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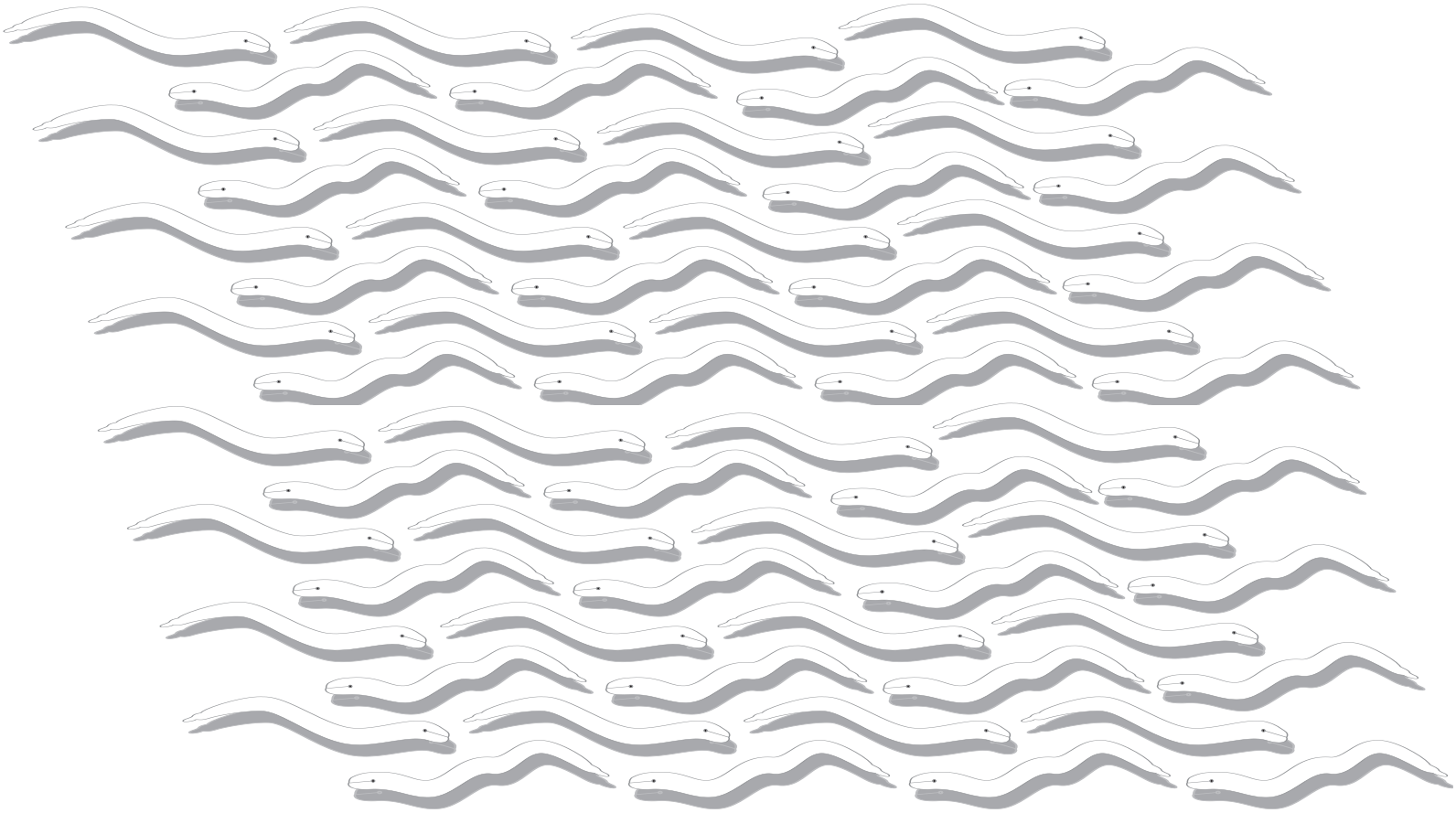
Nematode Management Investigations *in Mississippi, 2002*



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Nematode Management Investigations in Mississippi, 2002

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CONTENTS

Nematode Management Investigations in Mississippi, 2002

Introduction

This summary of 2002 nematode trials on cotton and soybeans was prepared for industry cooperators, colleagues at other universities, and other interested persons. The information presented is not an endorsement or recommendation. This information is intended for private use and may not be reproduced without permission.

Trade names are used throughout this report for clarity, except where they are unavailable. Included in the Appendix A is a list of all chemicals used in this research — including trade, common, and chemical names when available — and company sources. Nematicide rates are expressed as formulated rate per acre as suggested by 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.

Single-Rate 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, Vapam, and Kapam were 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.

Adage 5FS and Gaucho were added to the seed before planting at the rate of 300 and 402 grams of active ingredient per 100 kilograms of seed, respectively.

Vydate C-LV was applied as a foliar spray at the sixth true leaf stage and again 14 days later. Vydate C-LV was applied with a CO_2-charged backpack field plot spray system using two 8003 flat fan nozzles spaced over each row at 30 psi.

Nematode Counts. For most tests, 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).

Management of the Reniform Nematode with Messenger Alone and in Combination with Temik 15G

Objective: Messenger was examined at Brazil, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production field. Messenger was compared in combination with an at-planting application of Temik 15G at 3.5 pounds and 7 pounds of formulated product per acre. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Messenger 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 foliar applications were applied using distilled water as a carrier. Temik 15G was applied at planting with a Case 900 Early Riser planter equipped with granular chemical applicators.

Cultivar: SureGrow 215 BG/RR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots with two row borders; rows 40 feet long, 38 inches wide; blocks separated by 20-foot alley

Application date:

May 16, 2002	Temik 15G applied in furrow
June 15, 2002	Orthene 75S applied to all treatments
June 18, 2002	Two-leaf stage application
July 11, 2002	Six-leaf stage application
July 15, 2002	First-bloom application
August 6, 2002	Three weeks after first bloom

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Plant height: October 14, 2002

Harvest date: October 14, 2002

Results: See Table 1, Table 2, Table 3, and Table 4

Table 1. Effect of Messenger on the plant height, number of nodes produced, and the first fruiting node on SureGrow 215 BG/RR cotton.[1]

Treatment	Rate per acre[2]	Application method[3]	Plant height	Nodes	Node of first fruiting branch
Temik 15G	3.5 lb	In-furrow	32.1 a	18.1 c	5.4 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS, FB, FB+3	33.4 a	20.0 a	5.2 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf, FB	35.0 a	19.7 ab	4.9 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS + FB+3	33.9 a	19.1 abc	5.2 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB, FB+3	34.7 a	19.0 abc	4.8 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf	35.8 a	19.1 abc	5.1 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS	32.7 a	18.2 bc	5.0 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS+2	35.4 a	18.6 abc	5.0 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB	34.3 a	18.7 abc	5.3 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB+3	33.1a	19.1 abc	5.3 a
LSD *(P=0.05)*			NS	1.5	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 significance according to the least significant difference test.
[2]Rates were calculated based on 38-inch row spacing.
[3]PHS = pinhead; FB = first bloom; 2 leaf = 2 leaf physiological growth stage; FB+3 = 3 weeks after first bloom.

Table 2. Effect of Messenger on the number of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method[3]	Open bolls[4]			Total open bolls per plant
			Position 1	Position 2	Position 3	
Temik 15G	3.5 lb	In-furrow	5.3 ab	2.4 a	2.3 b	10.10 d
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS, FB, FB+3	6.4 a	4.1 a	5.4 ab	16.00 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf, FB	6.5 a	3.7 a	6.1 a	16.43 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS + FB+3	6.3 a	3.8 a	4.9 ab	15.13 abc
Temik 15G Messenger	3.5 lb + 2.25 oz	In-furrow + FB, FB+3	6.4 a	4.0 a	4.9 ab	15.33 abc
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf	5.8 ab	3.6 a	3.9 ab	13.56 abcd
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS	4.8 b	3.7 a	3.6 ab	12.20 bcd
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS+2	6.6 a	3.5 a	2.8 b	13.13 abcd
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB	5.6 ab	3.4 a	2.6 b	11.76 cd
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB+3	5.3 ab	3.9 a	3.0 ab	13.33 abcd
LSD *(P=0.05)*			1.3	NS	3.1	4.14

[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 significance according to the least significant difference test.
[2]Rates were calculated based on 38-inch row spacing.
[3]PHS = pinhead; FB = first bloom; 2 leaf = 2 leaf physiological growth stage; FB+3 = 3 weeks after first bloom.
[4]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 3. Effect of Messenger on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method[3]	Seed cotton weight (g)[4]			Total seed cotton weight per plant (g)
			Position 1	Position 2	Position 3	
Temik 15G	3.5 lb	In-furrow	57.67 c	40.33 a	27.67 b	125.67 c
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS, FB, FB+3	89.33 a	53.67 a	61.67 ab	204.67 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf, FB	93.00 a	53.67 a	86.00 a	232.67 a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS + FB+3	92.67 a	47.33 a	58.33 ab	198.33 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB, FB+3	92.67 a	54.67 a	63.67 ab	211.00 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf	88.33 ab	48.33 a	50.33 ab	187.00 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS	61.00 bc	46.67 a	54.00 ab	161.67 bc
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS+2	91.33a	34.67 a	39.67 b	165.67 bc
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB	82.00 abc	39.33 a	39.33 b	160.67 bc
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB+3	77.67 abc	44.33 a	43.00 b	165.00 bc
LSD *(P=0.05)*			27.4	NS	39.9	60.3

[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 significance according to the least significant difference test.
[2]Rates were calculated based on 38-inch row spacing.
[3]PHS = pinhead; FB = first bloom; 2 leaf = 2 leaf physiological growth stage; FB+3 = 3 weeks after first bloom.
[4]Weight of cotton produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 4. Effect of Messenger on the yield of SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton (lb/plot)	Seed cotton (lb/A)
Temik 15G	3.5 lb	In-furrow	17.15 ab	2946.5 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS, FB, FB+3	19.77 ab	3396.8 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf, FB	20.18 ab	3467.5 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS + FB+3	15.72 b	2700.1 b
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB, FB+3	18.34 ab	3150.4 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + 2 leaf	18.10 ab	3110.1 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS	18.88 ab	3243.3ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + PHS+2	21.77 a	3740.1a
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB	19.80 ab	3400.9 ab
Temik 15G + Messenger	3.5 lb + 2.25 oz	In-furrow + FB+3	19.07 ab	3275.7 ab
LSD *(P=0.05)*			2.6	914.3

[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 significance according to the least significant difference test.
[2]Rates were calculated based on 38-inch row spacing.

Management of the Reniform Nematode with Vapam, Kapam, and Telone II Soil Fumigants

Objective: Vapam, Kapam, and Telone II were examined at Brazil, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production location. Vapam was compared with a preplanting application of Telone II at 3 gallons per acre and with at-planting applications of Temik 15G at 3.5 and 5 pounds per acre. A combination treatment was included using Vapam at 5 gallons per acre with two foliar applications of Vydate C-LV (8.5 ounces per acre) at the 6th true leaf and 14 days later. Di-Syston 8EC was included as an insecticide-treated control. All plots were treated with the recommended rate of Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Vapam, Kapam and Telone II were 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 forward-swept chisels. The fumigant was injected 16 inches deep 16 days prior to planting 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 16 inches deep and hipped without applying the fumigant. Temik 15G was applied at planting with a Case 900 Early Riser planter equipped with granular chemical applicators. Vydate C-LV was applied with a CO_2-charged backpack field plot spray system. A total 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 of Orthene 75S at 4 ounces per acre.

Cultivar: SureGrow 215 BG/RR

Experimental design: Randomized complete block with five replications.

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

Application date:

April 22, 2002	Telone II injected Vapam injected Kapam injected
May 16, 2002	Temik 15G applied in-furrow
May 27, 2002	Orthene 75S applied to all treatments
June 1, 2002	Orthene 75S applied to all treatments
June 4, 2002	Orthene 75S applied to all treatments
June 20, 2002	Vydate C-LV applied at 6th true leaf
July 1, 2002	Vydate C-LV applied at 6th true leaf + 11 days

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Plant heights: October 14, 2002

Harvest date: October 14, 2002

Results: See Table 5, Table 6, Table 7, and Table 8

Table 5. Effect of Vapam, Kapam, and Telone II on plant height, number of nodes produced, and first fruiting node on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Plant height (in)	Nodes per plant	Node of first fruiting branch
Control	–	–	31.1 de	19.1 ab	5.8 a
Vapam	3 gal	Single chisel, 16" deep, preplant	35.9 ab	18.3 ab	4.9 ab
Vapam	5 gal	Single chisel, 16" deep, preplant	34.6 abc	18.5 ab	4.2 b
Vapam + Vydate C-LV	5 gal + 8.5 oz	Single chisel, 16" deep, preplant + 6 true leaf + 11 days	34.6 abc	18.6 ab	4.3 ab
Vapam	8.5 gal	Single chisel, 16" deep, preplant	32.2 bcde	18.8 ab	4.6 ab
Kapam	6.5 gal	Single chisel, 16" deep, preplant	37.2 a	19.9 a	4.5 ab
Temik 15G	3.5 lb	In-furrow, at-plant	30.1 e	17.6 b	5.4 ab
Temik 15G	5 lb	In-furrow, at-plant	36.1 ab	18.3 ab	4.7 ab
Telone II	1.5 gal	Single chisel, 16" deep, preplant	34.0 abcd	17.2 b	5.3 ab
Telone II	3 gal	Single chisel, 16" deep, preplant	31.5 cde	18.7 ab	5.6 ab
LSD *(P=0.05)*			3.3	2.1	1.5

[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]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 11 days later on July 1, 2002.
[3]Rates were calculated based on 38-inch row spacing.

Table 6. Effect of Vapam, Kapam, and Telone II on the number of bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Open bolls[4]			Total open bolls per plant
			Position 1	Position 2	Position 3	
Control	–	–	4.7 f	3.9 a	2.2 c	10.9 f
Vapam	3 gal	Single chisel, 16" deep, preplant	8.5 ab	5.7 a	4.0 abc	18.2 abcd
Vapam	5 gal	Single chisel, 16" deep, preplant	9.0 a	4.9 a	7.1 a	22.2 a
Vapam + Vydate C-LV	5 gal + 8.5 oz	Single chisel, 16", preplant + 6 true leaf + 11 days	7.5 abcd	5.8 a	5.7 ab	18.9 abc
Vapam	8.5 gal	Single chisel, 16" deep, preplant	7.1 cdef	5.8 a	4.7 abc	15.5 cdef
Kapam	6.5 lb	Single chisel, 16" deep, preplant	8.1 abc	6.1 a	7.0 a	21.2 ab
Temik 15G	3.5 lb	In-furrow, at-plant	5.6 ef	6.1 a	2.3 c	12.3 ef
Temik 15G	5 lb	In-furrow, at-plant	7.5 abcd	4.4 a	4.2 abc	16.2 bcdef
Telone II	1.5 gal	Single chisel, 16" deep, preplant	6.0 def	4.2 a	2.9 bc	13.1 def
Telone II	3 gal	Single chisel, 16" deep, preplant	6.5 cde	5.7 a	4.6 c	16.8 abcde
LSD *(P=0.05)*			1.7	NS	3.1	5.5

[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 were calculated based on 38-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 7. Effect of Vapam, Kapam, and Telone II on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton weight[4]			Total seed cotton weight per plant (g)
			Position 1	Position 2	Position 3	
Control	–	–	56.0 d	48.0 a	27.3 d	130.3 e
Vapam	3 gal	Single chisel, 16” deep, preplant	107.6 abc	67.6 a	57.3 abcd	232.6 abcd
Vapam	5 gal	Single chisel, 16” deep, preplant	127.6 a	76.0 a	77.3 abc	281.0 a
Vapam + Vydate C-LV	5 gal + 8.5 oz	Single chisel, 16” deep, preplant + 6 true leaf + 11 days	106.6 abc	73.0 a	80.6 ab	260.3 ab
Vapam	8.5 gal	Single chisel, 16” deep, preplant	118.0 ab	59.3 a	64.0 abcd	241.3 abcd
Kapam	6.5 gal	Single chisel, 16” deep, preplant	107.0 abc	78.3 a	96.6 a	282.0 a
Temik 15G	3.5 lb	In-furrow, at-plant	78.3 a	58.3 a	36.0 cd	172.6 dc
Temik 15G	5 lb	In-furrow, at-plant	98.3 abc	54.3 a	50.6 bcd	203.3 bcd
Telone II	1.5 gal	Single chisel, 16” deep, preplant	82.0 cd	55.3 a	48.3 cd	185.6 cde
Telone II	3 gal	Single chisel, 16” deep, preplant	93.3 bc	68.6 a	82.6 ab	244.6 abc
LSD *(P=0.05)*			31.4	NS	41.7	70.4

[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]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 11 days later on July 1, 2002.
[3]Rates were calculated based on 38-inch row spacing.
[4]Weight of cotton bolls produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 8. Effect of Vapam, Kapam, and Telone II on the yield of SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton (lb/plot)	Seed cotton (lb/A)	Yield over control (lb/A)
Control	–	–	14.6 b	2510.2 b	–
Vapam	3 gal	Single chisel, 16” deep, preplant	18.2 a	3121.6 a	611.4
Vapam	5 gal	Single chisel ,16” deep, preplant	20.9 ab	3599.8 ab	1089.6
Vapam + Vydate C-LV	5 gal + 8.5 oz	Single chisel, 16” deep, preplant + 6th true leaf + 11 days	22.0 a	3783.4 a	1273.2
Vapam	8.5 gal	Single chisel, 16” deep, preplant	21.8 a	3753.1 a	1242.9
Kapam	6.5 gal	Single chisel, 16” deep, preplant	20.7 ab	3563.5 ab	1053.3
Temik 15G	3.5 lb	In-furrow, at plant	19.1 ab	3274.9 ab	764.7
Temik 15G	5 lb	In-furrow, at plant	18.9 ab	3242.0 ab	732.4
Telone II	1.5 lb	Single chisel 16” deep, preplant	19.9 ab	3428.3 ab	918.1
Telone II	3 gal	Single chisel 16” deep, preplant	21.6 a	3720.8 a	1210.6
LSD *(P=0.05)*			6.1	1054	

[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]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 11 days later on July 1, 2002.
[3]Rates were calculated based on 38-inch row spacing.

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

Objective: Vydate C-LV was examined in Brazil, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production location. Each Vydate C-LV treatment received an in-furrow application of Temik 15G at 3.5 or 5 pounds of formulated material per acre at the time of planting. These treatments were compared with applications of Temik 15G at 3.5 and 5 pounds of formulated product per acre applied in the seed furrow at planting. The insecticide Di-Syston 8EC was included as an insecticide-treated control. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

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 the 6th true-leaf stage and again 14 days later. 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 of Orthene 75S at 4 ounces per acre.

Cultivar: SureGrow 215 BG/RR

Experimental design: Randomized complete block with five replications

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

Application date:

May 16, 2002	Temik 15G applied in-furrow
June 20, 2002	Vydate C-LV 6- to 7-true-leaf stage application Orthene 75S applied to all other treatments
July 2, 2002	Vydate C-LV 12 days after 6- to 7-true-leaf stage application Orthene 75S applied to all treatments
July 11, 2002	Vydate C-LV 21 days after 6- to 7-true-leaf stage application Orthene 75S applied to all treatments
August 6, 2002	Vydate C-LV midbloom application Orthene 75S applied to all treatments
August 13, 2002	Vydate C-LV midbloom + 7 days later Orthene 75S applied to all other treatments

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Plant heights: October 14, 2002

Harvest date: October 14, 2002

Results: See Table 9, Table 10, Table 11, and Table 12

Table 9. Effect of Vydate C-LV applied as a foliar spray on plant height, the number of nodes produced, and the first fruiting node on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Plant height (in.)	Nodes per plant	Node of first fruiting branch
Control	–	–	28.7 a	17.6 a	5.9 ab
Temik 15G	3.5 lb	In-furrow	32.0 a	17.8 a	5.7 abc
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + 6 true leaf + 12 days	32.6 a	18.0 a	4.6 bc
Temik 15G + Vydate C-LV	3.5 lb + 17 oz	In-furrow + 6 true leaf	32.6 a	18.0 a	6.3 a
Temik 15G + Vydate C-LV	3.5 lb + 17 oz + 8.5 oz + 8.5 oz	In-furrow + 6 true leaf + midbloom + 7 days	33.3 a	17.9 a	5.3 abc
Temik 15G + Vydate C-LV	5 lb + 8.5 oz + 8.5 oz	In-furrow + 6 leaf + 12 days	32.1 a	18.0 a	4.2 c
Temik 15G	5 lb	In-furrow	29.8 a	17.6 a	6.1 ab
LSD *(P=0.05)*			NS	NS	1.6

[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 significance according to the least significant difference test.
[2]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 12 and 21 days later on July 2, 2002, and July 11, 2002, respectively. Midbloom applications were on August 6, 2002, then 7 days later on August 13, 2002.
[3]Rates calculated are based on 38-inch row spacing.

Table 10. Effect of Vydate C-LV on the number of bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Open bolls[4]			Total open bolls per plant
			Position 1	Position 2	Position 3	
Control	–	–	5.4 a	3.1 a	0.9 ab	9.5 b
Temik 15G	3.5 lb	In-furrow	5.7 a	3.3 a	3.1 ab	12.1 ab
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + 6 true leaf + 12 days	6.6 a	4.5 a	6.0 ab	17.0 b
Temik 15G + Vydate C-LV	3.5 lb + 17 oz	In-furrow + 6 true leaf	6.0 a	3.9 a	3.8 ab	13.8 ab
Temik 15G + Vydate C-LV	3.5 lb + 17 oz + 8.5 oz + 8.5 oz	In-furrow + 6 true leaf + midbloom + 7 days	6.4 a	4.8 a	4.6 ab	15.8 ab
Temik 15G + Vydate C-LV	5 lb + 8.5 oz + 8.5 oz	In-furrow + 6 leaf + 12 days	6.7 a	3.4 a	6.2 a	16.2 ab
Temik 15G	5 lb	In-furrow	5.9 a	3.5 a	0.8 b	10.2 ab
LSD *(P=0.05)*			NS	NS	5.3	7.3

[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 significance according to the least significant difference test.
[2]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 12 and 21 days later on July 2, 2002, and July 11, 2002, respectively. Midbloom applications were on August 6, 2002, then 7 days later on August 13, 2002.
[3]Rates calculated are based on 38-inch row spacing.
[4]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 11. Effect of Vydate C-LV on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton weight (g)[4]			Total seed cotton weight per plant (g)
			Position 1	Position 2	Position 3	
Control	–	–	69.3 b	37.6 b	9.6 a	116.6 b
Temik 15G	3.5 lb	In-furrow	88.3 ab	44.6 ab	42.6 a	175.7 ab
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + 6 true leaf + 12 days	95.0 ab	69.3 a	77.3 a	241.8 a
Temik 15G + Vydate C-LV	3.5 lb + 17 oz	In-furrow + 6 true leaf	87.3 ab	46.0 ab	48.0 a	181.3 ab
Temik 15G + Vydate C-LV	3.5 lb + 17 oz + 8.5 oz + 8.5 oz	In-furrow + 6 true leaf + midbloom + 7 days	99.3 a	62.3 ab	60.8 a	222.3 a
Temik 15G + Vydate C-LV	5 lb + 8.5 oz + 8.5 oz	In-furrow + 6 leaf + 12 days	96.3 ab	47.3 ab	77.0 a	220.8 ab
Temik 15G	5 lb	In-furrow	87.0 ab	46.7 ab	9.67 a	143.3 ab
LSD *(P=0.05)*			27.4	26.8	NS	114.6

[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 significance according to the least significant difference test.
[2]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 12 and 21 days later on July 2, 2002, and July 11, 2002, respectively. Midbloom applications were on August 6, 2002, then 7 days later on August 13, 2002.
[3]Rates calculated are based on 38-inch row spacing.
[4]Weight of cotton bolls produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 12. Effect of Vydate C-LV applied as a foliar spray on the yield of SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton (lb/plot)	Seed cotton (lb/A)	Yield over control (lb/A)
Control	–	–	11.8 b	2,036.0 b	0
Temik 15G	3.5 lb	In-furrow	17.4 ab	2,996.5 ab	960.5
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + 6 true leaf + 12 days	24.1 a	4,144.6 a	2,108.6
Temik 15G + Vydate C-LV	3.5 lb + 17 oz	In-furrow + 6 true leaf	21.1 a	3,628.0 a	1,592.0
Temik 15G + Vydate C-LV	3.5 lb + 17 oz + 8.5 oz + 8.5 oz	In-furrow + 6 true leaf + midbloom + 7 days	22.0 a	3,785.4 a	1,749.4
Temik 15G + Vydate C-LV	5 lb + 8.5 oz + 8.5 oz	In-furrow + 6 leaf + 12 days	21.4 a	3,684.5 a	1,648.5
Temik 15G	5 lb	In-furrow	21.1 a	3,628.0 a	1,592
LSD *(P=0.05)*			6.7	1,157.2	

[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]Vydate C-LV was applied at the 6th true leaf stage on June 20, 2002, and 12 and 21 days later on July 2, 2002, and July 11, 2002, respectively. Midbloom applications were on August 6, 2002, then 7 days later on August 13, 2002.
[3]Rates were calculated based on 38-inch row spacing.

Management of the Reniform Nematode with Telone II Soil Fumigant

Objective: Telone II was examined at Brazil, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production location. Telone II was compared with at-planting applications of Temik 15G at 3.5 and 5 pounds per acre. Di-Syston 8EC was included as an insecticide-treated control. All plots were treated with the recommended rate of Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

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 forward-swept chisels. The fumigant was injected 16 inches deep 16 days prior to planting 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 16 inches deep and hipped without applying the fumigant. Temik 15G was applied at planting with a Case 900 Early Riser planter equipped with granular chemical applicators.

Cultivar: SureGrow 215 BG/RR

Experimental design: Randomized complete block with five replications.

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

Application date:

April 22, 2002	Telone II injected
May 16, 2002	Temik 15G applied in-furrow
May 27, 2002	Orthene 75S applied to all treatments
June 1, 2002	Orthene 75S applied to all treatments
June 4, 2002	Orthene 75S applied to all treatments

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Plant heights: October 14, 2002

Harvest date: October 14, 2002

Results: See Table 13, Table 14, Table 15, and Table 16

Table 13. Effect of Telone II and Temik 15G on plant height, number of nodes produced, and first fruiting node on SureGrow 215 BG/RR in a cotton field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Plant height (in)	Nodes per plant	Node of first fruiting branch
Control	–	–	31.1 de	19.1 ab	5.8 a
Temik 15G	3.5 lb	In-furrow, at-plant	30.1 e	17.6 b	5.4 ab
Temik 15G	5 lb	In-furrow, at-plant	36.1 ab	18.3 ab	4.7 ab
Telone II	1.5 gal	Single chisel, 16” deep, preplant	34.0 abcd	17.2 b	5.3 ab
Telone II	3 gal	Single chisel, 16” deep, preplant	31.8 cde	18.7 ab	5.6 ab
LSD *(P=0.05)*			3.3	2.1	1.5

[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 were calculated based on 38-inch row spacing.

Table 14. Effect of Telone II and Temik 15G on the number of bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Open bolls[3]			Total open bolls per plant
			Position 1	Position 2	Position 3	
Control	–	–	4.7 f	3.9 a	2.2 c	10.9 f
Temik 15G	3.5 lb	In-furrow, at-plant	5.6 ef	6.1 a	2.3 c	12.3 ef
Temik 15G	5 lb	In-furrow, at-plant	7.5 abcd	4.4 a	4.2 abc	16.2 bcdef
Telone II	1.5 gal	Single chisel, 16” deep, preplant	6.0 def	4.2 a	2.9 bc	13.1 def
Telone II	3 gal	Single chisel, 16” deep, preplant	6.5 cde	5.7 a	4.6 c	16.8 abcde
LSD *(P=0.05)*			1.7	NS	3.1	5.5

[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 were calculated based on 38-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 15. Effect of Telone II and Temik 15G on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton 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 (g)
			Position 1	Position 2	Position 3	
Control	–	–	56.0 d	48.0 a	27.3 d	130.3 e
Temik 15G	3.5 lb	In-furrow, at-plant	78.3 a	58.3 a	36.0 cd	172.6 dc
Temik 15G	5 lb	In-furrow, at-plant	98.3 abc	54.3 a	50.6 bcd	203.3 bcd
Telone II	1.5 gal	Single Chisel, 16”deep, preplant	82.0 cd	55.3 a	48.3 cd	185.6 cde
Telone II	3 gal	Single Chisel, 16” deep, preplant	93.3 bc	68.6 a	82.6 ab	244.6 abc
LSD *(P=0.05)*			31.4	NS	41.7	70.4

[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 were calculated based on 38-inch row spacing.
[3]Weight of cotton bolls produced per plant in each fruiting position. Position 3 includes the summation of all bolls at position 3 and above.

Table 16. Effect of Telone II and Temik 15G on the yield of SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton (lb/plot)	Seed cotton (lb/A)	Yield over control (lb/A)
Control	–	–	14.6 b	2510.2 b	–
Temik 15G	3.5 lb	In-furrow, at-plant	19.1 ab	3274.9 ab	764.7
Temik 15G	5 lb	In-furrow, at-plant	18.9 ab	3242.0 ab	732.4
Telone II	1.5 lb	Inject 16” deep, preplant	19.9 ab	3428.3 ab	918.1
Telone II	3 gal	Inject 16” deep, preplant	21.6 a	3720.8 a	1210.6
LSD *(P=0.05)*			6.1	1054	

[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.

Effect of Nontoxic Soil Amendments on Cotton Growth in a Reniform-Nematode-Infested Field

Objective: Two nontoxic soil amendments were examined in Brazil, Mississippi, for their ability to enhance cotton plant development and subsequent yield in an established cotton production location naturally infested with the reniform nematode (*Rotylenchulus reniformis*). Soil amendments included Visible (granular formulation) applied at 5 and 10 pounds per acre and Jenner 8 Plus at 15 gallons per acre. These treatments were compared with the standard nematicide Temik 15G at 5 pounds of formulated product per acre applied in the seed furrow at planting. The insecticide Di-Syston 8EC was included as an insecticide-treated control. All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Temik 15G was applied at planting with a Case 900 Early Riser planter equipped with granular chemical applicators. The soil amendments were applied as an in-furrow spray with a CO_2-charged spray system at-planting. A total volume of 10 gallons per acre was applied through a single 8003 flat fan nozzle at 30 psi.

Cultivar: SureGrow 215 BG/RR

Experimental design: Randomized complete block with five replications

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

Application date: May 16, 2002

Temik 15G applied in-furrow
Visible applied in-furrow
Jenner 8 Plus applied in-furrow
Di-Syston applied in-furrow

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Harvest date: October 14, 2002

Results: See Table 17

Comments: The soil amendments, Visible and Jenner 8 Plus, both improved cotton growth and increased yields when used in a reniform-nematode-infested field. These treatments were statistically similar to the standard nematicide Temik 15G that is currently used in Mississippi. Plant growth was improved throughout the year in the Visible 5-pound treatment compared with the other treatments. The Visible 5-pound treatment also produced the highest yields — 3,836.3 pounds of seed cotton per acre. The enhanced growth may be attributed to a larger, more vigorous root system that allows the plant to produce high yields even in the presence of the nematode. This is also common with nematicides such as Temik 15G, which will also produce a larger root system to allow the plant to outgrow the nematode population that was not affected by the nematicide. Future studies should examine plant growth parameters resulting from these amendments. If the results are similar, these products may provide our cotton producers with a nontoxic, environmentally friendly alternative to nematicide applications.

Table 17. Effect of soil amendments Visible and Jenner 8 Plus on the yield of SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton (lb/plot)	Seed cotton (lb/A)	Yield over control (lb/A)
Control	–	–	15.2 b	2609.0 b	0
Visible	5 lb	In-furrow	22.3 a	3836.3 a	1227.3
Visible	10 lb	In-furrow	17.2 ab	2948.4 ab	339.4
Jenner 8 Plus	15 gal	In-furrow	21.6 a	3721.3 a	1112.3
Temik 15G	5 lb	In-furrow	21.7 a	3741.4 a	1132.4
LSD *(P=0.05)*			6.3	989.6	

[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.

Reniform Nematode Management with Temik 15G Applied In-Furrow and as a Side-Dress Treatment

Objective: Temik 15G was examined in Brazil, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Temik 15G was applied at planting in the seed furrow or as a side-dress treatment to plants that were in the 7th and 8th true-leaf growth stage. In-furrow Temik 15G was applied at 3.5, 5, 6, and 7 pounds per acre. The side-dress treatment rates were 5 and 7 pounds per acre in combination with a 5-pound-per-acre, in-furrow rate applied at planting.

Temik 15G in-furrow treatments were applied with a Case 900 Early Riser planter equipped with granular chemical applicators. Side-dress applications were placed approximately 6 inches deep on each side of the row with rolling coulters.

Temik 15G was also used in combination with Vydate C-LV applied as foliar spray. Temik was applied in-furrow at 3.5 and 5 pounds per acre at planting. Vydate C-LV was applied at 8.5 ounces per acre as a foliar spray at the 6th to 7th true-leaf stage. A second application was applied 12 days later. 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 of Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Cultivar: SureGrow 215 BG/RR

Experimental design: Randomized complete block with five replications

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

Application date:

May 16, 2002	Temik 15G applied in-furrow
June 4, 2002	Orthene 75S applied to all treatments
June 20, 2002	Vydate C-LV 6- to 7-true-leaf stage application
	Orthene 75S applied to all other treatments
June 25, 2002	Temik 15G applied as a side dress treatment
July 2, 2002	Vydate C-LV 12 days after 6- to 7-true-leaf stage application
	Orthene 75S applied to all other treatments

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Plant height: October 14, 2002

Harvest date: October 14, 2002

Results: See Table 18, Table 19, Table 20, and Table 21

Table 18. Effect of Temik 15G on the plant height, number of nodes produced, and first fruiting node on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Plant height (in)	Nodes per plant	Node of first fruiting branch
Control	–	–	28.2 b	19.3 a	7.7 a
Temik 15G	3.5 lb	In-furrow	33.2 ab	18.9 ab	5.1 bc
Temik 15G	5 lb	In-furrow	33.3 ab	19.1 ab	4.6 cd
Temik 15G	6 lb	In-furrow	32.4 ab	18.0 ab	4.6 cd
Temik 15G	7 lb	In-furrow	33.0 ab	18.1 ab	3.9 d
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + side-dress	33.7 a	18.4 ab	5.0 bcd
Temik 15G + Temik 15G	5 lb + 7 lb	In-furrow + side-dress	31.6 b	17.2 b	4.9 bcd
Temik 15G + Vydate C-LV	5 lb + 8.5 lb	In-furrow + foliar spray	34.0 a	19.6 a	4.5 cd
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + foliar spray	34.0 a	18.3 ab	4.8 cd
LSD *(P=0.05)*			5.4	2.0	1.2

[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.

Table 19. Effect of Temik 15G on the numbers of bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method[3]	Open bolls[4]			Total open bolls per plant
			Position 1	Position 2	Position 3	
Control	–	–	5.2 a	2.8 b	3.3 a	11.3 b
Temik 15G	3.5 lb	In-furrow	6.4 a	3.2 ab	4.3 a	13.9 ab
Temik 15G	5 lb	In-furrow	6.4 a	3.5 ab	5.0 a	15.0 ab
Temik 15G	6 lb	In-furrow	7.0 a	3.3 ab	3.3 ab	13.6 ab
Temik 15G	7 lb	In-furrow	7.2 a	5.0 a	5.8 a	18.0 a
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + side-dress	6.8 a	4.0 ab	3.9 a	14.6 ab
Temik 15G + Temik 15G	5 lb + 7 lb	In-furrow + side-dress	6.7 a	4.1 ab	9.4 a	13.5 ab
Temik 15G + Vydate C-LV	5 lb + 8.5 lb	In-furrow + foliar spray	7.2 a	3.9 ab	6.8 a	19.0 a
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + foliar spray	6.5 a	3.7 ab	3.9 a	14.1 ab
LSD *(P=0.05)*			NS	1.8	4.5	6.6

[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.
[3]Vydate C-LV was applied at the 6th and 7th true leaf stage on June 20, 2002, with a second application 12 days later on July 2, 2002. Temik side-dress applications were made on June 25, 2002.
[4]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 20. Effect of Temik 15G on the weight of open bolls produced at the 1st, 2nd, and 3rd fruiting positions on SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method[3]	Seed cotton weight (g)[4]			Total seed cotton weight per plant (g)
			Position 1	Position 2	Position 3	
Control	–	–	64.7 b	26.0 b	34.3 a	125.0 b
Temik 15G	3.5 lb	In-furrow	96.7 ab	39.3 ab	54.7 a	190.7 ab
Temik 15G	5 lb	In-furrow	100.0 a	47.3 ab	68.0 a	215.3 ab
Temik 15G	6 lb	In-furrow	111.7 a	45.7 ab	75.7 a	233.0 a
Temik 15G	7 lb	In-furrow	103.3 a	66.0 a	74.7 a	244.0 a
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + side-dress	104.7 a	53.0 ab	50.0 a	207.7 ab
Temik 15G + Temik 15G	5 lb + 7 lb	In-furrow + side-dress	95.7 ab	51.3 ab	58.3 a	205.3 ab
Temik 15G + Vydate C-LV	5 lb + 8.5 lb	In-furrow + foliar spray	101.0 a	66.0 a	88.3 a	255.3 a
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + foliar spray	94.0 ab	47.0 ab	45.7 a	186.7 ab
LSD *(P=0.05)*			32.3	28.0	NS	92.1

[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.
[3]Vydate C-LV was applied at the 6th and 7th true leaf stage on June 20, 2002, with a second application 12 days later on July 2, 2002. Temik side-dress applications were made on June 25, 2002.
[4]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 Temik 15G on the yield of SureGrow 215 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton (lb/plot)	Seed cotton (lb/A)	Yield over control (lb/A)
Control	–	–	14.4 b	2474.5 b	0
Temik 15G	3.5 lb	In-furrow	16.3 ab	2809.2 ab	334.7
Temik 15G	5 lb	In-furrow	17.6 ab	3025.1 ab	550.6
Temik 15G	6 lb	In-furrow	17.3 ab	2974.7 ab	500.2
Temik 15G	7 lb	In-furrow	21.0 a	3608.3 a	1133.8
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + side-dress	19.6 ab	3375.8 ab	901.3
Temik 15G + Temik 15G	5 lb + 7 lb	In-furrow + side-dress	20.9 ab	3590.1a	1115.6
Temik 15G + Vydate C-LV	5 lb + 8.5 lb	In-furrow + foliar spray	19.9 ab	3420.2ab	945.7
Temik 15G + Vydate C-LV	3.5 lb + 8.5 oz	In-furrow + foliar spray	22.5 a	3858.2 a	1383.7
LSD *(P=0.05)*			6.1	1049.8	–

[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 were calculated based on 38-inch row spacing.
[3]Vydate C-LV was applied at the 6th and 7th true leaf stage on June 20, 2002, with a second application 12 days later on July 2, 2002. Temik side-dress applications were made on June 25, 2002.

In-Field Evaluation of Midsouth Cotton Varieties for Tolerance to the Reniform Nematode

Objective: Thirty cotton varieties were examined in a field located in Glen Allan, Mississippi, that was naturally infested with the reniform nematode (*Rotylenchulus reniformis*). Each variety was planted with and without the nematicide Temik 15G at 5 pounds of formulated material per acre.

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

All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Cultivars: See list in Table 22 and Table 23

Experimental design: Randomized complete block with five replications

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

Application date:

May 16, 2002	Temik 15G applied in-furrow
May 27, 2002	Orthene 75S applied to all treatments
June 1, 2002	Orthene 75S applied to all treatments
June 4, 2002	Orthene 75S applied to all treatments

Planting date: May 16, 2002

Seed rate: 210 seeds per row

Nematode sample date: N/A

Plant height: N/A

Harvest date: October 12, 2002

Results: See Table 22 and Table 23

Table 22. Seed cotton yield of selected transgenic cotton varieties grown in a field naturally infested with the reniform nematode.[1]

Brand	Variety	Yield (lb/A) without Temik	Yield (lb/A) with Temik	Yield difference
Delta and Pine Land (Sure Grow)	SG 215 BG/RR	4087.5 a	3709.9 ab	-377.6
Delta and Pine Land (Sure Grow)	SG 501 BR	3047.5 bc	4342.0 a	1294.5
PayMaster	PM 1199 RR	3352.4 ab	3863.3 ab	510.9
Delta and Pine Land	DPL x00S13	3029.3 bc	3921.9 a	892.6
Delta and Pine Land	DP 555 BG/RR	3318.3 ab	3837.1 ab	518.8
Delta and Pine Land	DP 545 BG/RR	3209.0 ab	3342.3 ab	133.3
Delta and Pine Land	DP 449 BG/RR	3190.8 b	3067.6 ab	-123.2
Delta and Pine Land	DP 5690 RR	2280.8 c	2401.2 b	120.4
LSD (P= 0.05)		886.75	1502.8	

[1]Data are the means of five replications. Means were compared using the least significant difference test.
[2]Yields followed by the same letter are not significantly different at P=0.05.
[3]Temik was applied at a rate of 5 pounds per acre on 40-inch rows at the time of planting.

Table 23. Seed cotton yield of selected conventional and transgenic cotton varieties grown in a field naturally infested with the reniform nematode.[1]

Brand	Variety	Yield (lb/A) without Temik	Yield (lb/A) with Temik	Yield difference
Delta and Pine Land	DP 491	3036.4 ab	3098.1 b	61.7
Delta PEARL	Delta Pearl	3225.5 a	3374.2 b	148.7
Delta and Pine Land	DPLx99x35	3144.2 ab	3320.9 b	176.7
Delta and Pine Land	DP 493	3181.1 a	3454.1 ab	273.0
Delta and Pine Land (SureGrow)	SG 215 BG/RR	3460.1 a	4002.5 a	542.4
Delta and Pine Land	DP 5690 RR	2667.1 b	2934.7 b	267.6
LSD (P= 0.05)		511	595.8	

[1]Data are the means of five replications. Means were compared using the least significant difference test.
[2]Yields followed by the same letter are not significantly different at P=0.05.
[3]Temik was applied at a rate of 5 pounds per acre on 40-inch rows at the time of planting.

APPENDIX

Appendix Table 1. List of chemicals used in the nematode management studies for 2002.

Trade name	Formulation	Company	Common name	Scientific description
Adage	5FS	Syngenta	–	Not reported
Di-Syston	8EC	Bayer Corporation	Disulfoton	O, O-Diethyl S-[2-(ethylthio)ethyl] phosphordodithioate
Telone II	–	Dow AgriSciences	–	1, 3-dichloropropene
Temik	15G	Rhone-Poulenc	Aldicarb	[2-methyl-2-(methylthio) propionaldehyde O-(methyl carbamoy)oxime]
Orthene	75S	Valent	Acephate	O, S-Dimethyl acetyl phosphoramidothioate
Vydate	C-LV	DuPont	Oxamyl	[Methyl N'N'-dimethyl-N-[(methyl carbamoy)oxy]-1-thioxamimidate]
K-Pam	HL	AMVAC	–	Potassium –methyl dithiocarbamate
Visible	–	AgTime Company, Inc.	–	Secondary Alcohol ethoxylates
Vapam	HL	AMVAC	–	Sodium methyl dithiocarbamate (anhydrous)
Gaucho	600	Gustafson	Imidacloprid	1-[(6-Chloro-3-pyridinyl) methyl]-N-nitro-2-imidazdidinimine
Messenger	–	Eden BioScience	–	Harpen Protein

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