

**RELATIONSHIP BETWEEN NDVI AT EARLY BLOOM AND YIELD IN GERMPLASM EVALUATION TRIALS**

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**Abstract**

The use of high-throughput phenotyping (HTP) equipment is expanding as it offers the potential to increase the efficiency of making selections in cotton (*Gossypium hirsutum* L.) improvement programs. Measurements often being collected on HTP field equipment include normalized difference vegetative index (NDVI) which is a measure of plant biomass. Biomass amount at early bloom can be important for determining yield potential because larger plants at this time allows for more fruiting sites and leaf area to support developing bolls. The objective of this research was to evaluate the potential of using NDVI at early bloom as a selection tool for yield. Data were collected from two germplasm evaluation trials in 2014. The first had 66 genotypes with three replicates. Experimental design was randomized complete block. The second had 288 genotypes with two replicates. An alpha lattice experimental design was used in this trial. At early bloom, data were collected with tractor-mounted NDVI sensors. Yield data were collected at the end of the season. A significant linear relationship occurred in both trials between NDVI at early bloom and yield. Though significant, the  $R^2$  values were low being only 0.15 in the first trial and 0.27 in the second. These preliminary data suggest that comparing NDVI at early bloom may be a method to identify and eliminate low yielding lines from germplasm trials.