

EFFECT OF TEMIK ON APHIDS AND THRIPS IN COTTON

David Zimmerman Farm, Nueces County, 1999

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OBJECTIVES: Temik 15G (4 oz/1000 row ft) has provided an average 55 lb/acre cotton lint increase compared to untreated cotton in tests conducted for the past 15 years in the Coastal Bend. In 1998, the increase on the Zimmerman Farm amounted to 93 lb/acre. Since Temik is relatively expensive, we continue to evaluate its effects on early season insect pests and cotton production.

MATERIALS/METHODS: The current field study was conducted in southwestern Nueces County on BXN47 variety cotton planted 25 Mar. The planting pattern was 30-inch skip row (2 planted and 1 skip). Seed and granular insecticide were dispensed with a 12-row Kinze double disc opener planter and granular applicator (8 rows planted with 4 rows open). Soil at the test site was a clay loam and Temik was applied into the seed furrow at 3.7 oz/1000 row ft. The seeding rate was 55,000/acre and sorghum had been planted on the land in 1998. Fertilizer consisted of 96-0-0; the herbicide Prowl (3.3 lb/gallon) was applied at 1.5 qt/acre. Eight row untreated checks were left in two fields.

Treatment effects were assessed by (1) assigning a plant damage rating (1 = no damage up to 5 = severe stunting and leaf curling) at 3 locations in each treatment on 24 Apr, (2) counting aphids, fire ants and thrips washed from 5 plants collected at each of 3 locations from both treatments on 24 Apr (4 true leaf stage cotton), and (3) harvesting 11.6 ft row by hand at 5 locations in each plot on 20 Aug (paired side-by-side treated and untreated rows were harvested). Seed cotton was processed on a 10-Saw Eagle laboratory gin and samples were sent to the International Textile Center, Texas Tech University, Lubbock, TX, for fiber analysis. One test was abandoned as a result of Hurricane Brett.

RESULTS/DISCUSSION: Aphid and fire ant numbers were significantly reduced in Temik treated cotton at the 4 true leaf stage; the fire ants were tending these aphids (Table 1). Although thrips numbers were numerically greater in untreated cotton, counts were not consistent enough to be statistically significant. The thrips population at slightly over 2/plant in the untreated check is not considered to be of economic importance in 4 true leaf cotton. However, there was a significantly higher plant damage rating recorded in the untreated cotton. No differences were found in plant population, number of harvested bolls, green bolls remaining after harvest, bolls required to produce a pound of lint or yield (Table 2). There was a numerical advantage in yield in untreated cotton, but harvest data was not consistent. Fiber characteristics were not different (Table 3).

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Table 1. Thrips, aphid and ant numbers, and plant damage in Temik treated and untreated cotton, David Zimmerman Farm, Nueces County, TX 1999. ^a

Treatment/rate	Number per 5 plants			Plant damage rating ^b
	aphids	ants	thrips	
Temik 15G (3.7 oz/1000 ft)	0.3 b	0.0 b	5.0 a	2.5 b
Untreated	1400.0 a	7.3 a	11.7 a	3.5 a
LSD (P = 0.05)	971.5	Ⓒ	NS	Ⓒ
P > F	.0444	.0416	.2866	.0280

Means in a column followed by the same letter are not significantly different by ANOVA (P=0.05; LSD).

^a Cotton was at the 4 true leaf stage when counts were made on 4/24.

^b Plant damage ratings range from 1 = no damage to 5 = severe stunting and leaf curling.

^c The P > F in this column is based on transformed $\sqrt{x + 1}$ data values. It is inappropriate to list LSD values based on transformed data.

Table 2. Plant population, boll production and lint yield of Temik treated and untreated cotton, David Zimmerman Farm, Nueces County, TX 1999.

Treatment/rate	Plants per row ft	Bolls (1000's/acre)		Bolls/lint lb	Yield (lb lint/acre)
		harvested	green		
Temik 15G (3.7 oz/1000 ft)	1.81 a	314 a	34.0 a	255 a	1233 a
Untreated	1.67 a	351 a	33.2 a	265 a	1324 a
LSD (P = 0.05)	NS	NS	NS	NS	NS
P > F	.6624	.1355	.9253	.3130	.1737

Means in a column followed by the same letter are not significantly different by ANOVA (P=0.05; LSD).

Table 3. Cotton fiber characteristics in Temik compared with untreated cotton, David Zimmerman Farm, Nueces County, TX, 1999.

Treatment/rate	Cotton fiber characteristics				
	Mic	Lgn	Ur	St	Elong
Temik 15G (3.7 oz/1000 ft)	4.6 a	1.13 a	84.4 a	26.9 a	6.1 a
Untreated	4.8 a	1.12 a	84.8 a	26.7 a	5.9 a
LSD (P = 0.05)	NS	NS	NS	NS	NS
P > F	.2302	.4050	.3332	.6541	.2606

Means in a column followed by the same letter are not significantly different by ANOVA (P=0.05; LSD).

^a Mic = micronaire, Lgn = length, Ur = uniformity, St = fiber strength and Elong = fiber elongation.