

**REPORT OF THE SOILBORNE
PATHOGEN COMMITTEE - 1995**

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Alabama. P. A. Backman and Jason Burkett, Auburn University. Two trials were conducted at Belle Mina to evaluate in-furrow applied fungicides. Experimental design was a randomized complete block with four replications. Plots were four rows twenty-five feet long and the two middle rows were treated. Granule treatments were applied with a tractor mounted applicator. Liquid in-furrow treatments were applied with a single nozzle calibrated to deliver five GPA. The cotton variety DPL-5415 was planted April 27th. Trial #4 was inoculated with *Rhizoctonia solani* infested oats seed at the rate of 15 ml per row. Results for trial #2 are given in Table 1. None of the treatments yielded significantly higher over the untreated control. Results for trial #4 are given in Table 2. This trial was inoculated and there were significant differences in stand counts and yields between the untreated control and all of the in-furrow applied fungicides.

Louisiana. P. D. Colyer and P. R. Vernon, Louisiana State University Agricultural Center. A trial was conducted at the Red River Research Station in Bossier City to evaluate the efficacy of fungicides for control of cotton seedling diseases (Table 3). Ten in-furrow fungicides and one hopper-box treatment were compared with an untreated control. Experimental design was a randomized complete block with four replications. Plots were four rows by 100 ft. Granular formulations were applied through applicator boxes mounted on a John Deere 7100 planter. Liquid formulations were applied with a single 2503 spray tip over the open furrow using a pressurized CO₂ applicator calibrated to deliver 7 gal/a. The test was planted on April 11 with Deltapine 20 seed commercially treated with RTU Baytan-Thiram-Apron.

Cool, wet weather after planting resulted in severe disease pressure. None of the treatments produced significantly greater stand counts than the untreated control at 2 weeks. At 6 weeks, several of the treatments had significantly greater stand counts than the untreated control. Yield of seed cotton was not significantly different among treatments.

Mississippi. G. L. Sciumbato, Delta Research and Extension Center, Stoneville, MS. In-furrow applied fungicides were evaluated in a trial at the Delta Research and Extension Center, Stoneville. Experimental design was a Randomized Complete Block with four replications.

Plots were 4, 40 ft rows. The trial was planted April 28 with DPL 50 seed treated with Vitavax, PCNB Fl, 42-s Thiram, Kodiak, and Lorsban Fl at recommended rates. Granule treatments were applied through cone planters on a John Deere 7100 planter. Liquid treatments were applied through a single TX2 nozzle directed to apply one-half of the spray in-furrow and one-half of the spray on the covering soil. Plots were inoculated in-furrow at planting with 60 ml of a 1:1 mixture of oats infested with *Rhizoctonia solani* and *Pythium ultimum*. Stand counts were made on the two middle rows. Plots were harvested with a commercial cotton picker adapted for plot harvesting. Results are given in Table 4. Most of the treatments significantly improved seedling stands on both counting dates. However, there were no significant differences in seed cotton yields due to fungicide treatment.

Tennessee. A. Y. Chambers, Univ. of Tennessee, West Tennessee Exp. Station, Jackson, TN. (Seedling Disease Control in No-Till and Conventional-Tillage Cotton with Soil Fungicides). Two in-furrow granular soil fungicide treatments, one seed-overcoat fungicide treatment, one hopper-box fungicide treatment, and three in-furrow spray soil fungicide treatments were evaluated in 1995 for control of cotton seedling diseases. A split-plot no-till and conventional-tillage experiment was located on an upland silt loam soil at the University of Tennessee Milan Agricultural Experiment Station at Milan. Plots were planted April 26 using the same four-row planter without change for both types of plantings. Deltapine 20 seed (acid-delinted and commercially treated with Baytan, Thiram, Apron, Kodiak, Epic, and Lorsban) were planted in cotton stubble remaining from the 1994 crop for no-till planting and in a well-prepared seedbed for conventional planting. Seed-overcoat treatment was applied with a seed treater April 20. Hopper-box dust treatment was mixed thoroughly with seed before placing in planter hoppers and was planted last. The treatments were Terraclor Super X 12.5G, 8 lb/A; Ridomil PC 11G, 8 lb/A; Delta-Coat AD, 11.75 fl oz/cwt seed; Prevail, 12 oz/cwt seed; Terraclor Super X 2.5EC, 2 qt/A; Terraclor 2EC, 2 qt/A + Ridomil 2E, 4 fl oz/A; and Rovral 4F, 6.4 fl oz/A + Ridomil 2E, 4 fl oz/A. Temik 15G, 3.5 lb/A, was applied with all treatments. Untreated plots also receiving Temik were included in both tillages. In-furrow granular fungicide and insecticide treatments were made from partitioned granular hoppers.

Terraclor Super X granular in-furrow fungicide treatment and the Terraclor + Ridomil and Rovral + Ridomil spray treatments increased stands over those in untreated plots of both tillages. Ridomil PC granular in-furrow treatment also increased stands in conventional-tillage. Stands were not increased significantly in plots receiving Delta-Coat, Prevail, or Terraclor Super X spray treatments. Number and length of skips were reduced significantly in plots of both tillages receiving the treatments that improved stands. Plant vigor was significantly improved in plots of all

fungicide treatments except Delta-Coat seed-overcoat and Prevail hopper-box dust compared to no treatment in conventionally-tilled plots. Plant vigor was significantly improved in no-till plots receiving all treatments. Early-season insect injury was relatively low in all plots, and no early insecticide sprays were applied until four weeks after planting. Yields were increased significantly in no-till plots treated with Terraclor Super X granules (138 lb lint/A). Yields were not improved by any of the fungicide treatments in conventional plots.

Seedling disease severity was greater in no-till than in conventional-tillage plots in 1995. Yields in no-till and conventionally-tilled plots were not significantly different in 1995 with a difference of only 11 lb lint/A across all treatments. It appears that a cotton producer could probably expect to get similar yields with no-till compared to conventional tillage in some years and higher or lower in others that would probably equal out over several years. Soil fungicides were not as important for seedling disease control in both tillages in 1995 since weather conditions were dry and warm at time of planting and for a week or so after planting.

Texas. K. M. El-Zik and P.M. Thaxton - (Genetic Improvement). Resistance to seed-seedling disease and stand establishment is based on stand data from the 1995 Uniform MAR (UMAR) tests at 10 locations, and the Early Field Planting (EFP) tests at four locations. The cotton seed used in all tests were acid-delinted, non-treated with fungicides and ungraded. Each plot was planted with 100 seeds, and counts were made for emergence and final stand. The UMAR tests included 19 MAR-7A strains and 5 Cultivar checks with four replications. The EFP tests included 28 MAR-7B Strains and 4 Cultivar checks with four replications. The means for seedling disease represent cumulative losses to seed rot, and pre- and post-emergence-damping-off as percent of planted seed. Generally, all tests were exposed to cold and wet conditions following planting in 1995. Averaged over eight UMAR test locations, final stand ranged from 36.9% for HGC23HGPIH-1-93 to 71.7% for Tamcot Sphinx with an overall mean of 55.3%. Mean stand for locations ranged from 46.4% at Weslaco-TAES to 70.1% at Corpus Christi. In the presence of exceptional early season adverse conditions, six MAR-7A strains gave stands higher than 60% which were equal to Tamcot Sphinx. In the EFP tests, averaged over three locations, final stand ranged from 40.3% for Tamcot CAMD-E to 81.5% for LBHGHQSHPS-1-94, with a mean of 71.0%. The highest average stand of 83.3% was obtained at Corpus Christi, as expected, since the test was replanted, and the lowest stand of 55.4% was obtained at Weslaco. Nine MAR-7B strains gave final stand higher than 75%. These strains also combine high yield potential, earliness, and improved fiber quality. The established laboratory, greenhouse, and field screening and selection procedures continue to be effective in pyramiding genes for cold

tolerance and resistance to seed-seedlings pathogens, and to other pests in cotton.

Table 1. Cotton Seed Treatment Test #2 (Uniroyal) - Emergence and Yields 1995, Belle Mina, AL.

Treatment, formulation, and rate per acre	Plant Population ¹		Yield 10/10/95 lbs/Acre
	5/11	5/26	
UTC ²	100.5	100.3	1718
TSX - Disyston EC, 64 oz	106.5	109.0	1269
TSX - Disyston EC, 84 oz	114.3	119.5	1243
TSX EC, 48 oz +			
Disyston 8E, 16 oz	112.0	115.0	1438
TSX EC, 64 oz	111.8	116.0	1485
DPL (Epic) +			
Biologicals (Kodiak), 27 oz	98.8	105.3	1876
LSD (P=0.05)	14.3	15.8	379.2
LSD (P=0.01)	19.8	21.9	524.2

¹Emergence per 32 ft. of row.

²Pretreated with DPL no Biologicals

Table 2. Cotton Seed Treatment Test #4 (Uniroyal) - Emergence and Yields 1995, Belle Mina, AL.

Treatment, formulation, and rate per acre	Plant Population ¹		Yield 10/10/95 lbs/Acre
	5/11	5/26	
UTC ²	3.5 ³	0.3	53
Terrazole 4E, 6.0 oz +			
Rovral 4F, 6.4 oz	41.8	33.8	589
Terraclor 2E, 48 oz +			
Rodomil 2E, 3.95 oz	13.5	12.8	309
Terraclor 2E, 48 oz	18.5	15.5	525
Rovral 4F, 6.4 oz	22.0	16.0	306
Stoneville +			
Kodiak, 27 oz/cwt	1.5	0.8	9
LSD (P=0.05)	15.9	14.1	288.5
LSD (P=0.01)	21.9	19.5	398.9

¹Emergence per 32 ft. of row.

²Pretreated with Stoneville Seed treatment no Biologicals.

³Innoculated with *Rhizoctonia solani* 15 ml/row.

Table 3. Effect of in-furrow fungicides on plant populations and seed cotton yield, Red River Research Station, Bossier City, LA 1995.

Treatment, formulation, and rate per acre	Plant Population ¹		Yield of seed cotton (lb/A)
	2 wks	6 wks	
Untreated	210	214	1563
Ridomil 2E, 4 oz	213	242	1683
Terraclor 2EC, 2 qt	239	260	1459
TSX 10-2.5G, 10 lb	231	240	1625
Ridomil-PC 11G, 7 lb	222	250	1451
Ridomil-PC 11G, 10 lb	222	234	1596
Ridomil 2E, 4 oz +			
Terraclor 2EC, 64 oz	237	269	1607
Ridomil 2E, 3 oz +			
Terraclor 2EC, 48 oz	215	268	1446
Ridomil 2E, 8 oz +			
Rovral 4SC, 6.4 oz	239	254	1558
Dithane M45, 2.0 lb	198	216	1570
ICI A5504, 2.45 oz	219	264	1356
Deltacoat, 11.75 oz ²	218	267	1671
LSD (P=0.05)	33	37	NS

¹Plants per 100 row feet.

²Ounces per cwt; applied as a hopper-box treatment.

Table 4. 1995 Cotton In-furrow Hopper-Box Fungicide Trial Two (medium disease pressure). Inoculated with 60 ml per plot of oats. Effect of in-furrow and hopper-box fungicide treatments on cotton seedling emergence. MAFES, Delta Research & Extension Center, Stoneville, MS.¹

Treatment, formulation, and rate per acre	% Seedling Survival		Yield of seed cotton (lb/A)
	5/17/95	6/2/95	
Untreated.....	34.5 d ²	31.3d	2837 a
Terraclor 2EC, .75 lb ai/A			
Terrazole 4EC, .375 lb ai/A...	58.6 a-c	52.9 ab	3254 a
Terraclor 2EC, .75 lb ai/A			
Terrazole 2EC, .1875 lb ai/A..	59.9 a-c	57.6 ab	3286 a
Terraclor 2EC, .75 lb ai/A			
Ridomil 2EC, .1234 lb ai/A....	61.1 ab	62.4 a	3344 a
Start 60WP, .6 lb ai/A.....	60.8 a-c	57.2 ab	3384 a
Rovral 4F, .2 lb ai/A			
Ridomil 2EC, .1234 lb ai/A....	66.8 a	62.9 a	3315 a
ICI 5504 80WG, .15 lb ai/A...	62.9 a	57.4 ab	3042 a
TSX 12.5 G, .9375 lb ai/A....	63.4 a	56.7 ab	2817 a
Deltacoat AD, 11.75 oz pr/cwt	54.3 a-c	54.1 ab	3091 a
TSX 12.5 G, 1.25 lb ai/A.....	60.8 a-c	58.1 ab	3446 a
Start 13G, .9 lb ai/A.....	46.8 b-d	49.2 bc	3327 a
MSD.....	15.0	12.5	660.7
C.V.....	17.2	16.1	10.3
F Value.....	3.7	5.1	1.6

¹Plots were four 40-ft rows planted on April 28 with seed that had been treated with Vitavax, PCNB Flowable, Apron Fl. 42-S Thriam, Lorsban 30 Fl, Kodiak, Pro-zied Colorant using manufacturers' recommended rates. Plots were inoculated in-furrow at planting with 60 ml of a 1:1 mixture of oats infested with *Rhizoctonia solani* and *Pythium ultimum*.

²Values are means of four, 80 row ft replications. Means followed by the same letter are not significantly different according to the Waller-Duncan t-test (K-ratio=100).