

### **THREE YEAR SUMMARY OF CRUISER, STAN, AND COMBINATIONS FOR EARLY SEASON THRIPS CONTROL**

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#### **Abstract**

Small plot field trials were conducted from 2003-2005 evaluating the nematicide seed treatment STAN, Cruiser, combinations of Cruiser plus STAN, and various rates of Temik for control of early season thrips. STAN provided limited but consistent control of immature thrips, 48-52 percent and 38-54 percent control of immature thrips at two and three weeks after planting. Cruiser, combinations of Cruiser plus STAN, and Temik treatments significantly reduced thrips compared with STAN and the untreated. Cruiser and combinations of Cruiser plus STAN significantly reduced immature thrips up to 3 weeks after planting compared with the untreated. Whereas Temik treatments significantly reduced immature thrips up to four weeks after planting compared with the untreated. Yields were similar for Cruiser plus STAN and Temik treatments and significantly increased compared with the untreated.

#### **Introduction**

Thrips are annual pests of seedling cotton in Georgia and a preventive insecticide is recommended at planting for their control. Failure to use a preventive insecticide at planting often necessitates the need for foliar thrips insecticides. Excessive thrips injury results in reduced yield potential, stunting of plants, and in severe cases loss of apical dominance and stand loss. Several preventive insecticides are currently available for thrips control in cotton. Temik is a systemic insecticide applied in the seed furrow at planting and is commonly used in Georgia for thrips and nematode control. During recent years, seed treatments such as Gaucho and Cruiser have been commercialized for early season thrips control. However these seed treatments have no activity on nematodes, which are an important pest of cotton in Georgia. Recently a nematicide seed treatment, STAN, was commercialized and will be marketed in conjunction with Cruiser seed treatment. Trials were conducted during 2003-2005 to evaluate STAN, Cruiser, combinations of Cruiser plus STAN, and Temik for thrips control.

#### **Methods**

Replicated small plot field trials were established in Tift County Georgia during 2003, 2004, and 2005 to evaluate preventive at planting insecticides for early season thrips control. DP555 BR cotton was planted in conventional tillage systems in late April or early May each year. Plots were 2 rows wide and 40 feet in length and arranged in a randomized complete block design. Thrips were sampled at 14, 21, and 28 days after planting by randomly selecting 5 plants per plot and immediately immersing and swirling individual plants in a container filled with 70 percent ethyl alcohol. Sample containers were returned to the laboratory and both immature and adult thrips were counted using a dissecting microscope. Only immature thrips numbers are reported since they are most representative of insecticide performance. Plots were machine harvested and a 40 percent lint fraction was used for determining lint yields.

#### **Results and Discussion**

Thrips infestations were high during 2003, exceeding 130 immature thrips per five plants in untreated plots at two and three weeks after planting (Table 1). All treatments, including the nematicide seed treatment STAN, significantly reduced thrips populations compared with the untreated at two and three weeks after planting. Cruiser+STAN and Temik treatments also significantly reduced thrips compared with STAN at both two and three weeks after planting. At three and four weeks after planting Temik treatments provided significantly better control of thrips compared with other treatments. All treatments significantly increased yield compared with the untreated. Cruiser+STAN and Temik treatments also significantly increased yield compared with the STAN treatment.

Thrips populations were moderate during 2004, exceeding 80 immature thrips per five plants at two and three weeks after planting in the untreated (Table 2). All treatments significantly reduced immature thrips compared with the untreated at two and three weeks after planting. At two weeks after planting treatments containing Cruiser or Temik

provided similar control and significantly reduced the number of thrips compared with STAN. At three weeks after planting Temik treatments and Cruiser+STAN provided significantly better control of thrips compared with STAN. All treatments had numerically higher yields compared with the untreated, but only Temik treatments and Cruiser+STAN significantly increased yields compared with the untreated.

Table 1. The effect of STAN, Cruiser, Cruiser+STAN, and various rates of Temik on immature thrips infestations at 2, 3, and 4 weeks after planting and lint yields, Tift County Georgia – 2003.

2003 Trial Planted May 1	Immature Thrips per Five Plants			Lint (lbs/acre)
	May 15	May 22	May 29	Sept. 23
Untreated	137.50	165.25	88.50	477
STAN	71.50	103.25	69.00	915
Cruiser+STAN	8.25	35.50	75.00	1127
Temik 15G 3.5 lb/A	2.00	2.75	5.75	1159
Temik 15G 5.0 lb/A	1.25	3.75	6.75	1202
Temik 15G 7.0 lb/A	1.50	6.50	6.50	1113
(P=0.05, LSD)	23.69	22.74	34.27	206.2

Table 2. The effect of STAN, Cruiser, Cruiser+STAN, and various rates of Temik on immature thrips infestations at 2, 3, and 4 weeks after planting and lint yields, Tift County Georgia – 2004.

2004 Trial Planted April 28	Immature Thrips per Five Plants			Lint (lbs/acre)
	May 12	May 19	May 26	Sept. 17
Untreated	81.50	90.75	21.00	1014
STAN	39.25	50.50	29.75	1026
Cruiser	13.00	20.25	36.25	1184
Cruiser+STAN	3.50	11.50	41.50	1334
Temik 15G 3.5 lb/A	5.00	3.50	12.00	1291
Temik 15G 5.0 lb/A	3.50	2.00	8.25	1362
Temik 15G 7.0 lb/A	2.75	2.75	6.50	1583
(P=0.05, LSD)	19.12	31.76	24.53	198.6

Thrips populations were light during 2005, especially during the early seedling stage. Thrips numbers were less than two per plant in the untreated at two weeks after planting but increased to over 70 per five plants at three weeks after planting (Table 3). All treatments significantly reduced immature thrips infestations compared with the untreated at two and three weeks after planting. Treatments containing Cruiser or Temik also significantly reduced thrips compared with STAN at two weeks after planting. At three weeks after planting Temik treatments and Cruiser+STAN significantly reduced thrips compared with STAN. At four weeks after planting only Temik treatments significantly reduced thrips infestations compared with the untreated. All treatments significantly increased yields compared with the untreated.

Table 3. The effect of STAN, Cruiser, Cruiser+STAN, and various rates of Temik on immature thrips infestations at 2, 3, and 4 weeks after planting and lint yields, Tift County Georgia – 2005.

2005 Trial Planted May 3	Immature Thrips per Five Plants			Lint (lbs/acre)
	May 17	May 24	May 31	Sept. 22
Untreated	8.00	73.50	40.50	1359
STAN	4.00	33.50	40.00	1615
Cruiser	0.50	25.25	72.50	1605
Cruiser+STAN	1.00	18.75	50.25	1686
Temik 15G 4.0 lb/A	0.00	3.25	16.75	1578
Temik 15G 5.0 lb/A	0.25	3.50	15.75	1689
(P=0.05, LSD)	1.70	14.56	19.68	192.9

Results of these studies suggest that the nematicide seed treatment STAN has some activity on early season thrips. STAN provided 48-52 percent control of immature thrips at two weeks after planting and 38-54 percent control of thrips at three weeks after planting. Cruiser and combinations of Cruiser+STAN significantly reduced thrips at two and three weeks compared with the untreated. Although not significantly different, Cruiser+STAN treatments tended to have reduced numbers of immature thrips compared with Cruiser. Thus Cruiser+STAN provided as good if not better thrips control compared with Cruiser alone. Cruiser+STAN treatments provided similar thrips control compared with Temik treatments at two and three weeks after planting. However only Temik treatments provided thrips control at four weeks after planting. Cruiser, Cruiser+STAN and Temik treatment yields were similar and significantly greater compared with the untreated.