

## **GENOTYPE-ENVIRONMENT INTERACTION AND STRESS SUSCEPTIBILITY INDEX IN EGYPTIAN COTTON (*Gossypium barbadense* L.)**

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### **ABSTRACT**

Nine Egyptian cotton genotypes (8 varieties and one hybrid) were evaluated under eight different environments i.e., two years (2004 and 2005), two locations represent two major soil types (clay and sandy loam) and two sowing dates. Genotype x year and genotype x sowing dates interaction were highly significant for all studied traits. Also, genotype x year x location x sowing dates interaction was highly significant for seed cotton yield/plant, lint yield, seed index and lint index. Mean seed cotton yield/plant ranged from 21.32 to 29.25 g, from 19.25 to 31.32 g and from 22.48 to 28.09 g for locations, sowing dates and years, respectively. Delaying sowing date reduced seed cotton yield/plant, lint yield, boll weight, seed index and lint index.

Stress susceptibility index (S ) was estimated for seed cotton and lint yields/plant. The genotypes Dendara and Giza 45 were relatively stress tolerant in Assiut and Qena for both traits. The highest yielding cultivars in late planting at both locations was Giza 83 (susceptible) followed by Giza 80 and Giza 85 which were tolerant to sowing dates at Qena only. It could be concluded that the policy of planting each cultivar for a particular zone is correct irrespective of their susceptibility to sowing dates, because Giza 83, Giza 80 and Giza 85 are still the best high yielding cultivars at late planting at both of Assiut and Qena governorates.

The stability analysis for seed cotton yield detected that the intermediate yielding genotypes (Dendara, Giza 90, Giza 85 and Giza 89) were stable and ranged in yield from 22.95 to 26.69 g . While the highest yielding genotypes [Giza 80, Giza 83 and (Giza 81x Giza 83)] were unstable.