SEED TREATMENT FOR SEEDLING DISEASE CONTROL

Lester M. Blank

In cooperation with pathologists in California, New Mexico and West Texas we took part in the Western Cottonseed Treatment Test of 1971. Uniform testing was done with acid delinted seed of mid-southern origin, and intermediate in quality. Our planting at Phoenix was made March 30, and the emerged seedlings were checked 3, 4, 5 and 6 weeks later for disease and for surviving stand. Based on 6-week data we had 40% stand in the untreated seed while the 19 lots receiving fungicide treatments averaged 51.7% stand. The differences in favor of treatment were statistically significant with every one of the 19 fungicide-treated lots. It is of interest to note that 18 of the 19 fungicide-treated lots were treated with non-mercurial protectants, and were effective in controlling seedling disease. Loss after emergence was ranged from a high of 8.85% loss in the untreated control to a low of 2.01% loss in the best treatment.

In another experiment at Phoenix we compared 8 lots of seed grown in Arizona or California, and acid delinted and processed in Arizona. We obtained samples of each of these 8 lots of seed before and after treatment with the standard fungicide combination used in Arizona in 1971, captan + PCNB. Surviving stands at 6 weeks after planting averaged 52.8% from the 8 lots of untreated seed and 61.5% from the fungicide-treated lots. Analysis of these data disclosed highly significant effects due to fungicide treatment, and also between the 8 sources or lots of western-grown seed.

SOUTHWESTERN COTTON RUST

Lester M. Blank, Warner D. Fisher, and Lee S. Stith

About 10 years ago we demonstrated that control of Southwestern cotton rust could be established by the timely application of a protectant fungicide to the foliage, prior to and during the rainy period in July and August. These findings have been used in those areas of Arizona where this disease is a threat. A more desirable control measure would be the use of a rust resistant variety, and we are giving major emphasis to this approach. In 1971 3 of our breeding lines, all of Acala background, advanced into preliminary strain tests in competition with rust-susceptible varieties Hopicala and Deltapine 16. The rust entries compared very favorably with Hopicala but were outyielded by DPL 16 under the non-rust conditions of the Phoenix test.

COTTON REPORT - VERT WILT

S.M. Alcorn

Results from various studies have suggested that the susceptibility of cotton plants to Verticillium albo-atrum might in part relate to carbohydrate concentration in their roots. It, therefore, seemed possible that cotton varieties tolerant to V. albo-atrum might be rapidly identified on the basis of carbohydrate concentrations in their roots. In cooperation with Lee S.

Stith, Department of Agronomy and Plant Genetics, such analyses were made using roots of first-leaf and four- to six-leaf plants from 18 varieties of cotton grown under uniform conditions in growth chambers. We could not find any correlation between carbohydrate concentrations in roots and the degree of wilt symptoms manifested by these varieties in the field.

COTTON YIELD BY SEEDING RATE AND NEMATODE CONTROL 1/

EVCO FARMS - ART PACHECO - MARANA, 1971

Jim Armstrong, Pima County Agricultural Agent

Treatment	Lint Yield 2/ lbs./Acre	Nematode Root Knot Rating 3/
Seeded @ 16 lbs./A + 30 lbs. Temik	481	.95
Seeded @ 11 lbs./A (No Temik)	440	
Seeded @ 16 lbs./A (No Temik)	432	2.3

1/ First pick only and field sustained 20% loss due to hail damage.

2/ Average of three replications of twelve rows for seeding rate comparison. Temik was applied to 36 consecutive rows. All 36 rows included in yield data.

3/ Relative root-knot rating based on:
0= No galling. 1= trace to light galling (1 to 25% of root system galled). 2= light to moderate (26 - 50% of roots galled). 3= moderate to heavy (51 - 75% of roots galled). 4= heavy to severe (76 - 100% of roots galled).

Planting Date - April 24
Cotton Variety - DPL 6137
Water - 3.85 A.F.
Fertilizer - 173 lbs. N/A

Harvest Date - November 4
Soil Type - Sandy Loam
Previous Crop - Sorghum
Temik - Applied sidedress 6/15

This test was primarily designed to compare two seeding rates. The application of Temik for nematode control was added at a late date. As the Temik treatment was not originally planned for the test it was applied to the 36 rows bordering the seeding rate comparison and replication was not practical nor possible.

Based on this limited trial it was obvious that increasing the seeding rate from 11 to 16 pounds per acre actually decreased yield slightly. This supports previous work which has indicated that 10-12 pounds is an adequate rate for maximum yields.

Temik was used rather than Telon for nematode control as the value of Telon has already been established in previous tests but has been considered uneconomic on short staple cotton. Temik would have some additional advantage over Telon in that it offers some systemic insect control also.