SEEDLING VIGOR ASSESSMENT OF COMMERCIALLY-AVAILABLE COTTON CULTIVARS IN RESPONSE TO PLANTING DEPTH

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Abstract

Cotton seedling vigor characteristics have been evaluated many times in the past, but due to the constant release of new varieties coupled with new seed technologies, evaluation for characteristics for proper stand establishment is critical. Previous research done in greenhouse space and at the University of Georgia Envirotron facility demonstrated that these cultivars had varying responses to drought while in the seedling stage. In these previous studies, Phytogen 499 was observed to have significantly higher biomass than other cultivars when irrigated. Due to these observations, planting depth was a factor that was demonstrated next to determine if seedling vigor of these newer cultivars could be causing insufficient stands due to seeding depths that were too deep. Greenhouse experiments were conducted in 2015 at the Horticulture Department greenhouses in Athens, Ga as well as at the University of Georgia Envirotron Facility in growth chambers. Field experiments were conducted in Tifton, GA 2015 and 2016.The experiment was conducted using a Split-Block Design with six replications. Treatments included four cotton cultivars: FM 1944 GLB2, DP 1050 B2RF, FM 1740 B2F, and PHY 499 WRF as well as 3 planting depths: .5in, 1in, and 1.5in. Significant reductions in observed seedling vigor were noted as planting depth increased. The number of plants emerged in a meter of row also demonstrated a significant negative effect as planting depth was increased. These observations suggest that current planting recommendations with newer cultivars may actually be causing a reduction in seedling vigor.