# Evaluation of some new promising crosses in egyptian cotton

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Seven promising crosses, i.e, 0.68 X C.B.58, G.77 X G.45 (A), and (B),G.67 X C.B.58, G.75 X G.81, G.72 X 0.67 and G.83 X (G.72 X Delcero) as wellas eight Egyptian cotton cultivars (6: barbadense, L.), i.e, G.45, 0.70, G. 75,0.76, G.77, G.80, G.81 and Da'ndara were planted at five different environmentsin Middle and lower Egypt, to evaluate, earliness, yield and its components, fiberproperties and to estimate their genotypic stability.Also, the seven promising crosses and the eight Egyptian cotton cultivarswere planted as individual plants at sids experiment station during 1991 and 1992seasons to evaluate their earliness, yield components and fiber properties.Moreover, a randomized complete block design with four replications wasused for the different environmental sites. Standared analysis of variance accordingto Snedecor and Cochran, 1967 and estimating stability parameters for Tai, 1971were made for all characters under this investigation.Results obtained could be summarized as follows :_The MS values for genotypes, environments and the interaction betweengenotype x environment were significant for all traits.1- Evaluation of the eenotypes :I~ The promising cross G.68 x C.B58 was earlier than its alternative varieties,G.70 and G.77 for days to ' first flower, position of the first symbodium andearliness percentage and exceeded its alternative varieties for seed and lintcotton yield/plant and feddan., boll weight, seed index, micronaire reading,staple length and hair weight. However it exceeded the alternative varietyG.70 for yam strength in both trails. On the other hand it had low valuescompared with its alternative varieties for lint percentage and pressley index inthe individual plant trial.2. The promising cross G.77 x G.45 (A) was earlier than its altemative v3lieties,G.45 and G.76 for position of the first symbodium and earliness pcrcentageand it exceeded them in lint and seed cotton yield, boll weight, lint percentagepressley index and yam strength. On the other hand, it was later than itsalternative varieties for days of first flower and had the shortest fiber inindividual plants trial. While, it Was decreased in seed index and had coarserfiber than its alternative variety G.45 in both trials.3. The promising cross G.77 x G.45 (B) was later as compared with the alternativevariety 0.77 for days of the first flower, position of the first symbodium andearliness percentage in both trials and it exceeded it in lint and seed cottonyield, hair weight and pressley index. wherease, boll weight, seed index andlint percentage SllIpassed that of G.77 variety in plot mean basis results only.It had less yarn strength and shortest fiber as compared with its alternativevariety.4. The promising cross G.67 x C.R58 was earlier for earliness traits as comparedwith its alternative variety G.81 and eX=ded it in seed and lint cotton yield,hair weight, micronairee reading, staple length and yarn strength, while it wasreduced in boll weight, seed index, lint percentage and pressley index.5. The promising cross G.75 x G.81 Was lazer for earliness traits and decreased inseed and lint cotton yield, boll weight, seed index, lint percentage, staplelength. hair weight and yarn m-ength as compared with G.75 variety. Howeverit exceeded its alternative variety G. 75 in pressley index and micronairereading.6. The promising cross G.72 x G.67 Was earlier for earliness characters andexceeded its alternative varieties, Dandara and G.80 in seed and lint cottonyield, boll weight lint percentage, staple len~'1hmicronaire reading and yamstrength. On the other hand, .it was reduced in seed index and pressley indexcompared with both alternative varieties.7. The promising cross G.83 x (G.72 x Delcero) was earlier for earliness charactersand exceeded its alternative variety dandara in seed and lint cotton yield, lintpercentage, micronaire reading, hair weight, and staple length. While it

wasreduceded in 0011 weight, seed index, pressley index and yarn strengthcompared with Dandara varietyIL HeritabUijy estimates :The heritability estimates in broad sense was high (over 70 %) for allcharacters, except number offiuiting branches/plant and earliness percentage whichshOwed a lower values of 5.41 and 58.98, respectively indicading the effect ofenvironmental factor on these traits.lII- Genotypic stabllif! :All of the characters (except micronaire reading) showed thata. Mostly the estimated d statistics for the all genot}l'cs, do not differ significantlyfrom a"- "= 0 andb. The genotypes varied greatly in the estimates "AI statistics.Therefore it could be concluded that the relatively unpredictable component•...•(the deviation from the linear response A,) of the genotype-environment interactionvariance may be more important than the relatively predictable component (thelinear response, ~I)The relative genotype ranking according to their mean perfonnance over thefive environments was not the same for all characters. Also, the genotypes showeddifferent degrees of the genotypic stability.The degree of stability obtained for each genotype can be summarized asfollows :1. Promising cross G.68 x C.B58 :Showed the average degrees of stability for position of the first symbodium,earliness percentage,micronaire reading and hair weight. However, it wasunstable for the other characters2. Promisine; cross G.77 x G.45 type fA) :Showed the average degrees of stability for position of the first symbodium,number of fruiting branches, seed index, seed cotton yield /plant micronairereading (only at P = 0.95) hair weight and yam strength, While it was unstablefor the other characters.3. Promising cross G.77 x G.45 type &1 :Showed the average degrees of stability for position of the first symbodium.earliness percentage, number of fruiting branches, boll weight and yam strength.On the other hand it was unstable for the other characters.4. Promising cross G.67 x C.B 58 :Showed the average degrees of stability for earliness percentage, number offruiting branches, boll weight (at P = 0.95 and P = 0.99) seed cotton yield /plant,.Jseed index and hair weight. While it was unstable for the other characters.5. Promisina cross G.7S x G.81 :Revealed -above the average degrees ofstabiJity for hair weight (at P = 0.90) andthe average degrees of stability for earliness percentage, micronaire reading andyam strength. However, the other characters were unstable6. Prombina cross G.72 x G.67 :Showed the average degrees of stability lor seed cotton yield, lim cotton yield,boll weight and micronaire reading. While it was unstahle for the othercharacters.7. Promising cross G.83 x (G.72 x Delcero) :Revealed above the average degrees of stability for earliness percentage (at p._0.90) and the average degrees of stability for position of the first symbodium,seed cotton yield Iplant, boll weight and micronaire reading. In contrast, theother characters were unstable.8. Giza 4S:Showed the average degrees of stability for earliness percentage, seed cottonyield /plant and feddan, lint cotton yield, seed index and yarn strenght. While, itwas unstable for the other characters.9, Giza 70:Showed the average degrees of stability for position of the first symbodium,number of fruiting branches, boll weight and micronaire reading. The othercharacters were unstable.10. Giza 75 :Showed the average degrees of stability for position of the first symbodium (at P= 0.95 and P = 0.99), number of fruiting branches, holl weight seed index,micronaire reading, hair weight and yam strength. whereas it was unstable forother characters.11. Giza 76:Showed the average degrees of stability for position of the first symbodium,earliness percentage, number of fruiting branches, seed cotton yield, lint cottonyield, boll weight and micronaire reading. While it was unstable for the othercharacters.12. Giza 77 :Showed the average degrees of stabilit; for earliness percentage, number offruiting branches, seed cotton y~dd /plant, boll weight, micronaire reading andyarn strength. While the other characters were unstable.13. Giza 80 :Showed the average degrees of stability for position of the first symbodium,earliness percentage, seed cotton yield, lint cotton yield, seed index andmicronaire reading. whereas it was unstable for other characters.14.Gi2a8t:Showed the average degrees of stability for position of the 1iTStsyrnbodium,earliness percentage, number of fruiting branches, seed cotton yield per plant andfeddan, lint cotton yield, boll weight, seed index, micronairc reading and yamstrength. However it was unstable for hair weight trait.15. Dandara:Showed the average degrees of stability lor earliness percentage, number offruiting branches, seed cotton yield /plant and hair weight only. While it wasunstable for the other characters.It could be cancluded from these results that most of the promising crosseswhich likely to be candidate to replace its alternative varieties and had superiorcharacteristics were promising cross G.72 x G.67, followed by promising crossesG.68 x C.B.58, G.77 x G.45 (A) and G.Q3 x (G.72 x Delcero), Therefore, thesecrosses could

be selected as an alternative varieties, each in the same category.