bc	13.32 bc	10.93 c
*Admire Pro 2.5 oz/a	26.43 b	**5.72 ef	10.42 bc	8.64 cd
*Admire Pro 3 oz/a	24.60 b	12.93 bc	7.09 c	9.05 cd
Acephate 0.75 lb/a	10.71 c	**4.77 ef	**3.68 d	6.38 d
Transform 2.0 oz/a	7.57 c	**2.53 f	**3.16 d	**3.40 e

*Rates off label
 **below economic threshold (6 per 10 row feet)

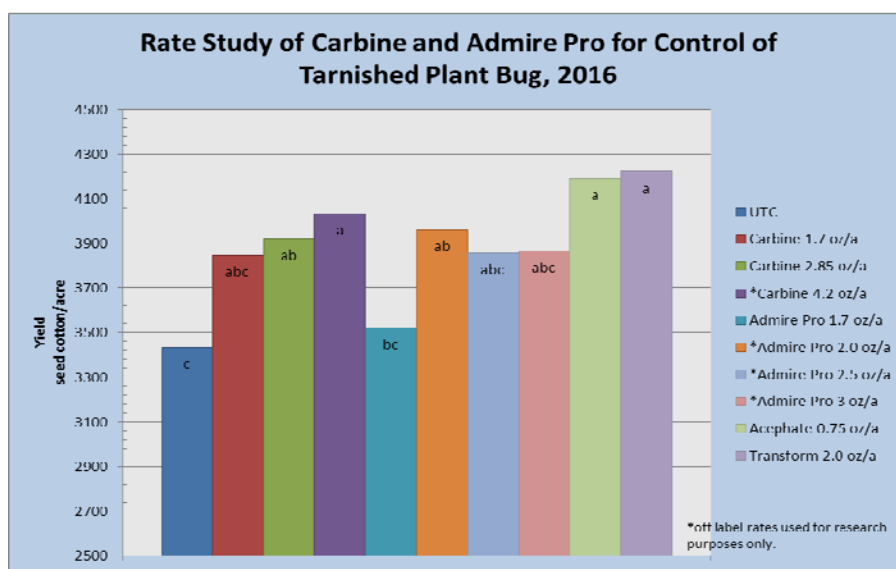


Fig. 2. Control of tarnished plant bug with selected insecticides cotton