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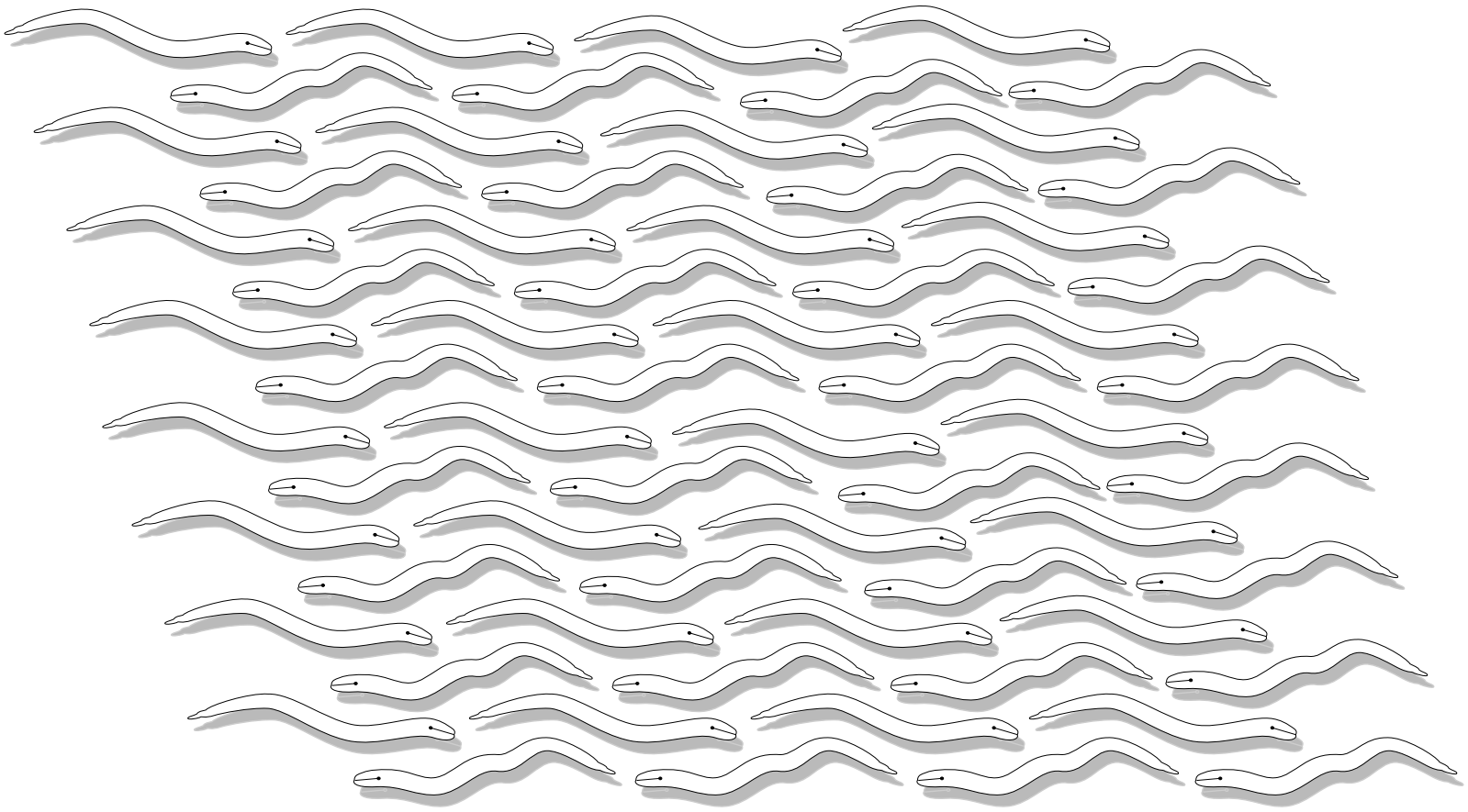
Nematode Management Investigations *in Mississippi, 1998*



Experiment Station
Vance H. Watson, Director

Mississippi Agricultural & Forestry Experiment Station
Malcolm A. Portera, President • Mississippi State University • J. Charles Lee, Vice President

Nematode Management Investigations in Mississippi, 1998

Gary W. Lawrence
Associate Professor of Nematology
Department of Entomology and Plant Pathology
Mississippi State University

Kathy S. McLean
Assistant Professor of Plant Pathology
Department of Plant Pathology
Auburn University

Asdrubal J. Diaz
Graduate Research Assistant
Department of Entomology and Plant Pathology
Mississippi State University

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Nematode Management Investigations in Mississippi, 1998

INTRODUCTION

This summary of 1998 nematode management trials on cotton was prepared for industry cooperators, colleagues at other universities, and other interested persons. The information presented is not an endorsement or recommendation. It is intended for private use, and it may not be reproduced without permission.

All locations on producer-cooperator plantations received adequate moisture supplied by standard irrigation practices.

Trade names are used throughout this report for clarity, except where they are unavailable. A list of all chemicals used in this research — including trade, common, and chemical names when available — and company sources are included in the Appendix on page 22. Nematicides are expressed as formulated rate per acre as suggested by the manufacturers.

Data presented in this report were statistically analyzed using the Statistical Analysis System (SAS Institute Inc., Cary, N.C.). Data were subjected to ANOVA appropriate for the experimental design used, and means were separated using the least significant difference test. All statistical tests were performed at the 5% level of significance.

Application Methods. Temik 15G was applied at planting in the seed furrow with a Case 900 Early Riser planter equipped with a granular chemical applicator.

Telone II was applied with a modified ripper-hipper. A CO_2-charged system was used to propel the fumigant through flow regulators mounted on stainless steel delivery tubes attached to the trailing edge of forward-swept chisels. Rows were immediately hipped with disk-hillers to seal and prevent rapid loss of the fumigant.

Nematode Counts. Population densities of plant-parasitic nematodes were determined at planting and at monthly intervals for the entire growing season. Ten soil cores, 1 inch in diameter and 8 inches deep, were collected from the two center rows of each plot in a systematic randomized sampling pattern. Cores from each plot were thoroughly mixed, and a 250-cubic-centimeter subsample was collected. Nematodes were extracted using a combination of gravity sieving and centrifugal flotation (sucrose sp. gr. 1.13).

COTTON NEMATODE MANAGEMENT

Reniform Nematode Management with Telone II

Objective: Telone II was examined in Glen Allan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system. Telone II was applied with a modified John Deere ripper-hipper. A CO_2-charged system was used to propel the fumigant through flow regulators mounted on stainless steel delivery tubes attached to the trailing edge of foward-swept chisels. The fumigant was injected 21 days before planting, 14 days before planting, and at planting 12 inches deep with one chisel per row. Rows were immediately hipped with disk-hillers to seal and prevent rapid loss of the fumigant. All remaining rows were subsoiled 12 inches deep and hipped without applying the fumigant. Temik 15G at 3.5 pounds of formulated product per acre was included as an insecticide treatment in all Telone II treatments.

A control that did not receive an insecticide or nematicide also was included. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in the untreated control.

Cultivar: DPL - 50B.

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 40 inches wide; blocks separated by a 20-foot alley.

Application date:

April 10, 1998	Telone II.
April 17, 1998	Telone II.
May 8, 1998	Telone II. Temik 15G 3.5 lb/acre. Temik 15G 5.0 lb/acre.
May 28, 1998	Orthene 75S applied to all treatments.

Planting date: May 8, 1998.

Seed rate: 210 seeds per row.

Nematode sample dates: April 16, May 8, June 11, July 9, Aug. 11, and Oct. 9, 1998.

Stand counts: Measured June 11, 1998.

Plant heights: Measured July 22, 1998.

Harvest date: Oct. 9, 1998.

Results: See Table 1, Table 2, Table 3, Table 4, Table 5, and Table 6.

Table 1. Effect of Telone II on population development of the reniform nematode on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 250 cm³ soil 21 days before planting and 0-154 days after planting						
			21	0	34	64	95	154	Mean[3]
1. Telone II	1.5 gal	Injected 12" deep 3 weeks pre-plant	3,991 b	2,446 ab	2,356 abc	4,056 c	8,794 abc	5,446 cd	4,515 bc
2. Telone II	3.0 gal	Injected 12" deep 3 weeks pre-plant	5,060 a	2,163 b	2,665 abc	6,373 abc	10,506 ab	7,841 ab	5,768 a
3. Telone II	4.5 gal	Injected 12" deep 3 weeks pre-plant	3,927 b	4,030 a	2,318 abc	5,768 abc	10,648 ab	6,373 abcd	5,511
4. Telone II	1.5 gal	Injected 12" deep 2 weeks pre-plant	4,236 ab	2,833 ab	2,717 a	3,592 a	11,047 a	5,678 bcd	5,017 abc
5. Telone II	3.0 gal	Injected 12" deep 2 weeks pre-plant	3,785 b	2,498 ab	1,391 bcd	4,558 bc	10,120 abc	6,026 abcd	4,729 abc
6. Telone II	4.5 gal	Injected 12" deep 2 weeks pre-plant	3,657 b	3,142 ab	2,021 abc	8,446 a	9,425 abc	6,373 abcd	5,511 ab
7. Telone II	1.5 gal	Injected 12" deep at planting	3,772 b	3,090 ab	1,983 abc	7,352 abc	8,807 abc	5,523 cd	5,088 abc
8. Telone II	3.0 gal	Injected 12" deep at planting	4,403 ab	4,004 a	1,288 cd	5,601 abc	7,532 bc	7,764 ab	5,099 abc
9. Telone II	4.5 gal	Injected 12" deep at planting	3,554 b	2,279 ab	682 d	5,639 abc	6,759 c	4,867 d	3,963 c
10. Temik 15G	3.5 lb	In-furrow	3,682 b	3,476 ab	1,815 abcd	8,124 ab	8,845 abc	7,918 a	5,644 ab
11. Temik 15G	5.0 lb	In-furrow	3,850 b	2,627 ab	2,446 abc	5,665 abc	11,549 a	6,373 abcd	5,418 ab
12. Control	—	—	3,734 b	4,056 a	2,601 ab	8,613 a	8,819 abc	7,339 abc	5,860 a
LSD (P = 0.05)			941	1,804	1,298	3,674	3,408	2,179	1,195

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average reniform nematode population density across all sample dates.

Table 2. Effect of Telone II on plant survival and height of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seedling stand[3]	Plant height[4]
				in
1. Telone II	1.5 gal	Injected 12" deep 3 weeks pre-plant	150 a	40.13 ab
2. Telone II	3.0 gal	Injected 12" deep 3 weeks pre-plant	153 a	40.26 ab
3. Telone II	4.5 gal	Injected 12" deep 3 weeks pre-plant	158 a	41.74 a
4. Telone II	1.5 gal	Injected 12" deep 2 weeks pre-plant	143 a	40.1 ab
5. Telone II	3.0 gal	Injected 12" deep 2 weeks pre-plant	147 a	39.80 ab
6. Telone II	4.5 gal	Injected 12" deep 2 weeks pre-plant	152 a	39.46 ab
7. Telone II	1.5 gal	Injected 12" deep at planting	155 a	39.06 ab
8. Telone II	3.0 gal	Injected 12" deep at planting	142 a	39.22 ab
9. Telone II	4.5 gal	Injected 12" deep at planting	152 a	39.64 ab
10. Temik 15G	3.5 lb	In-furrow	153 a	37.74 b
11. Temik 15G	5.0 lb	In-furrow	142 a	39.13 ab
12. Control	—	—	161 a	38.44 b
LSD (P = 0.05)			21	2.8

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Number of live plants per 40 feet of row; all rows received 210 seeds.
[4]Plant height was measured on July 22, 1998.

Table 3. Effect of Telone II on the number of bolls produced at the 1st, 2nd, and 3rd fruiting positions on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	Open bolls[3]			Total open bolls per plant
			Position 1	Position 2	Position 3	
1. Telone II	1.5 gal	Injected 12" deep 3 weeks pre-plant	—	—	—	—
2. Telone II	3.0 gal	Injected 12" deep 3 weeks pre-plant	—	—	—	—
3. Telone II	4.5 gal	Injected 12" deep 3 weeks pre-plant	—	—	—	—
4. Telone II	1.5 gal	Injected 12" deep 2 weeks pre-plant	17.0 a	10.0 b	12.3 bc	39.3 b
5. Telone II	3.0 gal	Injected 12" deep 2 weeks pre-plant	17.3 a	12.3 ab	16.0 ab	45.6 a
6. Telone II	4.5 gal	Injected 12" deep 2 weeks pre-plant	19.3 a	14.3 a	22.3 a	55.9 a
7. Telone II	1.5 gal	Injected 12" deep at planting	—	—	—	—
8. Telone II	3.0 gal	Injected 12" deep at planting	—	—	—	—
9. Telone II	4.5 gal	Injected 12" deep at planting	—	—	—	—
10. Temik 15G	3.5 lb	In-furrow	12.3 a	7.0 b	4.3 d	23.6 c
11. Temik 15G	5.0 lb	In-furrow	18.7 a	14.0 a	11.7 bc	44.4 ab
12. Control	—	—	12.0 a	6.3 b	6.0 cd	24.3 c
LSD (P = 0.05)			8.3	6.7	7.3	13.1

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average number of cotton bolls produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 4. Effect of Telone II on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on DPL- 50B in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton weight[3]			Total seed cotton weight per plant
			Position 1	Position 2	Position 3	
			g	*g*	*g*	*g*
1. Telone II	1.5 gal	Injected 12" deep 3 weeks pre-plant	—	—	—	—
2. Telone II	3.0 gal	Injected 12" deep 3 weeks pre-plant	—	—	—	—
3. Telone II	4.5 gal	Injected 12" deep 3 weeks pre-plant	—	—	—	—
4. Telone II	1.5 gal	Injected 12" deep 2 weeks pre-plant	70.0 ab	28.6	42.6 b	141.2 b
5. Telone II	3.0 gal	Injected 12" deep 2 weeks pre-plant	69.0 ab	39.7 ab	48.6 ab	177.3 b
6. Telone II	4.5 gal	Injected 12" deep 2 weeks pre-plant	83.3 ab	50.9 a	73.7 a	207.9 a
7. Telone II	1.5 gal	Injected 12" deep at planting	—	—	—	—
8. Telone II	3.0 gal	Injected 12" deep at planting	—	—	—	—
9. Telone II	4.5 gal	Injected 12" deep at planting	—	—	—	—
10. Temik 15G	3.5 lb	In-furrow	44.6 b	21.7 b	18.3 b	84.6 c
11. Temik 15G	5.0 lb	In-furrow	75.7 ab	55.7 a	37.6 b	169.0 ab
12. Control	—	—	45.2 b	21.7 b	22.7 b	89.6 c
LSD (P = 0.05)			32.7	19.6	34.1	48.8

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average cotton weight (g) produced per plant in each fruiting position. Position 3 includes the summation of all cotton weight at position 3 and above.

Table 5. Effect of Telone II on the number of nodes produced and the first fruiting node on DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Nodes per plant	Node of first fruiting branch
1. Telone II	1.5 gal	Injected 12" deep 3 weeks pre-plant	—	—
2. Telone II	3.0 gal	Injected 12" deep 3 weeks pre-plant	—	—
3. Telone II	4.5 gal	Injected 12" deep 3 weeks pre-plant	—	—
4. Telone II	1.5 gal	Injected 12" deep 2 weeks pre-plant	21.9 a	5.2 bc
5. Telone II	3.0 gal	Injected 12" deep 2 weeks pre-plant	22.4 a	5.4 bc
6. Telone II	4.5 gal	Injected 12" deep 2 weeks pre-plant	20.9 a	4.6 c
7. Telone II	1.5 gal	Injected 12" deep at planting	—	—
8. Telone II	3.0 gal	Injected 12" deep at planting	—	—
9. Telone II	4.5 gal	Injected 12" deep at planting	—	—
10. Temik 15G	3.5 lb	In-furrow	21.6 a	5.5 bc
11. Temik 15G	5.0 lb	In-furrow	25.1 a	7.6 ab
12. Control	—	—	22.4 a	8.4 a
LSD (P = 0.05)			5.8	2.4

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Table 6. Effect of Telone II on the yield of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control	Yield over Temik 3.5
			lb/plot	*lb/A*	*lb/A*	*lb/A*
1. Telone II	1.5 gal	Injected 12" deep 3 weeks pre-plant	492.08 ab	2,837.9 ab	399.1	142.0
2. Telone II	3.0 gal	Injected 12" deep 3 weeks pre-plant	501.02 ab	2,889.5 ab	450.7	193.6
3. Telone II	4.5 gal	Injected 12" deep 3 weeks pre-plant	560.00 a	3,148.9 a	710.1	453.0
4. Telone II	1.5 gal	Injected 12" deep 2 weeks pre-plant	540.52 a	3,117.3 a	678.5	421.4
5. Telone II	3.0 gal	Injected 12" deep 2 weeks pre-plant	557.40 a	3,214.6 a	775.8	518.7
6. Telone II	4.5 gal	Injected 12" deep 2 weeks pre-plant	553.46 a	3,191.9 a	753.1	496.0
7. Telone II	1.5 gal	Injected 12" deep at planting	526.52 a	3,036.5 a	597.7	340.6
8. Telone II	3.0 gal	Injected 12" deep at planting	529.92 a	3,056.2 a	617.4	360.3
9. Telone II	4.5 gal	Injected 12" deep at planting	552.52 a	3,186.5 a	747.7	490.6
10. Temik 15G	3.5 lb	In-furrow	467.46 ab	2,695.9 ab	257.1	—
11. Temik 15G	5.0 lb	In-furrow	490.62 ab	2,829.5 ab	390.7	—
12. Control	—	—	422.88 b	2,438.8 b	—	—
LSD (P = 0.05)			96.4	556.1	—	—

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Management of the Reniform Nematode with Temik 15G

Objective: Temik 15G was examined in Glen Allan, Mississippi, for the management of the reniform nematode. Temik 15G was applied at planting in the seed furrow at formulated rates of 3.5, 5.0, and 7.0 pounds per acre. All treatments were applied with a Case 900 Early Riser planter equipped with granular chemical applicators. The insecticide Gaucho was included to serve as an insecticide-treated control. A control that did not receive an insecticide or nematicide also was included. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in the untreated control.

Cultivar: DPL-50B.

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 40 inches wide; blocks separated by a 20-foot alley.

Application date:

May 8, 1998	Orthene 75S applied to all treatments.
May 28, 1998	Orthene 75S applied to all treatments.

Planting date: May 8, 1998.

Seed rate: 210 seeds per row.

Nematode sample dates: May 8, June 11, July 9, Aug. 11, Sept. 4, and Oct. 9, 1998.

Stand counts: Measured June 11, 1998.

Plant heights: Measured July 22, 1998.

Harvest date: Oct. 9, 1998.

Results: See Table 7, Table 8, Table 9, Table 10, Table 11, and Table 12.

Table 7. Effects of Temik 15G on population development of the reniform nematode on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 250 cm³ soil 0-154 days after planting						
			0	34	64	95	130	154	Mean[3]
1. Control	—	—	3,257 a	3,734 ab	6,901 a	8,742 a	6,708 a	6,257 a	5,933 a
2. Temik 15G	3.5 lb	In-furrow	3,180 a	3,051 b	5,523 a	9,193 a	3,554 b	5,073 a	4,929 a
3. Temik 15G	5.0 lb	In-furrow	4,558 a	5,330 a	6,193 a	9,193 a	5,330 a	5,408 a	5,886 a
4. Temik 15G	7.0 lb	In-furrow	4,609 a	2,704 b	6,335 a	6,875 a	5,330 a	4,648 a	5,084 a
5. Gaucho	4 oz ai/cwt	Seed treatment	3,142 a	4,506 ab	6,811 a	9,965 a	5,330 a	4,545 a	5,717 a
LSD (P = 0.05)			3,166	1,954	4,145	5,234	2,386	4,217	1,234

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average reniform nematode population density across all sample dates.

Table 8. Effect of Temik 15G on plant survival and height of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seedling stand[3]	Plant height[4]
				in
1. Control	—	—	153 ab	36.1 b
2. Temik 15G	3.5 lb	In-furrow	162 a	37.3 ab
3. Temik 15G	5.0 lb	In-furrow	160 a	38.4 a
4. Temik 15G	7.0 lb	In-furrow	141 b	37.7 ab
5. Gaucho	4 oz ai/cwt	Seed treatment	152 ab	37.8 ab
LSD (P = 0.05)			18	1.7

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Number of live plants per 40 feet of row; all rows received 210 seeds.
[4]Plant height was measured on July 22, 1998.

Table 9. Effect of Temik 15G on the number of bolls produced at the 1st, 2nd, and 3rd fruiting positions on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	Open bolls[3]			Total open bolls per plant
			Position 1	Position 2	Position 3	
1. Control	—	—	12.0 a	8.5 a	5.5 a	26.0 a
2. Temik 15G	3.5 lb	In-furrow	18.5 a	13.5 a	19.0 a	51.0 a
3. Temik 15G	5.0 lb	In-furrow	27.5 a	13.0 a	32.5 a	73.0 a
4. Temik 15G	7.0 lb	In-furrow	23.5 a	16.0 a	23.0 a	62.5 a
5. Gaucho	4 oz ai/cwt	Seed treatment	16.0 a	8.5 a	11.0 a	35.5 a
LSD (P = 0.05)			24.2	10.6	29.5	52.8

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average number of cotton bolls produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 10. Effect of Temik 15G on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on DPL-50B in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton weight[3]			Total seed cotton weight per plant
			Position 1	Position 2	Position 3	
			g	*g*	*g*	*g*
1. Control	—	—	47.7 a	29.9 a	18.1 a	95.7 a
2. Temik 15G	3.5 lb	In-furrow	69.1 a	44.9 a	67.4 a	181.4 a
3. Temik 15G	5.0 lb	In-furrow	110.7 a	47.3 a	122.2 a	280.2 a
4. Temik 15G	7.0 lb	In-furrow	99.3 a	60.7 a	98.4 a	258.4 a
5. Gaucho	4 oz ai/cwt	Seed treatment	74.7 a	30.9 a	36.2 a	141.8 a
LSD (P = 0.05)			89.8	32.3	112.9	198.7

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average cotton weight (g) produced per plant in each fruiting position. Position 3 includes the summation of all cotton weight at position 3 and above.

Table 11. Effect of Temik 15G on the number of nodes produced and the first fruiting node on DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Nodes per plant	Node of first fruiting branch
1. Control	—	—	20.0 a	6.0 a
2. Temik 15G	3.5 lb	In-furrow	21.2 a	5.4 a
3. Temik 15G	5.0 lb	In-furrow	21.0 a	4.5 a
4. Temik 15G	7.0 lb	In-furrow	23.0 a	4.5 a
5. Gaucho	4 oz ai/cwt	Seed treatment	20.9 a	5.4 a
LSD (P = 0.05)			3.3	3.3

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Table 12. Effect of Temik 15G on the yield of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
1. Control	—	—	421.94 b	2,433.4 b	—
2. Temik 15G	3.5 lb	In-furrow	541.86 a	3,125.0 a	691.6
3. Temik 15G	5.0 lb	In-furrow	554.72 a	3,199.2 a	765.8
4. Temik 15G	7.0 lb	In-furrow	525.44 a	3,030.3 a	596.9
5. Gaucho	4 oz ai/cwt	Seed treatment	483.96 ab	2,791.1 b	357.7
LSD (P = 0.05)			74.0	427	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Effect of Di-Tera for the Management of the Reniform Nematode

Objective: Di-Tera G was examined at Mississippi State University for the management of the reniform nematode (*Rotylenchulus reniformis*) in field microplots. Microplots are fiberglass cylinders (24 inches in diameter, 24 inches high) inserted 16 inches deep into the soil at the North Plant Science Research Farm. Each microplot was previously infested with the reniform nematode and planted with cotton. Each plot was planted with 12 cotton seeds in a linear fashion on raised seed beds. Microplots were spaced 7 feet apart to avoid plot-to-plot contamination due to splashing rain. The area between microplots remained free of vegetation to avoid nematode buildup on weed species.

Cultivar: Deltapine 20.

Experimental design: Randomized complete block with four replications.

Plot design: Single-row microplots; rows 2 feet long.

Application date: May 13, 1998.

Planting date: May 13, 1998.

Seed rate: 12 seeds per row.

Nematode sample dates: May 13, June 26, and Aug. 19, 1998.

Harvest date: Nov. 16, 1998.

Results: See Table 13 and Table 14.

Table 13. Effect of Di-Tera G on population development of the reniform nematode on DPL-20 cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 250 cm³ soil			
			May	June	August	Mean[3]
1. Di-Tera G	5.0 lb	In-furrow	5,665 a	4,651 b	16,480 a	8,932 ab
2. Di-Tera G	10.0 lb	In-furrow	1,127 b	11,330 a	22,789 a	11,748 a
3. Di-Tera G	15.0 lb	In-furrow	5,858 a	7,274 ab	17,896 a	10,343 ab
4. Di-Tera G	25.0 lb	In-furrow	2,334 ab	4,458 b	16,464 a	7,752 ab
5. Di-Tera G + Temik 15G	5.0 lb + 5.0 lb	In-furrow	1,207 b	4,217 b	21,373 a	8,932 ab
6. Di-Tera G + Temik 15G	10.0 lb + 5.0 lb	In-furrow	2,897 ab	3,074 b	18,009 a	7,993 ab
7. Di-Tera G + Temik 15G	15.0 lb + 5.0 lb	In-furrow	579 b	2,993 b	17,768 a	7,113 b
8. Di-Terra G + Temik 15G	25.0 lb + 5.0 lb	In-furrow	3,863 ab	2,301 b	15,758 a	7,317 ab
9. Temik 15G	5.0 lb	In-furrow	2,318 ab	3,943 b	23,561 a	9,941 ab
10. Control	—	—	3,991 ab	7,017 ab	18,540 a	9,849 ab
11. No nematodes	—	—	—	—	—	—
LSD (P = 0.05)			4,191	5,046	11,692	4,616

[1]Data are means of four replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates were calculated based on linear row feet.
[3]Average reniform nematode population density across all sample dates.

Table 14. Effect of Di-Tera G on the yield of DPL-20 cotton.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton yield/plant	Seed cotton	Seed cotton	Yield over control
			g	*g/plot*	*lb/A*	*lb/A*
1. Di-Tera G	5.0 lb	In-furrow	6.43 a	59.02 ab	1,702 ab	344.5
2. Di-Tera G	10.0 lb	In-furrow	7.84 a	64.25 ab	1,852.7 ab	495.2
3. Di-Tera G	15.0 lb	In-furrow	10.51 a	58.75 ab	1,694.1 ab	336.6
4. Di-Tera G	25.0 lb	In-furrow	4.31 a	38.78 b	1,118.1 b	-239.4
5. Di-Tera G + Temik 15G	5.0 lb + 5.0 lb	In-furrow	14.06 a	87.85 ab	2,533.2 ab	1,175.7
6. Di-Tera G + Temik 15G	10.0 lb + 5.0 lb	In-furrow	14.79 a	95.18 ab	2,744.5 ab	1,387.0
7. Di-Tera G + Temik 15G	15.0 lb + 5.0 lb	In-furrow	16.34 aa	77.60 ab	2,237.7 ab	880.2
8. Di-Terra G + Temik 15G	25.0 lb + 5.0 lb	In-furrow	16.04 a	107.78 a	3,107.8 a	1,750.3
9. Temik 15G	5.0 lb	In-furrow	17.29 a	63.20 ab	1,822.4 ab	464.9
10. Control	—	—	5.69 a	47.08 b	1,357.5 b	—
11. No nematodes	—	—	14.03 a	115.32 a	3,325.5 a	—
LSD (P = 0.05)			14.59	58.79	1,695	

[1]Data are means of four replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates were calculated based on linear row feet.

Effect of ACT on Cotton Yield in a Reniform Nematode-Infested Field

Objective: ACT was examined in Glen Allan, Mississippi, for its effect on cotton growth and development in an established cotton production system in the presence of the reniform nematode (*Rotylenchulus reniformis*). The ACT treatment was compared with a 5-pound-per-acre application of Temik 15G, which served as the standard nematicide treatment. Di-Syston 8EC was included to serve as an insecticide-treated control. A control that did not receive an insecticide or nematicide also was included. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in the untreated control plots.

ACT was applied with a CO_2-charged in-furrow plot spray system. A total volume of 10 gallons per acre was applied through a single 8003 flat fan nozzle positioned to direct the spray into the opened row at 30 psi.

Cultivar: DPL-50B.

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 40 inches wide; blocks separated by a 20-foot alley.

Application date:

May 8, 1998	Temik 15G in-furrow treatment.
May 28, 1998	Orthene 75S applied to all treatments.

Planting date: May 8, 1998.

Seed rate: 210 seeds per row.

Nematode sample dates: May 8, June 11, July 9, Aug. 11, Sept. 12, and Oct. 9, 1998.

Stand counts: Measured June 11, 1998.

Plant height: Measured July 22, 1998.

Harvest date: Oct. 9, 1998.

Results: See Table 15, Table 16, and Table 17.

Table 15. Effect of ACT on population development of the reniform nematode on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 250 cm³ 0-154 days after planting						
			0	34	64	95	126	154	Mean[3]
1. ACT	2 oz	In-furrow	5,330	3,811	3,708 b	4,905	2,433	7,339	4,588 b
2. Temik 15G	5.0 lb	In-furrow	3,824	3,142	8,845 b	5,336	6,412	4,905	5,414 ab
3. Di-Syston 8EC	1.0 lb/ai	In-furrow	2,446	3,412	9,283 a	6,644	4,289	6,180	5,375 ab
4. Control	—	—	3,901	4,880	16,725 b	6,875	4,712	6,450	7,257 a
LSD (P = 0.05)			NS	NS	3,708	NS	NS	NS	2,338

[1]Data are the means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average reniform nematode population density across all sample dates.

Table 16. Effect of ACT on plant survival and height of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seedling stand[3]	Plant height
				in
1. ACT	2 oz	In-furrow	153	40.84 a
2. Temik 15G	5.0 lb	In-furrow	158	37.36 b
3. Di-Syston 8EC	1.0 lb/ai	In-furrow	155	37.07 b
4. Control	—	—	155	36.66 b
LSD (P = 0.05)			NS	40.84

[1]Data are the means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Number of live cotton plants per 40 feet of row; all rows received 210 seeds.
[4]Plant height was measured on July 22, 1998.

Table 17. Effect of ACT on the yield of DPL-50B cotton planted in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton yield	Yield over control
			lb/plot	*lb/A*	*lb/A*
1. ACT	2 oz	In-furrow	593.22 a	3,421.2 a	593.8
2. Temik 15G	5.0 lb	In-furrow	539.36 ab	3,110.6 ab	283.2
3. Di-Syston 8EC	1.0 lb/ai	In-furrow	560.22 ab	3,230.9 ab	403.5
4. Control	—	—	490.26 b	2,827.4 b	—
LSD (P = 0.05)			73.8	425	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Effect of Di-Tera G and Di-Tera ES on the Management of the Reniform Nematode

Objective: Di-Tera was examined in Glen Allan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system. Di-Tera G was applied in the seed furrow at planting at the formulated rates of 4 and 25 pounds per acre with a Case 900 Early Riser planter equipped with granular chemical applicators. Di-Tera ES was applied at rates of 1.25 and 2.5 gallons per acre with a CO_2-charged in-furrow plot spray system. A total volume of 10 gallons per acre was applied through a single 8003 flat fan nozzle positioned to direct the spray into the opened row at 30 psi.

The Di-Tera treatments were compared with a 5-pound-per-acre application of Temik 15G, which served as the standard nematicide treatment. The insecticide Di-Syston 8EC was included to serve as an insecticide-treated control. A control that did not receive an insecticide or nematicide was also included. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in the untreated control plots.

Cultivar: DPL-50B.

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 40 inches wide; blocks separated by a 20-foot alley.

Application date:

May 8, 1998	Orthene 75S applied to all treatments.
May 28, 1998	Orthene 75S applied to all treatments.

Planting date: May 8, 1998.

Seed rate: 210 seeds per row.

Nematode sample dates: May 8, June 11, July 9, Aug. 11, Sept. 4, and Oct. 9, 1998.

Stand counts: Measured June 11, 1998.

Plant heights: Measured July 22, 1998.

Harvest date: Oct. 9, 1998.

Results: See Table 18, Table 19, Table 20, Table 21, Table 22, and Table 23.

Table 18. Effect of Di-Tera G and Di-Tera ES on population development of the reniform nematode on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	Reniform nematodes / 250 cm³ soil, 0-154 days after planting						
			0	34	64	95	130	154	Mean[3]
1. Di-Tera G	25 lb	In-furrow	2,279 a	2,408 a	9,270 b	7,146 abc	5,163 a	5,523 a	5,298 b
2. Di-Tera G + Temik 15G	4 lb + 5 lb	In-furrow + in-furrow	4,558 a	3,515 ab	12,090 ab	6,412 abc	6,180 a	5,292 a	6,341 ab
3. Di-Tera ES	1.25 gal	In-furrow	4,365 a	3,425 ab	13,905 ab	9,000 ab	3,476 a	5,137 a	6,551 ab
4. Di-Tera ES	2.5 gal	In-furrow	3,296 a	6,776 a	13,982 ab	9,579 a	4,751 a	6,180 a	7,317 a
5. Temik 15G	5.0 lb	In-furrow	3,824 a	3,142 ab	8,845 b	5,356 c	6,412 a	4,905 a	5,414 ab
6. Di-Syston 8EC	1.0 lb/a.i.	In-furrow	2,446 a	3,412 ab	9,283 b	6,644 abc	4,287 a	6,180 a	5,375 ab
7. Untreated	—	—	3,901 a	4,880 a	16,725 a	6,875 abc	4,712 a	6,450 a	7,257 ab
LSD (P = 0.05)			2,563	3,004	6,762	3,025	4,849	2,970	1,978

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average reniform nematode population density across all sample dates.

Table 19. Effect of Di-Tera G and Di-Tera ES on plant survival and height of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seedling stand[3]	Plant height[4]
				in
1. Di-Tera G	25 lb	In-furrow	143	38.3
2. Di-Tera G + Temik 15G	4 lb + 5 lb	In-furrow + in-furrow	149	39.3
3. Di-Tera ES	1.25 gal	In-furrow	151	42.3
4. Di-Tera ES	2.5 gal	In-furrow	155	38.7
5. Temik 15G	5.0 lb	In-furrow	158	41.2
6. Di-Syston 8EC	1.0 lb/ai	In-furrow	155	40.2
7. Untreated	—	—	155	38.3
LSD (P = 0.05)			NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Number of live plants per 40 feet of row; all rows received 210 seeds.
[4]Plant height was measured on Oct. 9, 1998.

Table 20. Effect of Di-Tera G and Di-Tera ES on the number bolls produced at the 1st, 2nd, and 3rd fruiting positions on DPL-50 B cotton.[1]

Treatment	Rate per acre[2]	Application method	Open bolls[3]			Total open bolls per plant
			Position 1	Position 2	Position 3	
1. Di-Tera G	25 lb	In-furrow	19 b	8 b	9 c	36 c
2. Di-Tera G + Temik 15G	4 lb + 5 lb	In-furrow + in-furrow	20 b	11 b	10 c	41 bc
3. Di-Tera ES	1.25 gal	In-furrow	16 c	7 b	17 b	40 b
4. Di-Tera ES	2.5 gal	In-furrow	24 a	10 b	19 a	53 a
5. Temik 15G	5.0 lb	In-furrow	11 d	16 a	9 c	36 c
6. Di-Syston 8EC	1.0 lb/ai	In-furrow	20 b	11 b	5 d	36 c
7. Untreated	—	—	19 b	9 b	1 c	29 d
LSD (P = 0.05)			1.3	3.9	1.4	5.0

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average number of cotton bolls produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 21. Effect of Di-Tera G and Di-Tera ES on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on DPL-50B cotton.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton weight[3]			Total seed cotton weight per plant
			Position 1	Position 2	Position 3	
			g	*g*	*g*	*g*
1. Di-Tera G	25 lb	In-furrow	75.5 cd	38.0 c	40.9 ab	154.4 c
2. Di-Tera G + Temik 15G	4 lb + 5 lb	In-furrow + in-furrow	77.1 c	40.9 b	36.5 b	154.5 c
3. Di-Tera ES	1.25 gal	In-furrow	75.2 d	29.4 e	81.1 a	185.6 b
4. Di-Tera ES	2.5 gal	In-furrow	99.5 a	41.1 b	61.8 a	202.4 a
5. Temik 15G	5.0 lb	In-furrow	44.1 f	68.4 a	25.3 b	133.8 d
6. Di-Syston 8EC	1.0 lb/ai	In-furrow	85.5 b	32.9 d	20.1 bc	138.5 d
7. Untreated	—	—	73.2 e	33.1 d	1.2 c	107.0 e
LSD (P = 0.05)			1.7	2.0	21.8	5.3

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.
[3]Average open boll weight (g) produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 22. Effect of Di-Tera G and Di-Tera ES on the number of nodes produced and the first fruiting node on DPL- 50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Nodes per plant	Node of first fruiting branch
1. Di-Tera G	25 lb	In-furrow	22.3	6.0
2. Di-Tera G + Temik 15G	4 lb + 5 lb	In-furrow + in-furrow	24.3	5.7
3. Di-Tera ES	1.25 gal	In-furrow	23.3	5.7
4. Di-Tera ES	2.5 gal	In-furrow	20.0	5.3
5. Temik 15G	5.0 lb	In-furrow	20.7	6.3
6. Di-Syston 8EC	1.0 lb/a.i.	In-furrow	19.7	7.0
7. Untreated	—	—	20.7	6.7
LSD (P = 0.05)				

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Table 23. Effect of Di-Tera G and Di-Tera ES on the yield of DPL-50B cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over Di-Syston control
			lb/plot	*lb/A*	*lb/A*
1. Di-Tera G	25 lb	In-furrow	611.86 a	3,528.7 a	297.8
2. Di-Tera G + Temik 15G	4 lb + 5 lb	In-furrow + in-furrow	584.28 ab	3,369.7 ab	138.8
3. Di-Tera ES	1.25 gal	In-furrow	601.44 ab	3,468.6 ab	237.7
4. Di-Tera ES	2.5 gal	In-furrow	539.36 bc	3,093.6 bc	-137.3
5. Temik 15G	5.0 lb	In-furrow	539.36 bc	3,110.6 bc	-120.3
6. Di-Syston 8EC	1.0 lb/ai	In-furrow	560.22 ab	3,230.9 ab	—
7. Untreated	—	—	490.26 c	2,827.4 b	—
LSD (P = 0.05)			66.9	386	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 40-inch row spacing.

Root-Knot Nematode Management with Vydate C-LV Applied as a Foliar Spray

Objective: Vydate C-LV was examined in Belzoni, Mississippi, for the management of the root-knot nematode (*Meloidogyne incognita*) in an established cotton production system. Each Vydate C-LV treatment received an in-furrow application of Temik 15G at 3.5 or 5.0 pounds of formulated material per acre at the time of planting. These treatments were compared with Temik 15G at 5.0 pounds per acre, which was applied in the seed furrow at planting. The seed treatment Gaucho was included to serve as the insecticide-treated control. Temik 15G was applied at planting with a Case 900 Early Riser planter equipped with granular chemical applicators. Vydate C-LV was applied as a foliar spray at various plant growth stages starting with the 3rd true leaf to 14 days after pin-head square. Vydate C-LV was applied with a CO_2-charged backpack field plot spray system. A total volume of 10 gallons per acre was applied through two 8003 flat fan nozzles spaced over each row at 30 psi. All rows not treated with Vydate C-LV received a foliar spray consisting of 4 ounces per acre each of Orthene 75 S and Methyl Parathion.

Cultivar: Stoneville 474.

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 40 inches wide; blocks separated by a 20-foot alley.

Application date:

May 1, 1998	Temik 15G in-furrow treatments.
May 28, 1998	Vydate C-LV 3rd true leaf stage. Orthene 75 S to all treatments that did not receive Vydate C-LV.
June 4, 1998	Vydate C-LV 6th to 7th true leaf stage. Orthene 75 S + Methyl Parathion to all treatments that did not receive Vydate C-LV.
June 18, 1998	Vydate C-LV 14 days after 6th to 7th true leaf stage. Orthene 75 S + Methyl Parathion to all treatments that did not receive Vydate C-LV.

Planting date: May 9, 1998.

Seed rate: 210 seeds per row.

Nematode sample dates: May 9, June 11, July 2, Aug. 13, and Sept. 28, 1998.

Stand counts: Measured June 11, 1998.

Plant heights: Measured July 9, 1998.

Harvest date: Sept. 28, 1998.

Results: See Table 24, Table 25, and Table 26.

Table 24. Effect of Vydate C-LV applied as a foliar spray on population development of the root-knot nematode on Stoneville 474 cotton.[1]

Treatment[2]	Rate per acre[3]	Application method	*M. incognita* / 250 cm³ soil 0 - 134 days after planting					
			0	33	54	96	134	Mean[4]
1. Vydate C-LV + Temik 15G	8 oz + 3.5 lb	6th true leaf + 14 days + in-furrow	1,142 a	661 a	215 c	3,322 b	2,438 a	1,268 a
2. Vydate C-LV + Temik 15G	4 oz + 5.0 lb	3rd true leaf + 14 days + in-furrow	627 a	807 a	343 bc	4,094 ab	1,854 a	1,288 a
3. Vydate C-LV + Temik 15G	8 oz + 5.0 lb	3rd true leaf + in-furrow	953 a	584 a	197 c	5,768 a	1,622 a	1,521 a
4. Vydate C-LV + Temik 15G	4 oz + 5.0 lb	6th true leaf+ 14 days + in-furrow	592 a	747 a	429 abc	4,764 ab	2,318 a	1,475 a
5. Vydate C-LV + Temik 15G	8 oz + 5.0 lb	6th true leaf + in-furrow	627 a	670 a	215 c	4,996 ab	1,854 a	1,402 a
6. Temik 15G	5.0 lb	In-furrow	815 a	652 a	747 a	4,532 ab	1,288 a	1,339 a
7. Gaucho	4 oz ai/cwt	Seed treatment	833 a	927 a	618 ab	5,588 ab	1,880 a	1,619 a
LSD (P = 0.05)			657	625	398	2,050	1,314	468

[1]Data are the means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Vydate C-LV was applied at the 3rd true leaf stage on May 28, 1998, or at the 6th true leaf stage on June 4, 1998, and 14 days later on June 18, 1998.
[3]Rates calculated are based on 38-inch row spacing.
[4]Average root-knot nematode population density across all sample dates.

Table 25. Effect of Vydate C-LV applied as a foliar spray on plant survival and height of Stoneville 474 cotton in a field infested with the root-knot nematode.[1]

Treatment	Rate per acre[2]	Application method	Seedling stand[3]	Plant height
				in
1. Vydate C-LV + Temik 15G	8 oz + 3.5 lb	6th true leaf + 14 days + in-furrow	129 b	32.1 a
2. Vydate C-LV + Temik 15G	4 oz + 5.0 lb	3rd true leaf + 14 days + in-furrow	146 a	31.2 a
3. Vydate C-LV + Temik 15G	8 oz + 5.0 lb	3rd true leaf + in-furrow	139 ab	32.4 a
4. Vydate C-LV + Temik 15G	4 oz + 5.0 lb	6th true leaf + 14 days + in-furrow	136 ab	31.9 a
5. Vydate C-LV + Temik 15G	8 oz + 5.0 lb	6th true leaf + in-furrow	135 ab	32.5 a
6. Temik 15G	5.0 lb	In-furrow	141 ab	30.9 a
7. Gaucho	4 oz ai/cwt	Seed treatment	142 ab	32.1 a
LSD (P = 0.05)			14	2.2

[1]Data are the means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Vydate C-LV was applied at the 3rd true leaf stage on May 28, 1998, or at the 6th true leaf stage on June 4, 1998, and 14 days later on June 18, 1998.
[3]Rates calculated are based on 38-inch row spacing.
[4]Number of live plants per 40 feet of row; all rows received 210 seeds.
[5]Plant height was measured on July 9, 1998.

Table 26. Effect of Vydate C-LV applied as a foliar spray on the yield of Stoneville 474 cotton in a field infested with the root-knot nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
1. Vydate C-LV + Temik 15G	8 oz + 3.5 lb	6th true leaf + 14 days + in-furrow	420.72 a	2,426.4 a	804.5
2. Vydate C-LV + Temik 15G	4 oz + 5.0 lb	3rd true leaf + 14 days + in-furrow	363.64 ab	2,097.2 ab	475.3
3. Vydate C-LV + Temik 15G	8 oz + 5.0 lb	3rd true leaf + in-furrow	350.16 abc	2,019.4 abc	397.5
4. Vydate C-LV + Temik 15G	4 oz + 5.0 lb	Pinhead + 14 days + in-furrow	389.50 ab	2,246.3 ab	624.4
5. Vydate C-LV + Temik 15G	8 oz + 5.0 lb	Pinhead + in-furrow	359.76 ab	2,074.8 ab	452.9
6. Temik 15G	5.0 lb	In-furrow	317.90 bc	1,833.4 bc	211.5
7. Gaucho	4 oz ai/cwt	Seed treatment	281.22 c	1,621.9 c	—
LSD (P = 0.05)			73	422	

[1]Data are the means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Vydate C-LV was applied at the 3rd true leaf stage on May 28, 1998, or at the 6th true leaf stage on June 4, 1998, and 14 days later on June 18, 1998.
[3]Rates calculated are based on 38-inch row spacing.

Foliar-Applied Vydate C-LV in Combination with Gaucho Seed Treatment for Root-Knot Nematode Management

Objective: Vydate C-LV was examined in Belzoni, Mississippi, for the management of the root-knot nematode (*Meliodogyne incognita*) in an established cotton production system. Vydate C-LV was used in combination with the insecticide seed treatment Gaucho. Vydate C-LV was applied as a foliar spray at the 6th to 7th true leaf stage using a CO_2-charged backpack field plot spray system. A total volume of 10 gallons per acre was applied through two 8003 flat fan nozzles spaced over each row at 30 psi. All rows not treated with Vydate C-LV received a foliar spray consisting of 4 ounces per acre each of Orthene 75S and methyl parathion.

Cultivar: Stoneville 474.

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 40 inches wide; blocks separated by a 20-foot alley.

Application date:

May 9, 1998	Temik 15G in-furrow treatment.
May 28, 1998	Orthene 75S to all treatments.
June 4, 1998	Vydate C-LV - 6th to 7th true leaf stage. Orthene 75S + Methyl Parathion to all treatments that did not receive Vydate C-LV.
June 18, 1998	Orthene 75S + Methyl Parthion to all treatments.

Planting date: May 9, 1998.

Seed rate: 210 seeds per row.

Nematode sample dates: May 9, June 11, July 2, Aug. 13, and Sept. 28, 1998.

Stand counts: Measured June 11, 1998.

Plant heights: Measured July 9, 1998.

Harvest date: Sept. 28, 1998.

Results: See Table 27, Table 28, and Table 29.

Table 27. Effect of Vydate C-LV applied as a foliar spray and Gaucho seed treatment on population development of the root-knot nematode on Stoneville 474 cotton.[1]

Treatment	Rate per acre[2]	Application method	*M. incognita* / 250 cm³ soil 0 - 134 days after planting					
			0	33	54	96	134	Mean[3]
1. Gaucho + Vydate C-LV	4 oz ai/cwt + 8 oz	Seed treatment + pinhead square	1,141 a	730 a	429 a	5,588 a	1,828 a	1,619 a
2. Temik 15G	5.0 lb	In-furrow	815 a	652 a	747 a	4,532 a	1,288 a	1,339 a
3. Gaucho	4 oz ai/cwt	Seed treatment	833 a	927 a	618 a	4,532 a	1,880 a	1,469 a
LSD (P = 0.05)			534	789	542	2,466	967	593

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Average root-knot nematode population density across all sample dates.

Table 28. Effect of Vydate C-LV applied a foliar spray and Gaucho seed treatment on plant survival and height of Stoneville 474 cotton in a field infested with the root-knot nematode.[1]

Treatment	Rate per acre[2]	Application method	Seedling stand[3]	Plant height[4]
				in
1. Gaucho + Vydate C-LV	4 oz ai/cwt + 8 oz	Seed treatment + pinhead square	135 a	31.42 a
2. Temik 15G	5.0 lb	In-furrow	141 a	30.90 a
3. Gaucho	4 oz ai/cwt	Seed treatment	142 a	32.06 a
LSD (P = 0.05)			9.2	2.5

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Number of live plants per 40 feet of row; all rows received 210 seeds.
[4]Plant height was measured on July 9, 1998.

Table 29. Effect of Vydate C-LV applied as a foliar spray and Gaucho seed treatment on the yield of Stoneville 474 cotton in a field infested with the root-knot nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
1. Gaucho + Vydate C-LV	4 oz ai/cwt + 8 oz	Seed treatment + pinhead square	337.86 a	1,948.50 a	326.00
2. Temik 15G	5.0 lb	In-furrow	317.90 a	1,833.40 a	211.50
3. Gaucho	4 oz ai/cwt	Seed treatment	281.22 a	1,621.90 a	—
LSD (P = 0.05)			95	549	

[1]Data are the means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.

Root-Knot Nematode Management with Temik 15G in Non-Delta Cotton Production

Objective: Temik 15G was examined in Hamilton, Mississippi, for the management of the root-knot nematode in an established non-Delta cotton production system. Temik 15G was applied at planting in the seed furrow at the formulated rates of 3.5, 5.0, and 7.0 pounds per acre. The insecticide Gaucho was included to examine its utility in a nematode-infected field and to serve as an insecticide-treated control. A control that did not receive an insecticide or nematicide was also included. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in the untreated control.

Cultivar: Deltapine 20.

Experimental design: Randomized complete block with five replications.

Plot design: Four-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date: June 2, 1998.

Seed rate: 210 seeds per row.

Nematode sample date: N/A

Stand counts: N/A

Plant heights: N/A

Harvest date: Nov. 3, 1998.

Results: See Table 30.

Table 30. Effect of Temik 15G on the yield of DPL-20 cotton in a field infested with the root-knot nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield increase over control
			g/plot	*lb/A*	*lb/A*
1. Temik 15G	3.5 lb	In-furrow	376.9 a	2,173.8 a	769.8
2. Temik 15G	5.0 lb	In-furrow	395.9 a	2,283.0 a	879.0
3. Temik 15G	7.0 lb	In-furrow	376.3 a	2,170.2 a	766.2
4. Gaucho	4 oz ai/cwt	Seed treatment	344.9 a	1,989.2 a	585.2
5. Control	—	—	243.4 b	1,404.0 b	—
LSD (P = 0.05)			95	549.1	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates were calculated based on 38-inch row spacing.

APPENDIX

Appendix Table 1. List of chemicals used in the Nematode Management Studies for 1998.

Trade name	Formulation	Company	Common name	Scientific description
Temik	15G	Rhone-Poulenc	Aldicarb	[2-methyl-2 (methylthio) propionaldehyde 0 - (methylcarbamoyl) oxime]
Vydate	C-LV	DuPont	Oxamyl	Methyl N' N' -dimethyl-N-[(methylcarbamoyl) oxy] - 1 - thiooxamimidate
Telone II	—	Dow Agro Sciences	—	1, 3-dichloropropene
Di-Tera	—	Abbott Laboratories	—	Ascophyllum nodosum
ACT	—	Quick-Gro, Inc.	—	Not available
Di-Syston	8EC	Bayer	Disulfoton	0,0-diethyl-s-(ethylthio)ethyl (phosphorodithioate)

PROGRAM SUPPORT

CONTRIBUTORS

Frank Killebrew
Extension Plant Pathologist
Mississippi State University

J.D. Ferguson
Plant Science Research Center
Mississippi State University

Ken Middleton
Middleton Planting Co.
Glen Allan, MS

Dale Springfield
Caladonia, MS

G.M. Roberts
Plant Science Research Center
Mississippi State University

Scott Gaston
Silver Creek Planting Co.
Belzoni, MS

FINANCIAL ASSISTANCE

H. Marcus Adair
Abbott Laboratories
6750 Poplar Avenue
Memphis, TN 38138

Julie Taylor
Dow Elanco
220 W. Jefferson
Greenwood, MS 38930

Walt Mitchell
E.I. DuPont de Nemours & Company
Agricultural Products
107 Hidden Oaks Lane
Vicksburg, MS 39180

Randy Smith
Rhone-Poulenc Ag Company
P.O. Box 42 N
Carrollton, MS 38947

Mississippi State University

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