J. Agric. Sci. Mansoura Univ., 28 (2): 829 - 838, 2003

COMPARATIVE STUDY ON FOUR SUCCESSIVE NUCLEI SEEDS OF GIZA 80 COTTON CULTIVAR AND THE CORRESPONDING FARMER'S SEEDS IN TWO DIFFERENT LOCATIONS

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ABSTRACT

Four successive pure nuclei of Giza 80 cotton cultivar (N) and their corresponding farmer's seeds (F) were used to study the changes that might occur in yield and quality after using the seeds in general planting. The field experiments were carried out in two different locations (Minya and Sohag) through three successive growing seasons (1997, 1998 and 1999). The experimental design was randomized complete blocks design with four replications.

The results indicate that the source of variability among studied genotypes and genotypes by locations interactions were, basically, due to the differences of farmer's seeds (F), (N) vs. (F.) and their interactions with locations. It could be also, concluded that the lint percentage and lint index characters considered to be good indicators of degeneration as well as the yarn strength trait; which were affected by the presence of off-type seeds. The increasing of off-type locks percentage exhibited negative effects on lint percentage and lint index characters. The results, also, indicated that the mistakenly handling of the farmer's seeds including off-type seed`s in general farms might cause deterioration during two years.

INTRODUCTION

Cotton breeders in many parts of the world successfully maintain cotton cultivars by different procedures. The cause of varietal deterioration, which the maintenance system guards have been reviewed by many workers; O'kelly (1942), Simpson and Duncan (1953) and Lewis (1970). They reported that the important reasons of degeneration of a variety were; mechanical mixing, natural mutations, gene frequency changing caused by random genetic drift and natural selection, gene frequency changing by selection pressure exerted by breeder and loss of heterozygosity with respect to the investigations in Egyptian cotton; Abdel-Al (1976) found that lint index and lint percentage started to deteriorate badly in the fifth year of general use of Giza 66 cotton variety, while all fiber properties remained unchanged except yarn strength trait. Abdel-Al *et al.* (1979) and El-Akkad and El-Kilany (1980) in another study pointed out that using the strains in general farms exhibited less lint percentage and yarn strength characters comparing to the corresponding pure strains. They, also, found that the older strains gave lower values for these two characters comparing to the other study characters, yield, yield components and fiber properties. El-Kilany and Youssef (1985) reported that the older farmers seed strains gave lower estimates for micronaire value and fiber fineness. Ghoneim *et al.* (1997) found no significant differences among five Dendera nuclei and their corresponding farmer's seeds for yield and yield components while, found slight differences in yarn strength and fiber length in one season. Abo-Arab *et al.* (1999) stated

دراسة مقارنة لأربع نواهات من جيزة ٨٠ مع ما يقابلها من السلالات المتداولة فى الزراعة العامة فى منطقتين مختلفتين

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استخدمت فى هذه الدراسة أربع نواهات من جيزة ٨٠ لمقارنتها بما يقابلها من السلالات المتداولة فى الزراعة العامة ، وقد تم عمل تجربتين فى منطقتين مختلفتين (المنيا وسوهاج) لمدة ثلاثة مواسم متتالية (١٩٩٧ ، ١٩٩٨ ، ١٩٩٩) فى قطاعات كاملة العشوائية مكونة من أربع مكررات.

وقد أشارت النتائج الى وجود تباين بين التراكيب الوراثية بالإضافة الى وجود تفاعل أيضا مع المناطق ، وتعزى هذه التباينات أساسا الى وجود اختلافات عالية المعنوية للصفات محل الدراسة وخاصة صفتى معدل الحليج ومعامل الشعر فى السلالات المنزرعة فى الزراعة العامة وتفاعلها مع البيئة ، ويمكن اعتبار هاتان الصفتان كمؤشر لحدوث التدهور بالإضافة الى صفات متانة الشلة حيث تأثروا نتيجة تواجد نباتات من الطرز المغايرة بين نباتات السلالات المتداولة فى الزراعة العامة. وقد لوحظ أن نسبة الخلط بالطرز المغايرة يؤثر سلبا على صفتى معدل الحليج ومعامل الشعر ، وقد أشارت النتائج أيضا أن حدوث الخلط نتيجة أخطاء فى التداول للتقاوى فى الزراعة العامة يؤدى الى حدوث التدهور لهذه السلالات بعد سنتين من التداول.