

**COTTON ROOT HEALTH WORK GROUP -
PRELIMINARY RESULTS.**

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Abstract

Through funding from Cotton Incorporated, a work group was formed in 1996 to study cotton root health management. The objective of this research is to quantify and demonstrate the impact of a healthy root system on yield, earliness and fiber quality; and to develop cost effective recommendations for healthy stand establishment that will enhance grow-off and performance of a cotton crop.

The group consists of a multidisciplinary team of scientists involved in cotton research. Test plots were established at seven locations across the cotton belt that represent the major cotton production areas of the United States. The seven locations are North Carolina, Georgia, Mississippi, Louisiana, California, and two in Texas.

Each test consisted of five core treatments. Nonfungicide-treated seed with an in-furrow application of DiSyston 15G at 6.7 lb/a, and seed commercially treated with fungicides and an in-furrow application with one of the following chemicals: DiSyston 15G at 6.7 lb/a, Temik 15G at 7.0 lb/a, DiSyston 15G at 6.7 lb/a plus Terraclor Super X 18.8G at 7.0 lb/a, and Temik 15G at 7.0 lb/a plus Terraclor Super X 18.8G at 7.0 lb/a. Data collected included plant populations, skip indices, and root and hypocotyl disease

indices 14 and 28 days after planting. In addition, plant height and plant height to node ratio were taken at the four-node stage. Throughout the season, plant root development was monitored. At the end of the season, seed cotton was harvested and plants were mapped. Seed cotton samples were ginned to determine lint percent and provide lint samples for fiber analysis.

The first year of the study has been completed and has provided some valuable information. As anticipated, results were variable among locations. Disease pressure was low at most locations, but some generalizations of the results from this first year of data can be made. Plant populations were greater and skip indices lower using fungicide treated seed than non-fungicide-treated seed. Only two locations reported significant differences in hypocotyl and root disease indices. Differences in root distribution were evident in the early stages of plant development and reflected differences in soil moisture status, soil compaction, and in-furrow treatments. Although differences in seed cotton yield were significant at only two locations, there was a trend toward decreased yield in the nonfungicide-treated seed plots.

This first year of data provides a base for future activities of the Root Health Group to better understand the relationship between root development and the growth and yield of the cotton plant. With some minor revisions, the program will continue next year.