

**CONTROL OF THRIPS WITH INSECTICIDE SEED TREATMENTS IN ARKANSAS****W.A. Plummer****G.M. Lorenz III****N.M. Taillon****H.M. Chaney Jr****B.C. Thrash****University of Arkansas Cooperative Extension Service****Lonoke, AR****Abstract**

Thrips has become a more difficult pest to control in the last several years. Insecticide seed treatments followed by a foliar application are sometimes needed to achieve control which makes it one of the most expensive pests in Arkansas. Seed treatments have been the standard with growers in Arkansas for thrips control. This reliance has resulted in loss of efficacy and created the need for additional foliar applications to achieve adequate control resulting in higher costs for producers. Recent studies indicated that tolerance/resistance has developed to thiamethoxam (Cruiser/ Avicta) in the Midsouth. This trial was part of a Midsouth Regional effort and was conducted at the Southeast Research and Extension Center, Rohwer, Arkansas to evaluate the efficacy of insecticide seed treatments (IST) for thrips management in cotton. Season total thrips numbers indicated the high rate of Orthene (24 oz/cwt) reduced thrips numbers below all other IST's. At 16 days all treatments reduced damage compared to the untreated check except for Cruiser (0.375 mg ai/seed); but by 22 days, all treatments reduce damage compared to the UTC. All ISTs increased yield compared to the untreated check.

**Introduction**

Thrips are early-season cotton pests that have the potential to cause delayed maturity and yield loss in cotton. Typical symptoms of thrips damage on young cotton include ragged crinkled leaves that curl upward, "burnt" edges, and a silvery appearance. The level of damage varies from year-to-year based on severity of the thrips infestation (Hopkins, et. al., 2001). Thrips affected 100% of all Arkansas cotton acreage in the 2014 growing season (Williams, et. al.; 2015). The cost of control and economic loss caused by thrips was around \$3 million in 2014. Efficacy data on new and currently labeled products will help in proper selection of seed treatments for consultants and producers.

**Materials and Methods**

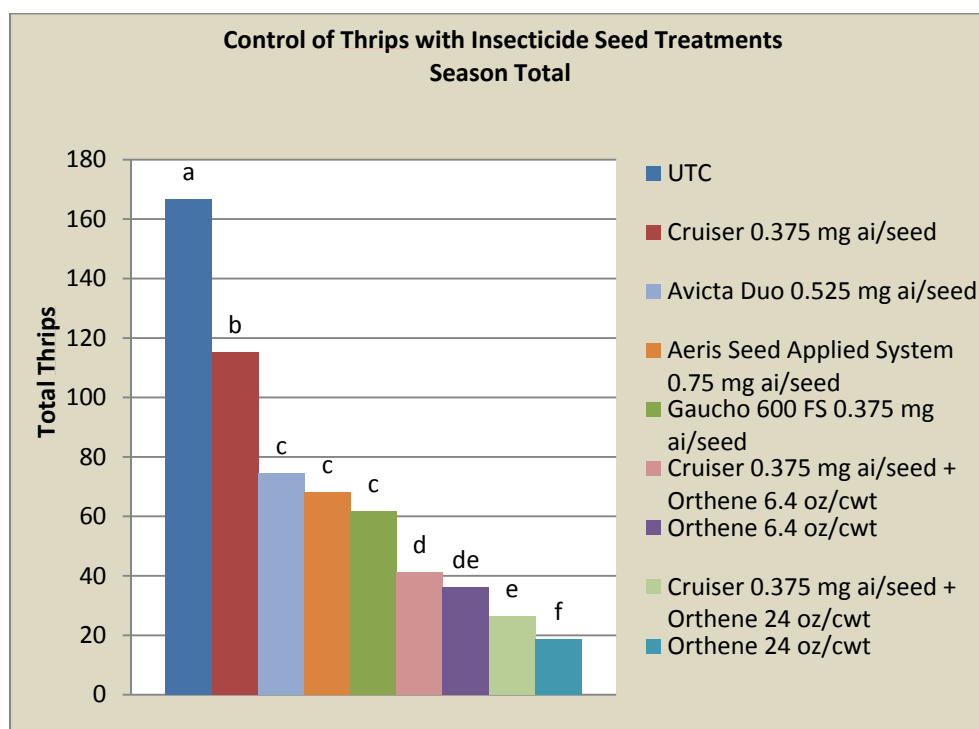
Plot size was 12.5 ft by 40 ft in a randomized complete block with 4 replications. Samples were taken when plants reached 1-2 leaf stage and 3-4 leaf stage. Treatments included an UTC with a fungicide (Trilex Advanced 1.6 oz/cwt), Cruiser (0.375 mg ai/seed), Avicta Duo (0.525 mg ai/seed), Aeris Seed Applied System (0.75 mg ai/seed), Gaucho 600 FS (0.375 mg ai/seed), low labeled rate of Orthene (6.4 oz/cwt), high labeled rate of Orthene (20 oz/cwt), Cruiser (0.375 mg ai/seed) + Orthene (6.4 oz/cwt), and Cruiser (0.375 mg ai/seed) + Orthene (20 oz/cwt). All IST's included the base fungicide of Trilex Advance (1.6 oz/cwt). Thrips numbers were determined by collecting 5 plants per plot and placing in jars with a 70/30 alcohol solution. Plants were washed and filtered in the lab at the Lonoke Agriculture Extension and Research Center, Lonoke, AR, and thrips were counted using a dissecting scope. Thrips damage ratings were taken at 16 and 22 days after emergence. The standard damage assessment rating was used (1=no damage, 5=plant loss). Data were processed using Agriculture Research Manager Version 9. Analysis of variance was conducted and Duncan's New Multiple Range Test (P=0.10) to separate means.

**Results**

Season total thrips numbers indicated the high rate of Orthene (24 oz/cwt) reduced thrips numbers below all other IST's (Fig. 1). The addition of Cruiser (0.375 mg ai/seed) with the high rate of Orthene (24 oz/cwt) did not increase control and was no better than the low rate of Orthene (6.4 oz/cwt) alone. Similar results were seen when Cruiser (0.375 mg ai/seed) was added to Orthene (6.4 oz/cwt) where no difference in thrips numbers were observed. Treatments that included Orthene (Orthene 24oz/ cwt, Cruiser 0.375 mg ai/seed + Orthene 24 oz/ cwt, Orthene 6.4 oz/ cwt, Cruiser 0.375 mg ai/seed + Orthene 6.4 oz/ cwt), reduced thrips numbers below all other IST's (Gaucho 600 FS 0.375 mg ai/seed, Aeris Seed Applied 0.75 mg ai/seed, Avicta Duo 0.525 mg ai/seed, and Cruiser 0.375 mg ai/seed). Treatments without Orthene (Gaucho 600 FS 0.375 mg ai/seed, Aeris Seed Applied 0.75 mg ai/seed, Avicta

Duo 0.525 mg ai/seed and Cruiser 0.375 mg ai/seed) did reduce thrips populations below the UTC, however, treatments were not different. .

Fig.1. Control of Thrips with Insecticide Seed Treatments



At 16 days all treatments reduced damage compared to the untreated check except for Cruiser (0.375 mg ai/seed); but by 22 days, all treatments reduce damage compared to the UTC. (Fig. 2). At 16 and 22 days after emergence, damage ratings correlated closely with yield. When damage rating were high yields tended to be low. Avicta Duo (0.525 mg ai/seed), Orthene (6.4 oz) and Cruiser + Orthene (24 oz) had higher yields than all other treatments. Although, Orthene 6.4 oz/cwt and Cruiser 0.375 mg ai/seed + Orthene 24 oz/cwt were not higher than the other treatments in the trial. All IST's increased yield and averaged just over 340 lb/ A compared to the untreated check

Table 1. Control of Thrips with Insecticide Seed Treatments

<b>Control of Thrips with Insecticide Seed Treatments</b>				
<b>Treatments</b>	<b>Damage Rating scale 1(no) – 5 (worst)</b>		<b>Yield Seed cotton lbs/acre</b>	<b>Yield lbs over UTC</b>
	<b>16 Days After Emergence</b>	<b>22 Days After Emergence</b>		
UTC	4.0 a	5.0 a	1081.8 d	
Cruiser 0.375 mg ai/seed	3.5 ab	4.0 b	1358.8 bc	277
Avicta Duo 0.525 mg ai/seed	1.8 d	1.7 de	1551.3 a	469.5
Aeris Seed Applied System 0.75 mg ai/seed	1.8 d	2.0 cde	1400.0 bc	318.2
Gaucho 600 FS 0.375 mg ai/seed	2.0 d	1.5 e	1395.5 bc	313.7
Orthene 6.4 oz/cwt	2.3 cd	2.0 cde	1487.8 ab	406
Orthene 24 oz/cwt	3.0 bc	2.5 c	1337.3 c	255.5
Cruiser 0.375 mg ai/seed + Orthene 6.4 oz/cwt	2.5 cd	2.2 cd	1384.3 bc	302.5
Cruiser 0.375 mg ai/seed + Orthene 24 oz/cwt	1.8 d	1.5 e	1468.3 abc	386.5
			<b>Average</b>	<b>341.1</b>

**Acknowledgements**

Appreciation is expressed to the Southeast Research and Extension Center. Also we would like to acknowledge Bayer and Syngenta for their support.

**References**

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