The Genotypic Response of Cowpea, Vigna unguiculata, to Drought. (C03-dadson130848-Poster)

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Abstract:

Among the principal factors that limit growth and yield of cowpea in the Delmarva region are severe drought and high summer temperatures. The main aim of the present study was to identify cowpea genotypes that are drought-tolerant. Forty cowpea genotypes were grown in growth tubes containing plant nutrient solution for three weeks. Drought conditions were expressed using various concentrations of polyethylene glycol (PEG 20,000). Seed germination varied significantly among genotypes; California Blackeye #46 and Purple Hull Big Boy were the most tolerant genotypes to PEG since 80 and 30% of the seeds were germinated at 15 and 22.5% PEG concentrations, respectively. In field trials, ten cowpea genotypes were grown under rain-out shelters. There were two moisture regimes: no drought, soil tension >-0.03 MPA, and drought indicated by soil moisture at -0.07 MPA. The latter moisture regime was replenished to field capacity whenever water tension fell below -0.07 MPA. Reduction in seed yield due to drought conditions varied significantly, and ranged from 13% (Elite) to 50% (Texas Cream). Genotypes California Blackeye #5 and Quick Pick Pinkeye were slightly affected by drought

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