

**RATES AND TIMING OF NEMATOCIDES
FOR CONTROL OF RENIFORM NEMATODES
IN NORTHERN ALABAMA**

**C.H. Burmester, William S. Gazaway,
D.J. Potter, and E.G. Ingram
Extension Agronomist, Extension Plant
Pathologist, and County Agent, respectively,
Alabama Cooperative Extension Service.
Belle Mina, Auburn University, and
Tuscumbia, AL
respectively and
Senior Field Development Scientist,
Rhone-Poulenc
Auburn, AL**

Abstract

A farmer's cotton field with a very high level of reniform nematodes was selected for a nematicide/insecticide control study in Northwestern Alabama in 1995. A 7 lb/A rate of Temik 15G applied in-furrow at planting reduced the reniform nematode populations and increased seed cotton yield by over 500 lb/A compared to no nematicide. Addition of two foliar Vydate 2E (0.25 ai) sprays in June, where Temik was applied in-furrow, further reduced the reniform nematode population and increased seed cotton yields 200 lb/A compared to Temik alone. An additional 10.5 lb/A of Temik 15G in June also had a similar effect on the reniform nematode population and cotton yields as the Vydate sprays. Thrips were controlled effectively by the in-furrow treatments and boll weevil eradication sprays controlled all early season insects. Since the nematicide/insecticide treatments reduced the reniform population, yield increases were due to reniform nematode control.

Introduction

Results of a nematode survey in 1991 were the first verification of reniform nematodes in a two county area in northwestern Alabama (1). Poorer than expected cotton yields in this area in 1994 resulted in extensive soil sampling for reniform nematodes. Surprisingly high levels of reniform nematodes were reported in many problem fields. One producer that sampled 48 fields found that 42 fields had high or very high levels of reniform nematodes. Most of these fields had received no nematicide treatment in 1994.

Materials and Methods

A cotton field in Colbert County, AL with a very high reniform nematode infestation was selected for the reniform nematode control study. Plots were 10 rows wide (30 inch

rows) and approximately 3,500 feet long. The cotton variety DPL 5409 was planted on April 14th. Treatments were arranged in a randomized complete block with four replications. The first three treatments received Temik 15G at a rate of 7 lb/A applied in the seed furrow at planting. The check treatment received Di-syston 15G at a rate of 6.6 lb/A applied in the seed furrow at planting. On June 6th an additional 10.5 lb/A of Temik was sidedressed using a positive displacement applicator to treatment number three. On June 6th and June 20th a foliar application of Vydate 2E was applied to treatment number two at a rate of 0.25 lb ai/acre. All other cultural practices were consistent across plots and followed normal farmer management practices for the area.

Soil samples for nematodes were taken at planting and through the growing season from each plot to monitor nematode levels. Cotton leaf samples were taken in late July from each plot and analyzed for difference in nutrient concentrations. Cotton height measurements were also taken. Cotton yields were determined by picking 10 rows 600 feet long.

Results and Discussions

The Di-syston treated cotton plots had much higher levels of reniform nematodes throughout the cotton growing season compared to the Temik treated cotton (Table 1). Post-plant treatments (Vydate and Temik) did not significantly reduce reniform nematode population in the June and July sampling compared to Temik alone in-furrow. At harvest, however, these post-plant treatments greatly reduced reniform population compared to Temik alone in-furrow.

Cotton growth in the Di-syston treated plots was reduced compared to the Temik treatments as can be seen from the height measurements taken in late July (Table 2). Temik treated cotton was three to four inches taller than the Di-syston treated cotton at this time. No difference in leaf nutrient concentrations, however, were found (Table 2).

Applying 7 lb/A of Temik in-furrow at planting increased seed-cotton yield over 500 lb/A compared to applying Di-syston in-furrow (Table 2). Addition of the two foliar Vydate treatments or the 10.5 lb. sidedress Temik treatment increased seed-cotton yields more than 200 lb/A compared to only Temik in-furrow at planting. Even larger yield differences may have been seen in this area had budworm control failures in July and August not reduced cotton yields. Boll weevil eradication sprays in June made plant bug control unnecessary. It appeared the treatments applied had very little effect on insect control past the seedling stage. Cotton yield increases were mainly due to reduced reniform nematode population caused by the nematicide/insecticide treatments.

References

1. Gazaway, W.S. Cotton Nematode Survey of Alabama. Alabama Cotton Pest Management Newsletter. 1991, ACES.

Table 1. Effect of nematicide treatments on reniform nematode populations

Treatment, Rate/A and Timing	Reniform/100cc Soil				
	4/4	6/6	6/29	7/25	9/25
Temik 15G-7.0 lb. INF*	276	320	107	343	1325
Temik 15G-7.0 lb INF + Vydate 2E 0.25 ai ESQ** and MSQ***	375	175	338	129	502
Temik 15G-7.0 lb INF + Temik 15G-10.5 lb ESQ	292	164	290	90	262
Di-Syston 15G-6.6 lb INF	232	845	865	1111	1872
LSD (0.05)	178	330	260	515	683
LSD (0.10)	144	267	210	420	553

* INF = Nematicide/insecticide applied in-furrow at planting

** ESQ = Nematicide/insecticide applied at early square

*** MSQ = Nematicide/insecticide applied at mid square

Table 2. Effect of nematicides on seed cotton yield, cotton height, and leaf nutrient content.

Treatment Rate/A and Timing	Seed Cotton 1b/A	Height (in.) 7/25	Leaf N(%) 7/25	Leaf K(%) 7/25	Leaf P(%) 7/25
Temik 15G - 7.0 lb INF*	1617	25.2	4.72	2.11	0.32
Temik 15G - 7.0 lb INF + Vydate 2E 0.25 ai ESQ** and MSQ***	1822	26.1	4.57	1.97	0.32
Temik 15G - 7.0 lb INF + Temik 15G - 10.5 lb ESQ Di-Syston 15G-6.6 lb INF	1873	25.3	4.60	2.17	0.33
LSD (0.05)	232	2.2	0.20	0.33	0.04
LSD (0.10)	188	1.7	0.16	0.26	0.03

* INF = Nematicide/insecticide applied in-furrow at planting

** ESQ = Nematicide/insecticide applied at early square

*** MSQ = Nematicide/insecticide applied at mid square