

COTTON SEEDLING DISEASE CONTROL WITH IN-FURROW FUNGICIDES AND SEED TREATMENTS

Melvin A. Newman, Wyveta Percell, Wesley Crowder, and Chris Street

Department of Entomology and Plant Pathology

University of Tennessee

Jackson, TN

Several in-furrow fungicides were tested for efficacy at the Lower Brownsville Road (LBR) location near Jackson, Tennessee in 2003. These in-furrow (IF) tests were planted on April 23, 2003, with SG 215 BR seed that had been commercially treated with fungicides and Cruiser (thiamethoxam). Some hopper-box (HB) seed treatment materials were included in the tests, but most treatments were IF fungicides. Three tests were planted no-till with a seeding rate of four seeds/row-ft. and 36" row spacing. Plots were four rows wide and 30' long with two rows inoculated and two rows not inoculated. Four replications of each treatment were planted in a randomized complete block design with a four-row Case IH 900 planter equipped for soil in-furrow applications of either liquid or granular fungicides. Only the inoculated data is discussed since there were no treatments in the uninoculated plots that were significantly different from the untreated check. The inoculum was composed of a 1:1 mixture of *Rhizoctonia* and *Pythium* grown on millet seed. It was added at planting IF at the rate of 10 ml/row-ft with a granular hopper-box applicator. Final stand counts were made on May 29, and plots were harvested with a plot picker on September 30. Yields were adjusted for gin turn-out and reported in pounds of lint per acre (lbs. lint/A) for each test. Standard weed control chemicals for no-till were applied, and there was no insect pressure at any time during the season. The weather was very wet and cold shortly after planting, but all plots were able to continue growing with excellent weather returning in the summer and fall to render some surprisingly high yields. In the first test, an untreated check was compared with five IF fungicide treatments and one HB treatment. For this test, inoculum containing only the *Rhizoctonia* pathogen was used. The IF treatments included: Rovral 4F (iprodione) at 7 oz./A, Demosan 3F (chloroneb) at 3 pts./A, Quadris 2.08 SC (azoxystrobin) at 5.5 oz./A, Terraclor 2EC (quintozene) at 6 pts./A, and Terraclor 15 G at 10 lbs./A. The hopper-box treatment was System III (quintozene/metalaxyl/*Bacillus subtilis*) applied at 12 oz./Cwt of seed. All treatments, including the HB treatment, yielded significantly more lint/A than the untreated check. Numerically, the IF treatments all had higher yields than the HB treatment. Except for the treatments with Rovral and Demosan, stand counts were significantly higher than for System III. System III had the lowest stand count of all the treatments but was still significantly higher than the untreated check. In a second test, four IF fungicide treatments and one IF biological treatment were compared with one HB fungicide treatment of Delta-Coat AD 3.24 FS (metalaxyl/chloroneb) at 11.75 fl. oz./Cwt of seed and one biological seed treatment. The IF treatments were: Ridomil Gold PC 10.5 GR (quintozene/mefenoxam) at 10 lbs./A, Terraclor Super-X 2.5 EC (quintozene/etridiazole) at 6 pts./A, Terraclor Super-X 18.8 granules at 10 lbs./A, Quadris 2.08 SC at 5.5 oz./A, and a biological material diluted 1:100 (BioYield produced by Gustafson LLC) at 5 fl. oz./A. The seed treatment was the same concentration of BioYield applied to the seed at 0.5 fl. oz./Cwt. All IF fungicide treatments as well as the HB treatment had significantly higher stand counts when compared with the biological treatments and the untreated check. All other treatments had a significantly higher yield than the BioYield seed treatment. The yields were only numerically higher for the IF and HB fungicides when compared to the untreated check and the biological materials. In a third test, Demosan 3F (chloroneb) was tested at 1, 2 and 3 pts./A, with and without Ridomil Gold 4EC (mefenoxam) at 1 oz./A. These treatments were compared with a treated check (Quadris 2.08 SC at 6 oz./A plus Ridomil Gold 4EC at 1 oz./A) and an untreated check. All three rates of Demosan were significantly better than the untreated check in yields. There was no significant difference in yields or stand counts among the three Demosan rates as long as Ridomil Gold was added to the treatment. Demosan alone at the 3 pts./A rate did not require the addition of Ridomil to be significantly better in yield than the untreated check. Stand counts for Demosan alone at the lowest rate of 1 pt./A was not significantly different from the untreated check. Demosan alone at the 2 pts./A rate produced stand counts significantly higher than the untreated check but yields remained statistically the same. Quadris at 6 oz./A plus 1 oz./A Ridomil Gold was significantly better in yield and stand count when compared to the untreated check and was no better than any of the Demosan treatments except for the 1 pt./A rate of Demosan alone.