

ENTOMOLOGY AND PLANT PATHOLOGY DEPARTMENTAL SERIES NO. 4
MARCH 2002
ALABAMA AGRICULTURAL EXPERIMENT STATION
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AUBURN UNIVERSITY
AUBURN, ALABAMA

MANAGEMENT
OF DISEASES
ON COTTON
AND
SOYBEAN,
2000

Printed in cooperation with the Alabama Cooperative Extension System
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Acknowledgments

The following agencies provided financial support for the 2000 cotton and soybean research program:

Aventis Crop Protection, Research Triangle Park, NC
Novartis Crop Protection, Greensboro, NC
Uniroyal Chemical, Inc., Middlebury, CT
Zeneca Ag Products, Wilmington, DE
Wilbur-Ellis, Kansas City, KS

Management of Diseases on Cotton and Soybean, 2000

Introduction

Soybeans and cotton are widely grown in Alabama and producers are constantly battling a variety of diseases. This report summarizes the results of soil-borne and foliar disease trials on soybean and cotton conducted by Alabama Agricultural Experiment Station (AAES) personnel in 2000. It provides management information for producers, industry cooperators, colleagues at universities, and other interested persons.

The soil-borne and foliar disease trials were located on AAES research stations and in producer fields. Test plots at the Tennessee Valley Research and Extension Center, Belle Mina, received adequate moisture, which was supplemented by standard irrigation practices. The Prattville Experiment Field, Prattville, and the Gulf Coast Research and Extension Center, Fairhope did not receive adequate moisture during the growing season.

Application Methods: Granular applications of Terraclor Super X 18.8G, Terraclor 15G, and Ridomil Gold PC 11G were applied in the seed furrow utilizing a two-row cone planter equipped with granular chemical applicators.

Terraclor 2E, Terraclor 4F, Quadris 2SC, and Rovral 4F were applied as an in-furrow spray at planting utilizing a flat tip 8002E nozzle directed at an angle across the furrow and calibrated to deliver 20 GPA at 30 PSI.

RTU BaytanThiram + Allegiance Delta Coat AD were applied to a known amount of seed in a Ziploc bag. The bag was shaken until the seeds were completely covered, and the seeds were allowed to dry. All other seed treatments were applied to the seed by the manufacturer.

Quadris 2SC, Benlate 50 WP, Tilt, Terraclor 4F, and Rovral 4F were applied as foliar sprays using TX-12 cone nozzles mounted on ground slides spraying upward with two nozzles per row calibrated to deliver 26GPA at 75 PSI.

Data Collection: Plant population densities were determined from 14, 28, and 42 days after planting. A skip index rating was taken at 28 to 42 days after planting using the following rating scale: 1 = 1.5 feet of gap between plants, 2 = 2.5 feet of gap, 3 = 3.5 feet of gap, and so on. Open bolls were counted approximately three weeks before harvest. Percent of open bolls was based on the number of open bolls divided by the total number of bolls on five plants and multiplied by 100 to determine early maturity. Yields were harvested using station equipment and reported as pounds of seed cotton per acre.

Statistical Analysis: 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.

NOTE: Trade names are used throughout this report for clarity, except where they are unavailable. At the end of this publication is a list of trade names, chemical names, and company sources when available of all chemicals used in these trials. All fungicides are expressed as formulated rate per acre as suggested by the manufacturers.

The information presented in this report is neither an endorsement nor recommendation of the commercial products used in these trials. It is intended for private use and may not be reproduced without permission.

Evaluation of Selected In-furrow Fungicides for Control of Cotton Seedling Disease in North Alabama

K.S. McLean, H.L. Campbell, A.J. Palmateer, and B.E. Norris

Objective: Evaluate selected in-furrow fungicide treatments for control of *Rhizoctonia solani* and *Pythium* spp. seedling disease of cotton.

Location: Tennessee Valley Research and Extension Center, Belle Mina, Alabama

Cultivar: 'Sure-Grow 125 BR'

Planting:

Date: April 19, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two-row plots, rows 25 feet long, 40 inches wide, blocks separated by 20-foot alley

Seeding Rate: 125 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: In-furrow fungicide sprays were applied at a rate of 20 GPA and granular applications were applied with chemical granular applicators attached to the planter. Two rows of each plot were infested with *Pythium* spp. and *R. solani* by applying inoculated millet seed in the furrow at planting (Tables 1 and 3).

Planting Assessment: Stand counts were made on May 2, May 17, and May 31, 2000.

Harvest: Plants were harvested on September 19, 2000.

Results:

Inoculated Study with Standard Fungicide Treatments (Table 1). Cotton seedling disease incidence was moderate. Significant differences in seedling stand were observed at 2, 4, and 6 weeks after planting. At 2 weeks after planting, Terraclor 4F and Ridomil Gold PC produced significantly greater stands than Rovral 4CF. By 4 weeks after planting, Ridomil Gold PC, Terraclor 15G, Terraclor Super X 18.8G, Terraclor 4 F, and Terraclor 15 G all produced greater stands than the control. By 6 weeks after planting, Ridomil Gold PC, Terraclor 15G, Terraclor Super X 18.8G, Terraclor 4F, Terraclor 15 G, and Terraclor EC all produced greater stands than the control. These fungicides also produced a significantly lower skip index indicating a more evenly spaced seedling stand than the control at 6 weeks after planting. Seed cotton yields varied over 588 pounds per acre for the Terraclor Super X 18.8 G and the Rovral 4CF treatments, respectively. Terraclor Super X 18.8 G, Terraclor 4F, Ridomil Gold, Quadris, and Ridomil Gold PC all produced significantly greater yields than the control. The average yield of seed cotton from the fungicide-treated plots was 196 pounds per acre greater than the yield of the untreated control.

Uninoculated Study with Standard Fungicide Treatments (Table 2). Cotton seedling disease incidence and severity was light to moderate. Significant differences in seedling stand were observed at 2, 4, and 6 weeks after planting. At 2 weeks after planting, Quadris 2SC produced a significantly greater stand than the untreated control. At 4 and 6 weeks seven and nine of the fungicides significantly improved yields compared to the untreated control. However, no treatment produced a significantly lower skip index to indicate a more evenly spaced seedling stand compared to the control at 6 weeks after planting. Seed cotton yields ranged from 3920.40 pounds per acre to 3444.70 pounds per acre for the Quadris 2 SC and the Ridomil Gold WSP treatments, respectively. The average yield of seed cotton from the fungicide-treated plots was not greater than the yield of the untreated control.

Inoculated Study with Experimental Fungicides (Table 3). Cotton seedling disease incidence was moderate. Significant differences in seedling stand were observed at 2, 4, and 6 weeks after planting. Ridomil G + CGA-279202 produced the greatest stand at 2 weeks after planting. At 4 and 6 weeks Ridomil Gold + Terraclor 4 F, Ridomil G +

PCNB, and Ridomil G + CGA-279202 produced significantly greater stands than the untreated control. At 6 weeks after planting, Ridomil G + PCNB and Ridomil G + CGA-279202 also produced a significantly lower skip index indicating a more evenly spaced seedling stand than the control. However, at 4 weeks after planting only Vitavax-PCNB + Allegiance FL (6.0 + 0.75 fluid ounces per cwt) produced a significantly lower skip index. No significant differences in the number of open bolls were observed on five plants per plot. Seed cotton yields varied 496 pounds per acre for the Ridomil Gold + Terraclor 4 F and the untreated control, respectively. Ridomil Gold + Terraclor 4 F and Ridomil G + PCNB significantly increased yields over the control. The average yield of seed cotton from the fungicide-treated plots was 241.8 pounds per acre greater than the yield of the untreated control.

TABLE 1 (INOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment and rate	Application	Stand ¹			Skip index ² May 31	Seed cotton lb/ac Sept. 19
		May 2	May 17	May 31		
Untreated control	—	24.67	55.17	53.17	14.83	3055.30
Terraclor Super X 18.8G 5.5 lb/ac	In furrow	27.17	75.33	76.00	4.67	3523.10
Terraclor Super X EC 48 fl oz/ac	In furrow	25.33	66.00	64.83	5.33	3193.80
Terraclor 2E 48 fl oz/ac	In furrow	24.00	65.50	67.83	3.83	3112.80
Terraclor 15G 5 lb/ac	In furrow	27.50	79.67	77.83	2.83	3180.80
Terraclor 4F 24 fl oz/ac	In furrow	33.17	71.67	70.00	5.67	3473.50
Rovral 4CF 5.2 fl oz/ac	In furrow	22.00	54.17	54.33	12.17	2992.50
Rovral 4CF 6 fl oz/ac	In furrow	26.50	50.83	54.17	14.67	2935.10
Ridomil Gold 11 PC 7 lb/ac	In furrow	33.17	83.33	81.16	2.67	3327.10
Quadris 2SC 5.56 fl oz/ac	In furrow	26.33	57.00	52.50	13.67	3348.00
Delta Coat AD 11.75 fl oz/ac	Seed	31.33	63.00	60.33	9.00	3314.04
Ridomil Gold 0.075 fl oz/1000 ft	In furrow	29.33	62.17	50.83	12.50	3379.40
LSD (0.05)		9.49	9.52	8.03	4.92	311.00

¹Number of live seedlings per 30 ft of row; all rows received 125 Sure-Grow 125 BR seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 2 (UNINOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment and rate	Application	Stand ¹			Skip index ² May 31	Seed cotton lb/ac Sept. 19
		May 2	May 17	May 31		
Untreated control	—	43.17	78.17	83.67	4.33	3855.10
Terraclor Super X 18.8G 5.5 lb/ac	In furrow	49.50	79.17	84.33	5.00	3546.60
Terraclor Super X EC 48 fl oz/ac	In furrow	44.17	77.33	86.17	4.67	3666.90
Terraclor 2E 48 fl oz/ac	In furrow	36.67	76.50	92.33	3.67	3693.00
Terraclor 15G 5 lb/ac	In furrow	42.67	83.50	93.00	4.00	3606.80
Terraclor 4F 24 fl oz/ac	In furrow	49.17	88.00	92.50	5.00	3468.00
Rovral 4CF 5.2 fl oz/ac	In furrow	45.83	83.50	94.00	3.67	3870.70
Rovral 4CF 6 fl oz/ac	In furrow	48.67	82.33	91.00	5.00	3546.60
Ridomil Gold PC 7 lb/ac	In furrow	41.67	81.83	88.50	4.00	3444.70
Quadris 2SC 5.56 fl oz/ac	In furrow	59.00	90.33	100.33	3.00	3920.40
Delta Coat AD 11.75 oz/cwt	Seed	39.00	70.00	74.83	5.33	3483.90
Ridomil Gold EC 0.075 fl oz/1000 ft	In furrow	45.33	84.50	99.67	3.50	3724.40
LSD (0.05)		15.63	10.59	9.62	2.84	274.40

¹Number of live seedlings per 30 ft of row; all rows received 125 Sure-Grow 125 BR seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 3 (INOCULATED STUDY). EFFECT OF EXPERIMENTAL FUNGICIDE COMBINATIONS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment and rate	Application	Stand ¹			Skip index ²	Seed cotton lb/ac
		May 2	May 17	May 31	May 31	Sept. 19
Untreated control	—	29.2	51.7	49.5	7.2	3084.0
Terraclor Super X 1.85 oz ai/1000 ft row	In furrow	32.8	63.2	60.3	6.1	3397.7
Quadris 2SC 8.35 fl oz/ac	In furrow	29.8	59.5	56.2	5.8	3136.3
Quadris2SC 5.56 fl oz/ac	In furrow	28.2	57.2	53.0	6.4	3214.7
Ridomil Gold + Terraclor 1.0 + 7.4 fl oz/1000 ft row	In furrow	29.3	69.2	66.2	4.8	3580.6
Ridomil Gold EC 1.0 fl oz/1000 ft row	In furrow	31.2	65.2	58.7	6.0	3267.0
Delta Coat AD 11.75 oz/cwt	In furrow	31.3	68.5	66.0	3.4	3397.7
Ridomil G + PCNB 0.040 lb ai/ac + 1.0 lb ai/ac	In furrow	36.3	77.7	75.3	2.3	3554.5
Ridomil G + CGA-279202 0.040 lb ai/ac + 0.125 lb ai/ac	In furrow	31.0	59.7	59.2	4.5	3319.3
Ridomil G + CGA-279202 0.040 lb ai/ac + 0.156 lb ai/ac	In furrow	38.0	68.7	66.8	3.3	3371.5
Ridomil G + Rovral 0.040 lb ai/ac + 0.156 lb ai/ac	In furrow	23.2	56.0	53.2	7.6	3110.2
LSD (0.05)		9.6	12.6	11.8	2.9	381.6

¹Number of live seedlings per 30 ft of row; all rows received 125 Sure-Grow 125 BR seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected Seed Treatments for Control of Cotton Seedling Disease on 'DPL NuCotn 35B' in North Alabama

K.S. McLean, H.L. Campbell, A.J. Palmateer, and B.E. Norris

Objective: Evaluate selected seed treatments for control of *Pythium* spp. and *Rhizoctonia solani* seedling disease of cotton.

Location: Tennessee Valley Research and Extension Center, Belle Mina, Alabama

Cultivar: 'DPL NuCotn 33B'

Planting:

Date: April 19, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two-row plots, rows 25 feet long, 40 inches wide, blocks separated by 20-foot alley

Seeding Rate: 125 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: All fungicides were applied to the seed as seed treatments before planting by the manufacturer. Two rows of each plot were infested with *Pythium* spp. and *R. solani* by applying inoculated millet seed in the furrow at planting (Table 1 and 3).

Planting Assessment: Stand counts were made on May 2, May 17, and May 31, 2000.

Harvest: Plants were harvested on September 19, 2000.

Results:

Inoculated Study with Standard Seed Treatments (Table 1) Cotton seedling disease incidence and severity was moderate in the 2000 season. Significant differences in seedling stand were observed at 2, 4, and 6 weeks after planting. The Apron XL + Maxim + Dividend treatment consistently produced greater stands than the untreated control at all three sample dates. At 6 weeks after planting, Apron XL + Systhane 40 WSP + Maxim, Apron XL + Maxim + Systhane 40 WSP, Apron XL + Maxim + Azoxystrobin, and Apron XL + Maxim + Dividend all produced significantly greater yields than the untreated control. All fungicide seed treatments produced a significantly lower skip index indicating a more evenly spaced seedling stand than the control at 6 weeks after planting. No significant differences were observed in the number of open bolls on five plants per plot. Seed cotton yields varied 261 pounds per acre for the Apron XL + Maxim + Azoxystrobin, and the untreated control, respectively. The average yield of seed cotton from the fungicide-treated plots was 144.5 pounds per acre greater than the yield of the untreated control.

Uninoculated Study with Standard Seed Treatments (Table 2). Cotton seedling disease incidence was light. Significant differences in seedling stand were observed only at 6 weeks after planting. At 2 and 4 weeks after planting, none of the fungicide seed treatments produced a significantly greater stand than the untreated control. At 6 weeks after planting differences in stand were observed between seed treatments but none were different from the control. No significant differences in stand uniformity or number of open bolls were observed. Seed cotton yields varied 340 pounds per acre for the Apron XL + Maxim + Dividend and the CGA-48988 + Maxim + Systhane 40 WSP treatments, respectively. Six of the seed treatments produced numerically greater yields than the control. The average yield of seed cotton from the fungicide-treated plots was 102 pounds per acre greater than the yield of the untreated control.

Inoculated Study with Experimental Seed Treatments (Table 3). Cotton seedling disease pressure was moderate to light. Significant differences in seedling stand were observed only at 4 weeks after planting. At 4 weeks after planting, Delta Coat Ad + Nu-Flow M + PGE 143 + PGE 146 and Apron TL + Nu-Flow T + Nu-Flow M produced significantly greater stands than the Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 146 seed treat-

ment. No seed treatment produced a significantly lower skip index indicating a more evenly spaced seedling stand than the control at 6 weeks after planting. No significant differences were observed in the number of open bolls on five plants per plot. Seed cotton yields varied 310 pounds per acre in the Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 144 and the Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 146 seed treatments, respectively. The average yield of seed cotton from the fungicide-treated plots was not greater than the yield of the untreated control.

Uninoculated Study with Experimental Seed Treatments (Table 4) Cotton seedling disease incidence was moderate. Significant differences in seedling stand were observed at 2, 4, and 6 weeks after planting. At 2 weeks after planting, Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 144 produced significantly greater stands than the untreated control. However, by 4 and 6 weeks after planting Delta Coat AD + Nu-Flow M + PGE 143 + PGE 146 produced greater stands than Delta Coat AD + Nu-Flow M and Delta Coat + AD + Nu-Flow M + PGE 144. No seed treatment produced a significantly lower skip index to indicate a more evenly spaced seedling stand than in the control at 6 weeks after planting. No significant differences were observed in the number of open bolls on five plants per plot. Seed cotton yields varied 209 pounds per acre for the Apron TL + Nu-Flow T + Nu-Flow M seed treatment and the Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 144 seed treatment, respectively. The average yield of seed cotton from the fungicide-treated plots was not greater than the yield of the untreated control.

TABLE 1 (INOCULATED STUDY). EFFECT OF SELECTED SEED TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment	Rate ¹	Application	Stand ²			Skip index ³ cotton lb/ac May 31	Seed cotton lb/ac Sept. 19
			May 2	May 17	May 31		
Untreated control	—	—	48.2	66.0	65.3	7.5	3136.3
CGA-48988 + Bayatan 30 + Thiram 42S	15 + 10 + 31	Seed	55.5	90.8	91.0	2.0	3293.1
Apron XL + Maxim + Systhane 40 WSP	7.5 + 2.5 + 20	Seed	59.3	92.0	89.8	2.3	3319.3
Apron + Systhane 40 WSP + Maxim	7.5 + 25 + 2.5	Seed	55.3	91.7	94.3	1.7	3188.6
Apron XL + Maxim + Systhane 40 WSP	7.5 + 2.5 + 30	Seed	55.3	89.2	94.8	1.2	3293.1
Apron XL + Maxim + Azoxystrobin	7.5 + 2.5 + 15	Seed	56.3	89.3	93.2	1.2	3397.7
Apron XL + Maxim + Azoxystrobin	7.5 + 2.5 + 20	Seed	52.8	90.3	90.2	2.2	3293.1
Apron XL + Maxim + Azoxystrobin	7.5 + 2.5 + 25	Seed	48.3	82.3	88.7	2.5	3214.7
Apron XL + Maxim + Dividend	7.5 + 2.5 + 25	Seed	46.7	90.7	87.8	1.3	3267.0
Apron XL + Maxim + Dividend	7.5 + 2.5 + 30	Seed	58.3	93.5	92.8	1.5	3293.1
Apron XL + Maxim	7.5 + 2.5	Seed	43.3	85.8	83.2	1.5	3319.3
LSD (0.05)			14.4	9.8	9.4	2.8	378.9

¹ Rate = gallons active ingredient per 100 kg seed. ² Number of live seedlings per 25 ft of row; all rows received 125 seed of 'DPL NuCotn 33B'. ³ Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 2 (UNINOCULATED STUDY). EFFECT OF SELECTED SEED TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment	Rate ¹	Application	Stand ²			Skip index ³ cotton lb/ac May 31	Seed cotton lb/ac Sept. 19
			May 2	May 17	May 31		
Untreated control	—	—	75.8	93.2	104.5	0.3	3319.2
CGA-48988 + Bayatan 30 + Thiram 42S	15 + 10 + 31	Seed	67.2	99.3	107.5	0.0	3214.7
Apron XL + Maxim + Systhane 40 WSP	7.5 + 2.5 + 20	Seed	66.3	97.5	105.7	0.2	3449.9
Apron XL + Systhane 40 WSP + Maxim	7.5 + 25 + 2.5	Seed	70.2	99.7	114.5	0.3	3423.8
Apron XL + Maxim + Systhane 40 WSP	7.5 + 2.5 + 30	Seed	59.7	95.7	105.3	0.7	3319.3
Apron XL + Maxim + Azoxystrobin	7.5 + 2.5 + 15	Seed	62.2	92.5	101.5	0.0	3476.1
Apron XL + Maxim + Azoxystrobin	7.5 + 2.5 + 20	Seed	66.2	96.2	107.8	0.0	3345.4
Apron XL + Maxim + Azoxystrobin	7.5 + 2.5 + 25	Seed	69.8	92.0	99.7	0.2	3293.1
Apron XL + Maxim + Dividend	7.5 + 2.5 + 25	Seed	65.8	97.0	105.5	0.3	3293.1
Apron XL + Maxim + Dividend	7.5 + 2.5 + 30	Seed	63.0	91.0	102.5	0.3	3554.5
Apron XL + Maxim	7.5 + 2.5	Seed	70.5	93.5	106.8	0.5	3423.8
LSD (0.05)			19.3	11.7	11.5	0.8	457.4

¹ Rate = gallons active ingredient per 100 kg seed. ² Number of live seedlings per 25 ft of row; all rows received 125 seed of 'DPL NuCotn 33B'. ³ Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 3 (INOCULATED STUDY). EFFECT OF EXPERIMENTAL SEED TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment	Rate ¹	Application	Stand ²			Skip index ³ cotton lb/ac May 31	Seed lb/ac Sept. 19
			May 2	May 17	May 31		
Untreated control	—	—	43.7	80.3	77.8	2.5	3789.7
RTU Baytan-Thiram + Apron FL	3.0+0.75	Seed	45.3	83.7	80.7	2.3	3659.0
Delta Coat AD + NU-Flow M	11.75+1.25	Seed	40.7	87.7	85.8	0.7	3737.5
Delta Coat AD + Nu-Flow M + PGE 143 + PGE 144	11.75+1.25+ 0.035+0.035	Seed	46.3	83.3	79.5	1.8	3580.6
Delta Coat AD + Nu-Flow M + PGE 143 + PGE 146	11.75+1.25+ 0.035+0.035	Seed	39.3	90.3	84.0	1.7	3737.5
Apron TL + Nu-Flow T + Nu-Flow M	2.0+2.25+1.25	Seed	44.3	90.0	85.2	1.5	3580.6
Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 144	2.0+2.25+1.25+ 0.035+0.035	Seed	43.0	83.3	80.3	107	3836.1
Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 146	2.0+2.25+1.25+ 0.035+0.035	Seed	37.3	79.2	76.8	2.8	3526.4
LSD (0.05).			15.0	10.3	9.3	2.25	224.77

¹ Rate = gallons active ingredient per 100 kg seed.

² Number of live seedlings per 25 ft of row; all rows received 125 seed of 'DPL NuCotn 33B'.

³ Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 4 (UNINOCULATED STUDY). EFFECT OF EXPERIMENTAL SEED TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN NORTH ALABAMA

Treatment	Rate ¹	Application	Stand ²			Skip index ³ cotton lb/ac May 31	Seed lb/ac Sept. 19
			May 2	May 17	May 31		
Untreated control	—	—	57.3	93.5	94.8	0.6	3580.6
RTU Baytan-Thiram + Apron FL	3.0+0.75	Seed	59.8	97.8	99.7	0.3	3554.5
Delta Coat AD + NU-Flow M	11.75+1.25	Seed	53.3	91.2	91.8	0.7	3476.1
Delta Coat AD + Nu-Flow M + PGE 143 + PGE 144	11.75+1.25+ 0.035+0.035	Seed	51.0	88.7	92.0	0.2	3528.4
Delta Coat AD + Nu-Flow M + PGE 143 + PGE 146	11.75+1.25+ 0.035+0.035	Seed	58.8	99.8	102.2	0.3	3423.8
Apron TL + Nu-Flow T + Nu-Flow M	2.0+2.25+1.25	Seed	60.5	94.7	96.5	0.3	3632.9
Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 144	2.0+2.25+1.25+ 0.035+0.035	Seed	71.7	97.2	97.7	0.0	3423.8
Apron TL + Nu-Flow T + Nu-Flow M + PGE 143 + PGE 146	2.0+2.25+1.25+ 0.035+0.035	Seed	60.3	93.3	93.3	0.3	3502.2
LSD (0.05)			13.9	10.4	10.90	0.71	3476.10

¹ Rate = gallons active ingredient per 100 kg seed.

² Number of live seedlings per 25 ft of row; all rows received 125 seed of 'DPL NuCotn 33B'.

³ Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected Seed Treatments for Control of Cotton Seedling Disease on 'Suregrow 125 B/RR' in North Alabama

K.S. McLean, H.L. Campbell, A.J. Palmateer, and B.E. Norris

Objective: Evaluate selected seed treatments as an in-furrow fungicide spray for control of seedling disease of cotton caused by *Pythium* spp. and *Rhizoctonia solani*.

Location: Tennessee Valley Research and Extension Center, Belle Mina, Alabama

Cultivar: 'Suregrow 125 B/RR'

Planting:

Date: April 20, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two-row plots, rows 25 feet long, 40 inches wide, blocks separated by 20-foot alley

Seeding Rate: 125 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: All fungicides were applied as an in-furrow spray at planting. All in-furrow sprays were applied with flat tip nozzles (8002E) calibrated to deliver 20 GPA at 30 PSI.

Planting Assessment: Stand counts were made on May 2, May 17, and May 31, 2000.

Harvest: Plants were harvested on September 19, 2000.

Results: Seedling disease incidence and severity were moderate. Significant differences in seedling stand were observed at 4 and 6 weeks after planting. At 4 weeks after planting, the stand in the Ridomil G + CGA-279202 (0.04 + 0.125 pound active ingredient per acre) treatment was significantly greater than the stand in the Delta Coat AD and Quadris 2SC at the high rate. By 6 weeks after planting, Ridomil G + Rovral 4F, Ridomil G + PCNB, and Ridomil Gold + Terraclor 4 F produced better stands than Delta Coat AD. However, there were no significant differences in the skip index. No significant differences were observed among the treatments in the number of open bolls on five plants per plot. Seed cotton yields varied 392 pounds per acre for the Ridomil G + CGA-279202 (0.04 + 0.156 pound active ingredient per acre) and the Delta Coat AD treatments, respectively. The average yield of seed cotton from the fungicide-treated plots was not greater than the yield of the untreated control.

**EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD
IN NORTH ALABAMA**

Treatment and rate	Application	Stand ¹			Skip index ²	Seed cotton lb/ac
		May 2	May 17	May 31	May 31	Sept. 19
Untreated control	—	57.5	98.9	101.0	0.2	3894.3
Terraclor Super X 1.85 oz ai/1000 ft row	In furrow	56.2	99.0	104.5	0.5	3868.2
Quadris 2SC 8.35 fl oz/ac	In furrow	65.0	92.5	102.2	0.3	3815.9
Quadris 2SC 5.56 fl oz/ac	In furrow	58.8	93.8	100.7	0.2	3711.3
Ridomil Gold + Terraclor 4F 1.0 + 7.4 fl oz/1000f row	In furrow	58.3	104.2	108.3	0.5	4024.9
Ridomil Gold 1.0 fl oz/1000 ft row	In furrow	59.2	98.8	102.0	0.3	3711.3
Delta Coat AD 11.75 oz/cwt	In furrow	55.2	88.8	94.0	0.0	3685.2
Ridomil G + PCNB 0.040 lb ai/ac + 1.0 lb ai/ac	In furrow	60.0	105.5	110.3	0.3	3868.2
Ridomil G + CGA-279202 0.040 lb ai/ac + 0.125 lb ai/ac	In furrow	65.8	106.3	106.5	0.0	3868.2
Ridomil G + CGA-279202 0.040 lb ai/ac + 0.156 lb ai/ac	In furrow	58.3	97.0	104.0	0.2	4077.2
Ridomil G + Rovral 4F 0.040 lb ai/ac + 0.156 lb ai/ac	In furrow	57.8	98.8	108.2	0.3	3868.2
LSD (0.05)		15.6	12.2	12.9	0.6	279.0

¹Number of live seedlings per 30 ft of row; all rows received 150 Sure-Grow 125 BR seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected In-furrow Fungicides for Control of Cotton Seedling Disease on 'DPL NuCotn 35B' in Central Alabama

K.S. McLean, H.L. Campbell, A.J. Palmateer, and D. Moore

Objective: Evaluate in-furrow fungicide sprays for control of seedling disease of cotton caused by *Pythium* spp. and *Rhizoctonia solani*.

Location: Prattville Experiment Field, Prattville, Alabama

Cultivar: 'DPL NuCotn 35B'

Planting:

Date: April 12, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two- row plots, rows 30 feet long, 36 inches wide, blocks separated by 20-foot alley

Seeding Rate: 150 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: All fungicides were either applied as an in-furrow spray at planting or granular application at planting. All in-furrow sprays were applied as a broadcast spray with flat tip nozzles (8002E) calibrated to deliver 20 GPA at 30 PSI. Granular treatments were applied with chemical boxes attached to the planter. Two rows of each plot were infested with millet seed inoculated with *Pythium* spp. and *R. solani* (Table 1).

Planting Assessment: Stand counts were made on April 25, May 10, and May 24, 2000.

Harvest: Plants were harvested on August 30, 2000.

Results:

Inoculated study (Table 1). Cotton seedling disease incidence and severity was moderate and a severe drought reduced yields. Significant differences in seedling stand were observed at 4 and 6 weeks after planting. At 4 weeks after planting, Terraclor Super X 2EC and Quadris 2SC treatments significantly increased stand counts compared to the untreated control. At 6 weeks after planting, eight of the ten fungicide treatments significantly improved stand density compared to the untreated control. However, no treatment produced a significantly lower skip index indicating a more evenly spaced seedling stand compared to the control at 6 weeks after planting. Seed cotton yields varied 274 pounds per acre in the Delta Coat AD and the Ridomil Gold + PCNB treatments, respectively. The average yield of seed cotton from the ten fungicide-treated plots was 15 pounds per acre greater than the yield of the untreated control.

Uninoculated study (Table 2). Cotton seedling disease incidence was moderate and a severe drought reduced yields. Significant differences in seedling stand were observed at 4 and 6 weeks after planting. At 4 weeks after planting, eight of the fungicide treatments had stands significantly greater than the stands recorded for the untreated control. However, no treatment significantly lowered the skip index compared to the control indicating a more evenly spaced seedling stand at 6 weeks after planting. Seed cotton yields varied 166 pounds per acre in the Quadris 2SC 8.35 fluid ounces per acre and the Ridomil Gold + CGA 0.156 pound active ingredient per acre treatments, respectively. The average yield of seed cotton from the ten fungicide-treated plots was not greater than the yield of the untreated control.

TABLE 1 (INOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN CENTRAL ALABAMA

Treatment and rate	Application	—Seedling stand ¹ —			Skip	Seed
		April 25	May 10	May 24	index ² cotton lb/ac	Aug. 31
Untreated control	—	72.33	67.83	67.33	7.5	1427.80
Terraclor Super X EC 1.85 oz ai/1000 ft	In furrow	81.17	86.33	86.5	3.33	1439.90
Quadris 2SC 8.35 fl oz/ac	In furrow	83.00	80.50	87.00	3.50	1492.34
Quadris 2SC 5.56 fl oz/ac	In furrow	81.00	80.67	80.67	5.50	1391.50
Ridomil Gold 0.075 fl oz/1000 ft row	In furrow	79.00	76.33	77.17	5.67	1476.20
+Terraclor 2E 7.4 fl oz/1000 ft row						
Ridomil Gold 0.075 fl oz/1000 ft	In furrow	77.17	74.50	75.50	6.33	1411.67
Delta Coat AD 11.75 oz/cwt	Seed	80.67	78.5	80.17	3.5	1568.20
Ridomil Gold .040 lb ai/ac + PCNB 1.0 lb ai/ac	In furrow	73.67	72.00	73.00	5.17	1488.30
Ridomil Gold 0.040 lb ai/ac + CGA-279202 0.125 lb ai/ac	In furrow	71.67	65.67	56.83	9.33	1532.59
Ridomil Gold 0.040 lb ai/ac + CGA-279202 0.156 lb ai/ac	In furrow	76.83	71.83	72.33	8.00	1294.70
Ridomil Gold 0.04 + Rovral 0.156 lb ai/ac	In furrow	73.67	68.67	68.5	7.17	1335.04
LSD (0.05)		14.81	13.89	12.34	4.26	213.10

¹Number of live seedlings per 30 ft of row; all rows received 150 DPL NuCotn 35B seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 2 (UNINOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN CENTRAL ALABAMA

Treatment and rate	Application	—Seedling stand ¹ —			Skip	Seed
		April 25	May 10	May 24	index ² cotton lb/ac	Aug. 31
Untreated control	—	110.5	90.67	96.00	2.83	1629.45
Terraclor Super X EC 1.85 oz ai/1000 ft	In furrow	117.67	105.50	106.83	1.50	1543.90
Quadris 2SC 8.35 fl oz/ac	In furrow	107.67	92.17	99.67	2.67	1661.70
Quadris 2SC 5.56 fl oz/ac	In furrow	111.50	96.00	95.50	2.00	1548.80
Ridomil Gold 1.0 fl oz/1000 ft row	In furrow	112.64	100.33	94.83	2.33	1568.20
+Terraclor 2E 7.4 fl oz/1000 ft row						
Ridomil Gold 1.0 fl oz/1000 ft	In furrow	114.83	95.17	96.33	2.00	1556.10
Delta Coat AD 11.75 oz/cwt	Seed	106.33	95.17	93.00	2.67	1573.00
Ridomil Gold .040 lb ai/ac + PCNB 1.0 lb ai/ac	In furrow	117.33	97.5	100.33	2.33	1573.00
Ridomil Gold 0.040 lb ai/ac + CGA-279202 0.125 lb ai/ac	In furrow	104.50	93.83	99.67	2.00	1585.10
Ridomil Gold 0.040 lb ai/ac + CGA-279202 0.156 lb ai/ac	In furrow	109.17	95.17	92.33	2.33	1495.60
Ridomil Gold 0.040 lb ai/ac + Rovral 0.156 lb ai/ac	In furrow	113.67	91.00	93.5	2.67	1625.44
LSD (0.05)		19.97	12.70	12.47	1.53	196.00

¹Number of live seedlings per 30 ft of row; all rows received 150 DPL NuCotn 35B seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected In-furrow Fungicides for Control of Cotton Seedling Disease on 'Sure-Grow 125 BR' in Central Alabama

K.S. McLean, H.L. Campbell, A.J. Palmateer, and D. Moore

Objective: Evaluate in-furrow fungicide sprays for control of seedling disease of cotton caused by *Pythium* spp. and *Rhizoctonia solani*.

Location: Prattville Experiment Field, Prattville, Alabama

Cultivar: 'Sure-Grow 125 BR'

Planting:

Date: April 12, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two-row plots, rows 30 feet long, 36 inches wide, blocks separated by 20-foot alley

Seeding Rate: 150 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: All fungicides were either applied as an in-furrow spray at planting or granular application at planting. All in-furrow sprays were applied as a broadcast spray with flat tip nozzles (8002E) calibrated to deliver 20 GPA at 30 PSI. Granular treatments were applied with chemical boxes attached to the planter. Two rows of each plot were infested with millet seed inoculated with *Pythium* spp. and *R. solani* (Table 1).

Planting Assessment: Stand counts were made on April 25, May 10, and May 24, 2000.

Harvest: Plants were harvested on August 30, 2000.

Results:

Inoculated study (Table 1). Cotton seedling disease incidence and severity were moderate and a severe drought affected yields. Significant differences in seedling stand were observed at 2 and 4 weeks after planting. At 2 weeks after planting, stand counts were significantly higher where Quadris 2SC, Terraclor 4F, Rovral 4CF, and Delta Coat AD treatments were applied in-furrow. At 4 and 6 weeks after planting, Quadris 2SC, Rovral 4CF, Terraclor 4F, Terraclor 2E, Terraclor Super X 2EC, Ridomil PC 11G, and Delta Coat AD treatments significantly improved stand counts compared to the untreated control. These treatments produced a significantly lower skip index indicating a more evenly spaced seedling stand compared to the control at 6 weeks after planting. Seed cotton yields varied 242 pounds per acre in the Delta Coat AD and the Rovral 4CF 6 fluid ounces per acre treatments, respectively. The average yield of seed cotton from the eleven fungicide-treated plots was not greater than the yield of the untreated control.

Uninoculated study (Table 2). Cotton seedling disease incidence and severity were light and a severe drought affected yields. Significant differences in seedling stand counts were not observed among the treatments at 2, 4, or 6 weeks after planting. At 6 weeks after planting, stands ranged from 2.7 to 2.46 plants per foot of row with the control measuring 2.57 plants. Rovral 4CF and Ridomil Gold PC 11G produced a significantly lower skip index indicating a more evenly spaced seedling stand compared to the control at 6 weeks after planting. Seed cotton yields varied 194 pounds per acre in the Rovral 4CF 6 fluid ounces per acre and the Terraclor Super X EC treatments, respectively. The average yield of seed cotton from the eleven fungicide-treated plots was not greater than the yield of the untreated control.

TABLE 1 (INOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN CENTRAL ALABAMA

Treatment and rate	Application	Cotton stand ¹			Skip index ² May 24	Seed cotton lb/ac Aug. 30
		April 25	May 10	May 24		
Untreated control	—	54.50	45.67	46.83	20.67	1403.60
TSX 18.8G 5.5 lb/ac	In furrow	56.50	53.00	53.5	16.00	1294.70
TSX EC 48 fl oz/ac	In furrow	59.17	58.83	63.00	11.67	1398.80
Terraclor 2E 48 fl oz/ac	In furrow	63.17	57.00	58.17	13.00	1306.80
Terraclor 15G5 lb/ac	In furrow	59.00	55.50	53.33	16.67	1258.40
Terraclor 4F 24 fl oz/ac	In furrow	68.67	66.83	67.00	10.33	1374.60
Rovral 4CF 5.2 fl oz/ac	In furrow	67.50	62.33	64.83	11.00	1202.70
Rovral 4CF 6 fl oz/ac	In furrow	63.00	58.83	60.00	12.00	1314.10
Ridomil Gold PC 11G 7 lb/ac	In furrow	61.17	57.5	58.83	14.67	1234.20
Quadris 2SC 5.56 fl oz/ac	In furrow	75.67	73.17	71.67	7.33	1379.40
Delta Coat AD 11.75 fl oz/cwt	Seed	66.17	63.67	63.50	9.33	1444.70
Ridomil Gold 4EC 1.0 fl oz/1000 ft	In furrow	53.33	48.83	48.67	19.33	1299.50
LSD (0.05)		11.56	11.39	10.20	7.71	169.40

¹Number of live seedlings per 30 ft of row; all rows received 150 Sure-Grow 125 BR seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 2 (UNINOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN CENTRAL ALABAMA

Treatment and rate	Application	Cotton stand ¹			Skip index ² May 24	Seed cotton lb/ac Aug. 30
		April 25	May 10	May 24		
Untreated control	—	93.17	78.50	67.33	5.67	1597.20
TSX 18.8G 5.5 lb/ac	In furrow	85.00	74.50	73.83	3.33	1568.20
TSX EC 48 fl oz/ac	In furrow	88.83	84.50	80.33	3.33	1408.40
Terraclor 2E 48 fl oz/ac	In furrow	91.50	85.83	74.17	3.33	1420.50
Terraclor 15G 5 lb/ac	In furrow	86.17	74.50	73.83	5.00	1524.60
Terraclor 4F 24 fl oz/ac	In furrow	90.00	75.83	79.83	4.67	1524.60
Rovral 4CF 5.2 fl oz/ac	In furrow	85.50	82.50	77.67	4.00	1410.90
Rovral 4CF 6 fl oz/ac	In furrow	82.83	78.00	81.00	2.67	1602.00
Ridomil PC 11G 7 lb/ac	In furrow	87.50	74.67	80.83	2.67	1435.10
Quadris 2SC 5.56 fl oz/ac	In furrow	95.00	85.17	79.17	3.67	1556.10
Delta Coat AD 11.75 fl oz/cwt	Seed	89.00	75.33	74.33	3.33	1517.30
Ridomil Gold 4EC 1.0 fl oz/1000 ft	In furrow	85.17	73.50	74.50	5.33	1519.80
LSD (0.05)		14.89	14.83	13.27	2.69	166.90

¹Number of live seedlings per 30 ft of row; all rows received 150 Sure-Grow 125 BR seed.

²Skip index ratings on 30 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected In-furrow Fungicides for Control of Cotton Seedling Disease in Southeast Alabama

K.S. McLean, H.L. Campbell, A.J. Palmateer, and L. W. Wells

Objective: Evaluate in-furrow fungicide sprays for control of seedling disease of cotton caused by *Pythium* spp. and *Rhizoctonia solani*.

Location: Wiregrass Research and Extension Center, Headland, Alabama

Cultivar: 'Stoneville 474'

Planting:

Date: April 21, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two- row plots, rows 25 feet long, 36 inches wide, blocks separated by 20-foot alley

Seeding Rate: 125 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: All fungicides were either applied as an in-furrow spray at planting or granular application at planting. All in-furrow sprays were applied as a broadcast spray with flat tip nozzles (8002E) calibrated to deliver 20 GPA at 30 PSI. Granular treatments were applied with chemical boxes attached to the planter. Two rows of each plot were infested with millet seed inoculated with *Pythium* spp. and *R. solani* (Table 1).

Planting Assessment: Stand counts were made on May 5, May 19, and June 2, 2000.

Harvest: Plants were harvested on October 23, 2000.

Results:

Inoculated Study (Table 1). Cotton seedling disease incidence was moderate and a severe drought affected yields. Significant differences in seedling stand were observed at 2 and 4 weeks after planting. At 2 weeks after planting, Quadris 2SC and both rates of Rovral 4CF produced significantly higher stands than the untreated control. At 4 weeks after planting, Quadris 2SC, Rovral 4CF 5.2 fluid ounces per acre, and Terraclor 2E treatments significantly improved stands compared to the untreated control. However, no treatment significantly lowered the skip index indicating a more evenly spaced seedling stand compared to the control at 6 weeks after planting. Seed cotton yields varied 889 pounds per acre in the Rovral 4CF and the Quadris 2SC treatments, respectively. The average yield of seed cotton from the fungicide-treated plots was 382 pounds per acre greater than the yield of the untreated control.

Uninoculated Study (Table 2). Cotton seedling disease incidence was light and a severe drought reduced yields. Significant differences in seedling stand were not observed between treatments at 2, 4, and 6 weeks after planting. Plant stands ranged from a high of 2.53 to a low of 2.13 at 6 weeks after planting. No fungicide treatment produced a significantly lower skip index indicating a more evenly spaced seedling stand compared to the control at 6 weeks after planting. Seed cotton yields differed by 851 pounds per acre for the Terraclor 15G and the Ridomil Gold treatments, respectively. The average yield of seed cotton from the ten fungicide-treated plots was 390 pounds per acre greater than the yield of the untreated control.

TABLE 1 (INOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN SOUTHEAST ALABAMA

Treatment and rate	Application	Stand ¹			Skip index ² June 2	Seed cotton lb/ac Oct. 23
		May 5	May 19	June 2		
Untreated control	—	65.0	71.7	69.8	3.7	1295.0
Terraclor Super X 18.8G 5.5 lb/ac	In furrow	62.0	67.5	67.5	5.2	1759.0
Terraclor Super X EC 48 fl oz/ac	In furrow	71.5	76.8	74.3	3.5	1953.0
Terraclor 2E 48 fl oz/ac	In furrow	65.2	79.8	76.3	2.0	1643.0
Terraclor 15G 1 lb/ac	In furrow	65.0	72.5	69.0	2.7	1875.0
Terraclor 4F 24 fl oz/ac	In furrow	69.5	77.0	74.0	3.8	1972.0
Rovral 4 CF 5.2 fl oz/ac	In furrow	75.0	80.8	80.2	2.5	2068.0
Rovral 4 CF 6 fl oz/ac	In furrow	73.3	75.7	74.8	4.0	1469.0
Ridomil Gold 7 lb/ac	In furrow	65.0	71.5	69.2	6.3	1469.0
Quadris 2 SC 5.56 fl oz/ac	In furrow	77.3	83.3	78.7	2.5	1179.0
Ridomil Gold PC 1.0 fl oz/1000 ft	In furrow	72.7	77.8	75.0	5.0	1392.0
LSD (0.05)		11.0	10.8	14.4	4.0	404.1

¹Number of live seedlings per 30 ft of row; all rows received 125 seed.

²Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

TABLE 2 (UNINOCULATED STUDY). EFFECT OF SELECTED IN-FURROW TREATMENTS ON COTTON STAND, SKIP INDEX, AND YIELD IN SOUTHEAST ALABAMA

Treatment and rate	Application	Stand ¹			Skip index ² June 2	Seed cotton lb/ac Oct. 23
		May 5	May 19	June 2		
Untreated control	—	65.5	64.5	62.2	7.8	1199.0
Terraclor Super X 18.8G 5.5 lb/ac	In furrow	63.8	66.8	63.3	7.7	1431.0
Terraclor Super X 2EC 48 fl oz/ac	In furrow	55.5	52.8	53.0	13.3	1701.0
Terraclor 2E 48 fl oz/ac	In furrow	56.8	56.7	54.0	9.3	1759.0
Terraclor 15G 5 lb/ac	In furrow	54.7	59.8	55.7	8.8	2030.0
Terraclor 4F 24 fl oz/ac	In furrow	57.0	57.2	55.3	11.5	1469.0
Rovral 4 CF 5.2 fl oz/ac	In furrow	60.3	61.5	59.0	7.8	1489.0
Rovral 4 CF 6 fl oz/ac	In furrow	57.8	60.3	57.2	9.2	1411.0
Ridomil Gold 7 lb/ac	In furrow	62.7	65.2	63.2	6.3	1914.0
Quadris 2 SC 5.56 fl oz/ac	In furrow	62.0	66.2	63.7	8.3	1179.0
Ridomil Gold 1.0 fl oz/1000 ft	In furrow	64.3	61.8	56.5	11.0	1295.0
LSD (0.05)		11.0	12.0	12.3	7.9	428.6

¹Number of live seedlings per 30 ft of row; all rows received 125 seed.

²Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3 ft gap;... 25 = no plants.

Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected Fungicides for Control of Seedling Disease in Ultra Narrow Row Cotton

K.S. McLean, H.L. Campbell, A.J. Palmateer, C.D. Monks, and D.P. Delaney

Objective: Evaluate in-furrow fungicide spray and seed treatment in ultra narrow row cotton for control of seedling disease caused by *Pythium* spp. and *Rhizoctonia solani*.

Location: EV Smith Research Center, Field Crops Unit, Shorter, Alabama

Cultivar: 'DPL 458 B/RR'

Planting:

Date: April 11, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Eighteen-row plots, rows 25 feet long, 7 inches wide, blocks separated by 20-foot alley

Seeding Rate: 180,000 seed per acre

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Seed were planted using a cone type drill. All fungicides were either applied as a seed treatment before planting or as a broadcast spray at planting. All broadcast sprays were applied as a broadcast spray with flat tip nozzles (8002E) calibrated to deliver 20 GPA at 30 PSI. Granular treatments were applied with the seed at planting. Each plot was infested with *Pythium* spp. and *R. solani* by applying inoculated millet seed in the furrow at planting.

Planting Assessment: Stand counts were made on April 25, May 10, and May 23, 2000. Open bolls were counted on August 9, 2000.

Harvest: Plants were harvested on August 24, 2000.

Results: Cotton seedling disease incidence was moderate. Significant differences in seedling stand were observed. At 2 and 4 weeks after planting, all fungicide treatments increased stands over the control except Ridomil Gold 7 pounds per acre. TSX EC, Rovral 4 F, Ridomil Gold, and Quadris 2SC produced a significantly more uniform stand than the control at 6 weeks after planting. No significant differences were observed in the percent of open bolls. Seed cotton yields varied 214 pounds per acre for the Delta Coat AD and the TSX EC treatments, respectively, with no significant differences between any treatments. The average yield of seed cotton from the fungicide-treated plots was not greater than the yield of the untreated control.

EFFECT OF SELECTED FUNGICIDES ON COTTON STAND, SKIP INDEX, MATURITY, AND YIELD IN ULTRA NARROW ROW COTTON

Treatment and rate	Application	-Stand per 25 ft of row ¹ -			Skip	Open	Seed cotton
		April 25	May 10	May 23	index ² May 23	bolts (%) Aug. 9	lb/ac Aug. 23
Untreated control	—	33.50	36.00	41.50	17.17	44.68	2020
TSX 18.8G 5.5 lb/ac	In-furrow	45.10	45.33	42.50	16.67	54.82	1906
TSX EC 48 fl oz/ac	Broadcast	42.66	41.83	40.08	14.83	45.75	2089
Rovral 4CF 5.2 fl oz/ac	Broadcast	43.17	45.67	42.92	12.17	50.23	2016
Ridomil Gold 7 lb/ac	In-furrow	34.33	36.00	41.58	16.00	49.27	2090
Ridomil Gold 1.0 fl oz/1000 row ft	Broadcast	46.00	45.50	43.44	14.67	45.80	1917
Quadris 2.08 SC 6.0 fl oz/ac	Broadcast	43.00	43.83	41.50	15.83	46.50	2035
Delta Coat AD 11.75 fl oz/cwt	Seed treatment	44.83	44.17	40.50	17.17	54.87	1875
LSD (0.05)		6.90	8.29	6.47	4.18	15.45	286.17

¹ Number of live seedlings per 25 ft of row; all rows received 67 seed. ² Skip index ratings on 25 ft of row. Rating scale: 1 = 1 ft gap; 2 = 2 ft gap; 3 = 3ft gap;... 25 = no plants. Means compared using Fisher's protected least significant difference test (P=0.05).

Evaluation of Selected Fungicides for Control of Cotton Boll Rot Disease on Cotton

K.S. McLean, G.W. Lawrence, A.J. Palmateer, and M. Pegues

Objective: Evaluate the efficacy of selected fungicides for the control of boll rot disease of cotton.

Location: Gulf Coast Research and Extension Center, Fairhope, Alabama

Cultivar: 'DPL NuCotn 33B'

Planting:

Date: June 4, 2000

Experimental Design: Randomized complete block with five replications

Plot Design: Two- row plots, rows 40 feet long, 38 inches wide, blocks separated by 10-foot alley

Seeding Rate: 200 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Fungicides were applied as a foliar spray using TX-12 cone nozzles mounted on ground slides spraying upward calibrated to deliver 25 GPA at 75 PSI.

Planting Assessment: Diseased boll were counted on October 14, 2000.

Harvest: Plants were harvested on November 3, 2000.

Results: The incidence of boll rot was very limited due to the extended drought. Folicur 3.6E applied at full bloom and Benlate 50 WP applied twice at first and full bloom significantly reduced the number of rotted cotton bolls as compared to the control. Cotton boll rot was not significantly reduced by two applications of any of the other fungicides. Seed cotton yields varied by only 159 pounds per acre for the Quadris 2SC first bloom and Terraclor 4F first bloom applications. No treatments produced a significantly greater yield than the control. However, the average of the first bloom, first bloom + full bloom, and full bloom applications increased cotton yield an average of 19, 53, and 66 pounds per acre, respectively.

EFFECT OF SELECTED FUNGICIDES FOR CONTROL OF COTTON BOLL ROT

Treatment and rate (acre)	Spray schedule	Diseased bolls ¹ October 14	Seed cotton yield (lb/ac) November 2
Quadris 2SC 0.20 lb ai	First bloom	3.4 abc	2070
Quadris 2SC 0.20 lb ai	First + full bloom	3.6 abc	2027
Quadris 2SC 0.20 lb ai	Full bloom	4.8 abc	2113
Benlate 50 WP 0.10 lb ai	First bloom	3.6 abc	1973
Benlate 50 WP 0.10 lb ai	First + full bloom	3.4 abc	2063
Benlate 50 WP 0.10 lb ai	Full bloom	3.0 c	2009
Folicur 3.6F 7.2 fl oz	First bloom	5.6 abc	2021
Folicur 3.6F 7.2 fl oz	First + full bloom	3.0 c	2009
Folicur 3.6F 7.2 fl oz	Full bloom	5.2 abc	2063
Terraclor 4 F 16 oz	First bloom	4.6 abc	1911
Terraclor 4 F 16 oz	First + full bloom	4.4 abc	2023
Terraclor 4 F 16 oz	Full bloom	3.4 abc	1992
Rovral 4F 4 oz	First bloom	6.2 a	1953
Rovral 4F 4 oz	First + full bloom	3.8 abc	1977
Rovral 4F 4 oz	Full bloom	3.2 bc	1982
Untreated control	—	6.0 ab	1966
LSD (0.05)		2.93	175.23

Means compared using Fisher's protected least significant difference test (P=0.05). ¹ Number of diseased bolls per 50 ft of row.

Evaluation of Quadris for Control of Cotton Boll Rot Disease on Cotton

K.S. McLean, G.W. Lawrence, A.J. Palmateer, and M. Pegues

Objective: Evaluate the efficacy of selected fungicides for the control of boll rot disease of cotton.

Location: Gulf Coast Research and Extension Center, Fairhope, Alabama

Cultivar: 'DPL NuCotn 33B'

Planting:

Date: June 4, 2000

Experimental Design: Randomized complete block with five replications

Plot Design: Two- row plots, rows 50 feet long, 38 inches wide, blocks separated by 10-foot alley

Seeding Rate: 250 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Fungicides were applied as a foliar spray using TX-12 cone nozzles mounted on ground slides spraying upward calibrated to deliver 25 GPA at 75 PSI.

Planting Assessment: Diseased boll were counted on September 16, September 29, and October 14, 2000.

Harvest: Plants were harvested on November 3, 2000.

Results: The incidence of boll rot was very limited due to the drought. Quadris 2SC reduced the total number of rotted cotton bolls as compared to the control. Cotton boll rot was reduced by two applications of Quadris 2SC applied at first and full bloom and by the three applications applied at pin head square, first, and full bloom. No treatments significantly increased yield above that recorded for the untreated control.

EFFECT OF SELECTED FUNGICIDES ON BOLL ROT OF COTTON

Treatment and rate	Application	—Percent diseased bolls ¹ —			Total diseased bolls	Seed cotton yield lb/ac
		Sept. 16	Sept. 29	Oct. 14		
Untreated control	—	1.18	5.23	3.82	10.23	2073.98
Quadris 0.15 lb ai/ac	pin head square	7.63	3.37	1.58	12.59	2087.36
Quadris 0.15 lb ai/ac	first bloom	4.08	1.90	0.45	6.43	2095.00
Quadris 0.15 lb ai/ac	full bloom	2.90	4.10	2.28	9.28	2079.71
Quadris 0.15 lb ai/ac	pin head square and first bloom	6.90	7.02	0.52	14.44	2049.13
Quadris 0.15 lb ai/ac	first and full bloom	3.33	4.97	0.45	8.75	2008.99
Quadris 0.15 lb ai/ac	pin head square, first and full bloom	4.40	2.58	1.77	8.75	2049.13
LSD (0.05)		4.22	4.46	2.55	11.23	159.92

Means compared using Fisher's protected least significant difference test (P=0.05).

¹Number of diseased bolls per 50 ft of row.

Cotton Variety Response to the Reniform Nematode

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Objective: To evaluate twenty cotton varieties for their response to the reniform nematode.

Location: Huxford, Alabama

Planting:

Date: May 30, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Two-row plots, rows 25 feet long, 36 inches wide, blocks separated by 20-foot alley

Seeding Rate: 125 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Temik was applied at planting in the seed furrow with chemical granular applicators attached to the tractor. In the other row, Di-Syston 8EC was applied as a directed spray in the seed furrow at 10 GPA applied through 8002E flat fan nozzles. The field was not irrigated.

Insect Assessment: Reniform counts were made on October 13, 2000.

Harvest: Plants were harvested on October 13, 2000.

Results: The drought severely affected cotton growth and yield. Reniform nematode populations increased from the initial 3000 per 150 cc of soil to an average of 4577 and 3587 per 150 cc of soil for the Temik 15G and DiSyston treatments respectively. Temik 15 G increased seed cotton yield in half of the varieties compared to DiSyston. In those ten varieties the final reniform population was lower in the Temik 15 G plots compared to the DiSyston plots. No difference in yield was observed between plots in Delta Pine 458 B/RR, Delta Pearl, Sure-Grow 747, and Fiber Max 989 indicating possible tolerance to the reniform nematode.

COTTON VARIETY RESPONSE TO THE RENIFORM NEMATODE

Treatment	Reniform/ 150 cc of soil		Seed cotton lb/ac		Treatment	Reniform/ 150 cc of soil		Seed cotton lb/ac	
	DiSyston	Temik	DiSyston	Temik		DiSyston	Temik	DiSyston	Temik
Stoneville X9905	3493	7184	472	428	Delta Pearl	2291	5330	900	905
Stoneville 6M045	3476	3553	721	891	SureGrow 501 B/R	4841	3013	849	731
Stoneville 4892BR	4557	3296	692	893	SureGrow 747	5124	3527	1007	944
Stoneville X9903	5948	4171	728	699	Paymaser 1560 B/R	4609	2214	540	409
Stoneville 4691B	4351	3167	668	779	Paymaster 1218 BG/RR	3656	1776	385	303
Stoneville BXN47	6128	2806	627	707	Stoneville 474	7184	2549	699	581
Delta Pine 451 B/RR	4969	4918	820	685	Phytopen 355	4095	3115	813	985
Delta Pine 458 B/RR	5381	2987	687	682	FiberMax 989	5227	3141	816	828
Delta Pine 565	3708	5201	772	641	LSD (0.05)	3115	5201	193	189
Delta Pine X9084	3115	2394	651	726					

Management of the Reniform Nematode with Anhydrous Ammonia

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Objective: Evaluate the efficacy of anhydrous ammonia for the management of reniform nematode.

Location: Huxford, Alabama

Cultivar: 'Suregrow 125 BR'

Planting:

Date: May 30, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Four- row plots, rows 25 feet long, 36 inches wide, blocks separated by 20-foot alley

Seeding Rate: 125 seed per row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Anhydrous ammonia and Telone II were applied 6 weeks before planting by injecting the chemicals 12 inches deep with shanks. Other chemical were applied at 10 GPA applied through 8002E flat fan nozzles.

Insect Assessment: Nematode counts were made on June 2, July 5, August 2, and September 3, 2000.

Harvest: Plants were harvested on October 30, 2000.

Results: The drought severely affected cotton growth and yield. Reniform nematode populations did not increase through the season as expected. Telone II and anhydrous ammonia at 90 units produced the average lowest reniform nematode numbers throughout the season. The highest average population occurred in the Deny treatment. Cotton seed yield was significantly increased in the Telone II and anhydrous ammonia at 90 units compared to the Temik 15G and the Deny treatments. The yield of seed cotton from the anhydrous treatments was 193 pounds per acre greater than the yield of the ammonium nitrate treatments.

**EFFECT OF ANHYDROUS AMMONIA ON RENIFORM NEMATODE POPULATION
AND SEED COTTON YIELD**

Treatment and rate	Reniform/150 cc of soil						lb/ac
	June 2	July 5	Aug. 2	Sept. 6	Oct. 3	Avg	
Anhydrous ammonia ¹ 120 units/ac – preplant	196.8	71.5	142.2	51.3	70.5	106.46	3157
Anhydrous ammonia ¹ 90 units/ac – preplant	135.3	66.0	60.2	59.5	145.2	93.24	26920
Ammonium nitrate ¹ 90 units/ac – at plant	228.5	101.7	115.7	102.3	166.5	142.94	38947
Temik 15G 7 lb/ac – at plant + Ammonium nitrate 90 units/ac – at plant	226.0	82.8	107.3	83.5	139.8	127.88	31673
Telone II ¹ 3 gal/ac – at plant + Ammonium nitrate 90 units/ac – at plant	132.8	45.8	70.3	79.3	196.2	104.88	25526
Deny ¹ 1 pt/A – at plant + Ammonium nitrate 90 units/ac – at plant	207.5	98.2	161.8	68.2	264.2	159.98	38764
LSD (0.05)	116.05	65.10	75.35	60.70	90.8		240

Note: planting rate at 10 lb/A (5 seed/ft of row); 4 ft x 25 ft long x 36 in wide.

¹ Di-Syston (7 lb/A - at planting) added in all treatments except treatment # 4.

Evaluation of Selected Fungicides for Soybean Stem Canker Control

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Objective: Evaluate selected fungicides for control of soybean stem canker.

Location: Gulf Coast Research and Extension Center, Fairhope, Alabama

Cultivar: 'Kuell'

Planting:

Date: May 30, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Four-row plots, rows 25 feet long, 38 inches wide, blocks separated by 20-foot alley

Seeding Rate: 10 seed per foot of row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Fungicides were applied at planting or at the 2-4 trifoliolate leaf stage and were applied either as seed treatments or as in-furrow sprays. In-furrow treatments were applied with a flat fan tip 8002E nozzles calibrated to deliver 10 GPA at 30 PSI. Fungicides applied at the 2-4 leaf stage were applied as a broadcast spray using a tractor-mounted boom calibrated to deliver 10 GPA at 30 PSI. The field was not irrigated.

Planting Assessment: Stand counts were made on July 2, 2000. Stem canker ratings were made on September 16, 2000.

Harvest: Plants were harvested on November 3, 2000.

Results: Stem canker incidence was light during the 2000 season. Seedling stands at 28 days after planting ranged from 94 to 145 plants for the Quadris 2SC (0.1 ounce active ingredient per 1000 rft) and the RTU Vitavax Thiram (6.0 fluid ounces per cwt) treatments, respectively. Emergence was significantly reduced by Quadris applied in-furrow as compared to the control. Stem canker incidence was highest in the RTU Vitavax Thiram (6.0 fluid ounces per cwt) treatment as compared to all other treatments including the control. RTU Vitavax Thiram (6.0 fluid ounces per cwt) and RTU Vitavax Thiram (3.0 fluid ounces per cwt) both had significantly lower yields compared to the control and all other treatments.

EFFECT OF SELECTED FUNGICIDES ON CONTROL OF SOYBEAN STEM CANKER

Treatment and rate	Application treatment	Emergence July 2	Plants/ft of row July 2	Stem canker incidence ² Sept. 16	Yield bu/ac Nov. 3
Untreated control		104.17	4.06	7.20	29.39
Quadris 2SC 0.10 oz ai/1000 rft	In furrow	94.00	4.24	3.50	30.30
Quadris 2SC + NIS 0.15 oz ai/1000 rft	In furrow	108.00	3.83	3.30	29.25
Quadris 2SC 0.15 oz ai/ac	2 - 4 trifoliolate	98.83	4.08	3.30	31.44
RTU Vitavax Thiram 6.0 oz/cwt	Seed	145.17	5.73	14.00	28.24
RTU Vitavax Thiram 3.0 oz/cwt	Seed	127.33	5.05	3.70	25.52
Allegiance FL 0.375 fl oz/cwt	Seed	124.00	4.99	2.80	29.20
Apron FL 0.75 fl oz/cwt	Seed	95.83	3.77	4.70	29.99
LSD (0.05)	—	41.49	1.68	5.62	

¹Number of live soybean plants per 25 ft of row, all rows received 250 seed.

²Number of soybean plants with stem cankers per 25 foot of row.

Evaluation of Quadris and Benlate for Soybean Foliar Disease Control

K.S. McLean, G.W. Lawrence, A.J. Palmateer, and M. Pegues

Objective: Evaluate selected fungicides for control of foliar diseases of soybean.

Location: Gulf Coast Research and Extension Center, Fairhope, Alabama

Cultivar: 'Kuell'

Planting:

Date: May 30, 2000

Experimental Design: Randomized complete block with six replications

Plot Design: Four-row plots, rows 25 feet long, 38 inches wide, blocks separated by 20-foot alley

Seeding Rate: 10 seed per foot of row

Cultural Practices: All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System.

Application of Treatments: Quadris and Benlate were applied at the R3 and R5 stages of soybean growth. Fungicides were applied as a broadcast spray using a two-row boom sprayer with flat tip 8001 nozzles calibrated to deliver 10 GPA at 30 PSI. The field was not irrigated.

Planting Assessment: Disease ratings were made on September 16 and October 14, 2000.

Harvest: Plants were harvested on November, 2000.

Results: Fairhope suffered a severe drought during the 2000 growing season. Thus soybean web blight incidence was light to moderate. All fungicide applications reduced web blight incidence and severity as compared to the control at both 100 and 128 day ratings. Yields varied 3.95 bushels per acre in the Quadris 2SC 0.15 pound active ingredient per acre R3 application and Quadris 2SC 0.10 pound active ingredient per acre R5 application respectively. No significant differences in yield were observed between fungicide treatments and the untreated control.

EFFECT OF QUADRIS AND BENLATE ON SOYBEAN FOLIAR DISEASE CONTROL

Treatment and rate (ai/ac)	Timing	Web blight incidence ¹ Sept. 16	Web blight severity ² Sept. 16	Web blight incidence ¹ Oct. 14	Web blight severity ² Oct. 14	Yield bu/ac
Untreated control	—	86.7 a	5.0 a	86.7 a	5.2 a	30.47
Quadris 2SC 0.10 lb	R3	56.7 bc	2.8 bc	56.7 bc	3.3 bc	31.40
Quadris 2SC + NIS 0.10 lb + 0.25 %	R3	68.3b	3.0 bc	63.3 bc	3.3 bc	29.92
Quadris 2SC 0.15 lb	R3	53.3 bc	3.2 bc	53.3 bc	3.3 bc	32.50
Quadris 2SC 0.10 lb	R5	61.7 bc	3.2 b	65.0 bc	3.8 bc	28.55
Quadris 2SC 0.15 lb	R5	66.7 bc	3.2 b	66.7 b	3.3 bc	29.63
Quadris 2SC 0.10 lb	R3+R5	51.7 c	2.0 c	51.7 c	2.8 c	30.32
Benlate 50WP 0.50 lb	R3	53.3 bc	2.0 c	53.3 bc	2.5 c	30.65
Benlate 50WP 0.50 lb	R3 + R5	53.3 bc	2.2 bc	53.3 bc	3.0 bc	29.05
LSD (0.05)		15.5	1.09	14.1	1.0	2.64

Means compared using Fisher's protected least significant difference test. ¹ Incidence is the percent of the total leaves showing symptoms. ² Severity is the amount of the leaf surface diseased on a 1 to 10 rating scale with 1 representing no disease and 10 representing a dead leaf.

Chemicals Used in the Soil-borne and Foliar Disease Studies

Product	Manufacturer	Composition
Allegiance - FL	Gustafson, Inc. 1400 Preston Road, Suite 400 Plano, TX 75093	Metalaxyl- (2,6-dimethylphenyl)-N-(methoxyacetyl)-alanine methyl ester
Apron FL	Novartis P. O. Box 18300 Greensboro, NC 27419	Metalaxyl -(2,6-dimethylphenyl)-N-(methoxyacetyl)-alanine methyl ester
Apron XL	Novartis P. O. Box 18300 Greensboro, NC 27419	Metalaxyl -(2,6-dimethylphenyl)-N-(methoxyacetyl)-alanine methyl ester
Bayton	Gustafson, Inc. 1400 Preston Road, Suite 400 Plano, TX 75093	
Benlate 50 WP	DU Pont Agricultural Products Walker's Mill, Barley Mill Plaza Wilmington, DE 19898	Benomyl Methyl 1-(butylcarbamonyl)-2-benzimidazolecarbamate
CGA-48988	Novartis P. O. Box 18300 Greensboro, NC 27419	unavailable
CGA-279202	Novartis P. O. Box 18300 Greensboro, NC 27419	unavailable
Delta Coat	WILFARM 6401 North Oak Trafficway Gladstone, MO 64118	unavailable
Dividend	Novartis P. O. Box 18300 Greensboro, NC 27419	unavailable
Maxim	Novartis P. O. Box 18300 Greensboro, NC 27419	Fludioxonil (R)-2-(2,6-dimethylphenyl)-methoxyacetyl-amino-propionic acid methyl ester
NU-Flow M	WILFARM 6401 North Oak Trafficway Gladstone, MO 64118	unavailable
Nu-Flow T	WILFARM 6401 North Oak Trafficway Gladstone, MO 64118	unavailable
Quadris 2SC	Zeneca Ag Products 1800 Concord Pike Post Office Box 15458 Wilmington, DE 19858-5458	Azoxystrobin: methyl (E)-2-{2-[6(2-cyanophenoxy) pyrimidin-4-yl]oxy}phenyl}-3-methoxyacrylate
Ridomil Gold PC 11G	Novartis P. O. Box 18300 Greensboro, NC 27419	Pentachloronitrobenzene (R)-2-[(2,6-dimethylphenyl)-methoxyacetylamino]-propionic acid methyl ester
Rovral 4CF	Adventis Crop Protection P. O. Box 12014, 2 T. W. Alexander Drive Research Triangle Pk, NC 27709	Iprodione:3-(3,5-dichlorophenyl)-N-(i-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide
Systhane	Rohm and Haas Independence Mall West Philadelphia, PA 19105	Myclobutanil alpha-n-butyl-alpha-(4-chlorophenyl)-1H-1,2,4 triazole-1-propanenitrile
Terraclor 2E	Niroyal Chemical Inc., Benson Road Middlebury, CT 06749	Quintozene Pentachloronitrobenzene

continued

Chemicals Used in the Soil-borne and Foliar Disease Studies, continued

Product	Manufacturer	Composition
Terraclor 15G	Uniroyal Chemical Inc., Benson Road Middlebury, CT 06749	Quintozene Pentachloronitrobenzene
Terraclor Super X 18.8G	Uniroyal Chemical Inc., Benson Road Middlebury, CT 06749	Quintozene Pentachloronitrobenzene
Terraclor Super X EC	Uniroyal Chemical Inc., Benson Road Middlebury, CT 06749	Pentachloronitrobenzene 5-Ethoxy-3-(trichloromethyl)-1,2,4- thiadiazole
Thiram	Novartis P. O. Box 18300 Greensboro, NC 27419	Thiram tetramethyl thiuram disulfide
