

**CHANGES IN COLONIZATION OF COTTON BY THE COTTON SEEDLING DISEASE  
COMPLEX PATHOGENS *RHIZOCTONIA SOLANI*, *PYTHIUM* SPP., AND *THIELAVIOPSIS  
BASICOLA* OVER TIME AND SOIL ENVIRONMENTAL CONDITIONS**

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Cotton seedling diseases are caused by several seedborne and soilborne pathogens and affect the initial establishment of the cotton plant. Seedling diseases are estimated to cause 3.1 % yield reductions annually in the United States (1992-2000). The primary cotton seedling disease complex pathogens are *Rhizoctonia solani*, *Pythium* spp., and *Thielaviopsis basicola*. The environment, especially soil water and temperature, plays an important role in infection by these pathogens and disease development. In 2002, the cotton cultivar DP451B/RR treated with RTU Baytan-Thiram + Allegiance or nontreated were planted at Clarkedale, AR on April 29, May 8, and May 20 and nontreated seed were planted on April 30 at Ashley, AR. Approximately 25 seeds or seedlings were collected from each plot at 1, 2, 4, 7, 14, 21, and 28 days after planting, surface disinfested, and plated on water agar. Hyphal tips were transferred onto PDA medium to identify isolates to genus. Seeds or seedlings were transferred after 5 days to TB-CEN medium for *Thielaviopsis basicola* recovery. Treating cottonseeds with fungicide increased the stand for all the planting dates by an average of 24 %. *Rhizoctonia solani* and *Pythium* spp., were isolated from cottonseeds 24 hours after planting, whereas *Thielaviopsis basicola* was not detected until 4 days after planting. Colonization of the cotton plant by *Thielaviopsis basicola* increased dramatically as the time after planting increased. *Pythium* colonization either decreased after the fourth day after planting if rain did not occur or remained unchanged if there was rainfall. The data also showed that *Thielaviopsis basicola* colonization of cotton is favored by wetter soil than drier soil, whereas *Rhizoctonia solani* colonization of cotton is favored by drier soil than wetter soil. Isolation data gave the most information on treatment response if isolations were made within the first four days after planting for *Rhizoctonia solani* and *Pythium* spp.