

EVALUATION OF AT-PLANTING INSECTICIDES FOR THRIPS CONTROL IN COTTON, SEMINOLE 2008

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This test was conducted in a commercial cotton field near Seminole, TX. The field was planted in 'FiberMax 9063B2F' on 13 May on 40-inch rows at and seeding rate of approximately 46,000 seeds/acre. The field was irrigated using a pivot irrigation system. The test was a RCB design with four replications. Plots were 2-rows wide \times 100 ft in length. Treatments, application type and timing are listed in Table 1. In-furrow insecticides were applied at planting with the seed using a granular-insecticide metering box at a depth of 1.5 inches. Adult and immature WFT were sampled by visually inspecting 10 whole plants per plot. Samples were taken on 23 and 28 May, and 2 and 9 Jun. LMs were estimated by recording the number of infested plant from 10 plants per plot. Plant height and leaf area was estimated on 9 Jun by collecting 10 plants per plot. Height was determined by measuring the distance from the cotyledons to the terminal. Leaf area was estimated using a leaf area indexer. All plots were hand harvested on 31 Oct using a HB stripper. An area of 1/1000th acre was harvest from the center two rows of each plot. Samples were ginned at the Texas AgriLife Research and Extension Center in Lubbock. Data were analyzed with PROC MIXED, and means were separated using an F-protected LSD ($P \leq 0.05$).

At 10 and 15 DAP, WFT numbers were low and there were no significant differences among treatments for adult, immature, total WFT per plant, or percentage of LM mined plants (Table 2).

By 20 DAP, the WFT population had increased and at this time there were still no significant differences among treatments for adult WFT or LMs, but all of the insecticide treatments had fewer immature WFT than the untreated, and Temik at 3.5 lbs had fewer total WFT than the untreated (Table 3). The reduction of immature WFT in the insecticide treated plot relative to the untreated indicates that all of the treatments were effective at 20 DAP in preventing thrips colonization.

At 27 DAP the WFT population had decline sharply and there were no difference in the number of WFT among treatments. However, all of the treatments that included Temik had a lower percentage of LM mined plants than the untreated, but did not differ from Cruiser or Avicta CC. Aeris, Cruiser and Avicta CC did not differ from the untreated in the percentage of LM mined plants.

No differences were detected in plant height, square set or yield, but Avicta CC, Cruiser, and the treatments containing Temik, all had a greater leaf area than the untreated (Table 4). A simple linear regression analysis indicated that leaf area was correlated with the percentage of plants with leaf mines (Fig 1), but there was no correlation with yield.

Data from Farwell, TX in 2007 suggested that as few as 0.5 WFT per plant can reduce cotton yield during the first few weeks after plant emergence under cool conditions. This test was

conducted under very warm conditions, and the plants may have been able outgrow the damage caused by the thrips and/or leaf miners. Leaf miners have been noted as very common in some seedling cotton throughout the High Plains. More data is needed before it can be determined if this pest impacts yield. Under cool conditions, it may impact cotton similar to thrips.

Table 1. Insecticide components, rates and application type.

Treatment/formulation	Rate mg(AI)/seed	Application type
Untreated check	--	--
+ Dynasty CST 125FS	+ 0.03	seed
Aeris ^b	-- ^b	seed
+ Trilex Advanced ^c	+ 1.6 fl-oz/100 lb seed	seed
Avicta Complete Cotton ^a	-- ^a	seed
Cruiser 5FS	0.34	seed
+ Dynasty CST 125FS	+ 0.03	seed
Temik 15G	3.5 lbs/ac	in-furrow
+ Dynasty CST 125FS	+ 0.03	seed
Temik 15G	5.0 lbs/ac	in-furrow
+ Dynasty CST 125FS	+ 0.03	seed
Temik 15G	3.5 lbs/ac	in-furrow
+ Aeris ^b	-- ^b	seed
+ Trilex Advanced ^c	+ 1.6 fl-oz/100 lb seed	seed

^aAvicta Complete Pak is a mixture of Avicta 500FS at 0.15 mg(AI)/seed, Cruiser 5FS at 0.34 mg(AI)/seed, and Dynasty CST 125FS at 0.03 mg(AI)/seed.

^bAeris is a mixture of Gaucho Grande 5FS at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

^cTrilex Advanced is a mixture of trifloxystrobin 8.55%, triadimenol 4.27% and metalaxy 12.82%.

Table 2. Mean number of WFT at 10 and 15 DAP.

Treatment/ formulation ^a	Rate mg(AI)/seed ^a	23 May – cotyledon stage (10 DAP)				28 May – 1 true leaf stage (15 DAP)			
		WFT per plant			%	WFT per plant			%
		adults	immatures	total	mined plants	adults	immatures	total	mined plants
Untreated check	--	0.10a	0.00a	0.10a	0.0a	0.15a	0.13a	0.28a	5.0a
Aeris	--	0.00a	0.00a	0.00a	0.0a	0.08a	0.00a	0.08a	2.5a
Avicta CC	--	0.00a	0.00a	0.00a	0.0a	0.08a	0.00a	0.08a	0.0a
Cruiser 5FS	0.34	0.00a	0.00a	0.00a	3.0a	0.05a	0.03a	0.08a	0.0a
Temik 15G	3.5 lb/ac	0.00a	0.00a	0.00a	0.0a	0.05a	0.00a	0.05a	0.0a
Temik 15G	5.0 lbs/ac	0.00a	0.00a	0.00a	0.0a	0.00a	0.00a	0.00a	0.0a
Temik 15G + Aeris	3.5 lbs/ac + --	0.03a	0.00a	0.03a	0.0a	0.15a	0.03a	0.18a	0.0a

Values in a column followed by the same letter are not different based a Proc Mixed analysis with an F protected LSD ($P \geq 0.05$). ^aSee Table 1 for full listing of treatment components and rates.

Table 3. Mean number of WFT at 20 and 27 DAP.

Treatment/ formulation ^a	Rate mg(AI)/seed ^a	2 Jun – 2 true leaf stage (20 DAP)				9 Jun – 5 true leaf stage (27 DAP)			
		WFT per plant			%	WFT per plant			%
		adults	immatures	total	mined plants	adults	immatures	total	mined plants
Untreated check	--	0.54a	0.40a	0.94a	12.5a	0.05a	0.01a	0.08a	11.3a
Aeris	--	0.38a	0.00b	0.38a	7.5a	0.10a	0.00a	0.10a	12.5a
Avicta CC	--	0.20a	0.08b	0.28a	0.0a	0.20a	0.00a	0.20a	5.0ab
Cruiser 5FS	0.34	0.30a	0.03b	0.33a	5.0a	0.08a	0.00a	0.08a	5.0ab
Temik 15G	3.5 lb/ac	0.28a	0.03b	0.30b	5.0a	0.20a	0.00a	0.20a	2.5b
Temik 15G	5.0 lbs/ac	0.53a	0.00b	0.53ab	0.0a	0.13a	0.00a	0.20a	0.0b
Temik 15G + Aeris	3.5 lbs/ac + --	0.20a	0.08b	0.28a	2.5a	0.13a	0.05a	0.18a	0.0b

Values in a column followed by the same letter are not different based a Proc Mixed analysis with an F protected LSD ($P \geq 0.05$). ^aSee Table 1 for full listing of treatment components and rates.

Table 4. Effects of seed applied and in-furrow treatments targeting thrips on seedling cotton growth, development and yield.

Treatment/ formulation ^a	Rate mg(AI)/seed ^a	9 Jun			31 Oct
		Plant height (cm)	Leaf area (cm ² /plant)	Percent square set	Yield (lbs-lint/ac)
Untreated check	--	6.00a	60.03c	97.08a	1062.75a
Aeris	--	6.24a	67.23bc	100a	975.32a
Avicta CC	--	6.86a	78.68a	98.38a	931.98a
Cruiser 5FS	0.34	6.83a	83.34a	97.97a	1012.06a
Temik 15G	3.5 lb/ac	6.60a	75.28ab	94.70a	1106.34a
Temik 15G	5.0 lbs/ac	6.56a	79.35a	97.36a	1236.88a
Temik 15G + Aeris	3.5 lbs/ac + --	6.46a	78.07a	97.08a	1056.85a

Values in a column followed by the same letter are not different based a Proc Mixed analysis with an F protected LSD ($P \geq 0.05$).

^aSee Table 1 for full listing of treatment components and rates.

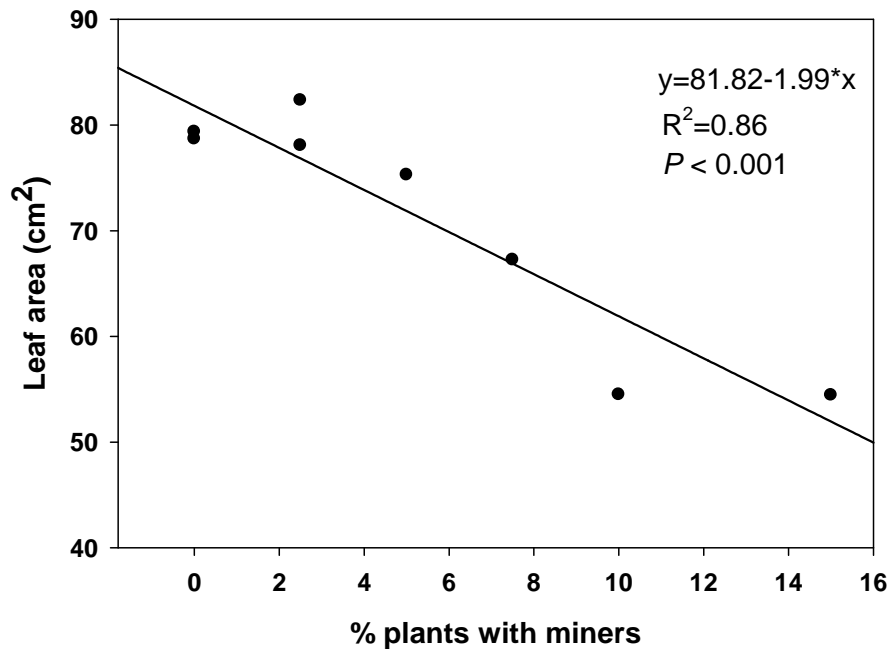


Figure 1. Simple linear correlation of plant damage expressed as leaf area to the percentage of plants with leaf mines.