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MAINTENANCE AND PRODUCING THE NUCLEOLUS (BREEDER SEED) OF GIZA 83 EGYPTIAN COTTON VARIETY, DURING 2000-2003 SEASONS

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ABSTRACT

Field work and experiments were conducted at Mallawy Agricultural Experiment Station during 2000-2003 seasons. In 2000 sixty typical plants were selected from a breeding nursery of Giza 83 variety, and furnished sixty progenies in 2001. From the latter, the lines in 2002 were descended. Eighteen elite lines were selected and massed to form the nucleolus (Breeder's seed) in 2003 season. The results obtained here indicated that pure line method pedigree selection for renewing Giza 83 breeder's seed could mean that an attempt have been made to prevent genetic loss and not necessarily imply a genetic gain. The selection technique for producing breeder's seed of Giza 83 cultivar was valid and proved to be effective in holding the variety true to type.

Key words: ***Maintenance and producing the nucleolus (Breeder seed), Giza 83, Egyptian cotton variety, Gossypium barbadense,***

INTRODUCTION

Supplying planting seed to farmers involves three separate activities: varietal development, seed multiplication, and varietal maintenance, (Lewis 1970).

Varietal maintenance of Egyptian cotton varieties plays a major role in the breeding program with the fact that high quality is the principle merit of the Egyptian cotton. In this concept, the present research high lights the procedures and considerations carried out to maintain and renew the breeder's seed of the Egyptian long staple cotton variety Giza 83.

Therefore, the main objectives of the present study were to follow the steps of producing a new nucleolus (denotes the breeder's seed in Egyptian terms) of the cotton variety Giza 83. Maintenance of the Egyptian cotton varieties have been reported by many workers, Ware (1959) in this report on Egyptian cotton, discussed the maintenance of established varieties in Egypt. He recommended annual releases of fresh seed instead of every three or four years needed by purity chequer method. Turner (1963) reported another method of the pedigree system, where the variety Acala 4-42 was maintained by blending seed of several component strains. Walker (1964) and Riggs

(1967) described a model bulk system designed to stabilize a variety. They concluded that this system could be considered as a good maintenance procedure for a variety already released. Al-Didi (1974) stated that it was advantageous to mix the seed of chosen progenies, whereas, the component progenies of seed mixture may respond differently to environmental variation. He added that if genotype x environment effects were significant, mixtures of seed might show less fluctuation in yield and quality than individual progenies.

The present method of maintaining Egyptian cotton varieties is a pedigree method based on mixing progenies of several plants instead of progeny increase of one selected plant.

MATERIALS AND METHODS

The system used by the Cotton Maintenance Section, Cotton Research Institute, to maintain the Egyptian cotton varieties was described by Al-Didi (1974) and Abd El-Al (1976).

The base population used in the present study was 60 elite plants selected through the visual field evaluation and further screening at the laboratory determinations for both agronomic and fiber properties from the pure line method-pedigree selection for renewing the breeder's stock seed of Giza 83 cultivar, at Mallawy Agric. Exp. Res. Station in 1999 season. Data were recorded on a single plant basis as well as plot mean basis:

1 - Seed cotton yield per feddan (S.C.Y./fed.) estimated as the weight of seed cotton yield in kentar per feddan.

2 - Lint yield per feddan (L.Y./fed.) estimated as the weight of lint yield in kentar per feddan.

3 - Boll weight (B.W.) the average boll weight in grams of 25 sound boll picked at random from each plot.

4 - Lint percentage (L. %) as the weight of lint obtained from a seed cotton sample:

$$L\,\% = \frac{\text{Weight of lint in the sample}}{\text{Weight of seed cotton in the sample}} \times 100$$

5 - Lint index (L.I.) the weight of lint produced by 100 seeds in grams:

$$\frac{\text{Lint percentage x seed index}}{\text{100 - Lint percentage}}$$

6 - Seed index (S.I.) the weight of 100 seeds in grams.

7 - Maturity in percent.

8 - Fiber length (F.L.) the length parameters 2.5% span length and 50% span length were measured by the fibrograph.

9 - Fiber fineness (F.F.) was carried out using micronaire reading.

10- Yarn strength (Y.St.) is the product of lea strength in pounds x yarn strength (60's carded) least yarn count the 60 brand tester.

In 2000 season, the selfed seeds of the 60 selected elite plants of Giza 83 variety were grown at Mallawy Farm, Minia Governorate, in the "Breeding plot". Each selected plant were grown in four rows 7.5 m long and 65 cm apart, one row was left without planting between each two consecutive cultivated rows. Each row contained 10 single plants spaced 75 cm apart. The open-pollinated seeds of the same 60 selected elite plants were grown in adjacent rows, representing the 60 bulked families. At flowering stage, self-pollination was practiced for all individual plants.

In 2001 season, the selfed seeds of 60 selected type plants were grown in progeny conveniently named A increase lines, as well as, open-pollinated seeds of the 60 type plants were grown in adjacent rows. According to the phenotypic superiority, agronomic and fiber properties for the 60 progenies, 22 better progenies were saved, and from these descended the 22 families in the 3rd year. The open-pollinated seeds of these families were kept to plant the yield trial in 2002 season.

In 2003 season, the selfed seeds of 22 selected families from A increase were grown in increase B plots. A yield trail comprising the 22 selected lines (natural seeds) and two strains of Giza 83 namely, Giza 83/2003 nucleus, and Giza 83 nucleolus/2003 as controls were conducted. The trail was based on randomized complete blocks design with four replications. The families were measured for yield, agronomic and fiber properties, by 18 type families scored by these measurements were selected.

In 2003 season, the pure selfed seeds of the 18 type selected families were massed to form the new nucleolus (Breeder's seed) of Giza 83 variety. The massed seeds were cultivated in about 18 feddans at the same area of the propagated fields of Giza 83 variety.

RESULTS AND DISCUSSION

Means of agronomic and fiber properties for the 60 bulked families of Giza 83 variety in 2000 season were estimated and the results are shown in Table (1). It was clear that no substantial differences for all studied traits were found showing low coefficients of variability in magnitude for the studied traits except for boll weight and yarn strength. These finding might due to environmental effect factors on such traits. These results were in agreement with those obtained by Abo-Arab *et al.* (1995) and El-Disouqi (2001) for boll weight and yarn strength.

Results in Table (2) showed no differences in agronomic and quality traits between the selected 60 increase A families and the controls while micronaire value and yarn strength exhibited by selection better values than the controls. Coefficients of variability decreased for the most studied traits after selection indicating more uniformity beside improvement.

Table (3) shows that means of yield, yield components and fiber properties for the 22 selected families compared with the two tested strains of Giza 83. The results showed that no significant differences were observed between the families and comparisons for most studied traits. Significant differences were detected among families for boll weight, lint percentage, lint index and seed index. While, the lest characters showed no significant differences among the families. These results could be due to environmental affected on such traits. These results are in agreement with those obtained by Abd El-Barry and Bisher (1969), Abd El-Al (1976), El-Akkad *et al.* (1982), El-Kilany and Youssef (1985), Younis *et al.* (1993) and El-Disouqi (2001).

Regarding the results of the yield trial, 18 increased B progenies out of 22 ones were selected according to their superiority in growth and flowering behaviour, yield and agronomic characters, fiber and spinning properties as well as seed quality. Pure seeds of these best 18 progenis, as the last step in such maintaining program, were massed to grow the breeders stock seed of Giza 83 cultivar in 2003 season, as presented in Table (4), which it proved to effective in holding the cultivar true to type.

Being then the breeder seed is further increased to produce the foundation seed as a new cultivar strain (wave) carrying the number of same year it is propagated in.

Table 1. Means of agronomic and fiber properties for the 60 Giza 83 families in 2000 season.

Families	Boll weight (g)	Lint percent %	Lint index (g)	Seed index (g)	Maturity %	Fiber length 2.5% mm	Fiber length 50% mm	Micronaire	Fineness Millitex	Yarn strength 60's carded
1/2000	3.0	39.3	7.3	11.3	80	31.5	25.0	4.1	167	2145
2/2000	2.6	39.1	7.3	11.3	82	31.5	25.5	4.3	171	1960
3/2000	3.0	40.4	7.6	11.4	80	31.7	25.7	4.3	179	2215
4/2000	3.0	41.0	7.8	11.2	81	31.4	25.5	4.4	180	1975
5/2000	3.2	39.9	7.6	11.4	81	30.9	25.5	4.4	182	2055
6/2000	3.0	39.4	7.5	11.5	80	31.2	25.5	4.5	185	2105
7/2000	3.2	39.3	7.6	11.8	83	31.5	25.5	4.4	178	2010
8/2000	3.2	40.3	7.6	11.2	81	31.0	25.5	4.4	184	2040
9/2000	3.2	40.3	7.6	11.2	79	31.5	25.5	4.5	186	2090
10/2000	3.2	40.5	7.8	11.4	81	31.8	25.9	4.3	177	2190
11/2000	3.3	41.7	7.7	10.8	82	31.0	25.5	4.5	184	2085
12/2000	3.3	41.5	8.2	11.5	85	31.6	25.7	4.5	180	2020
13/2000	3.0	40.9	7.4	10.7	83	31.2	25.7	4.4	180	2000
14/2000	3.1	40.8	7.9	11.4	81	31.2	25.5	4.4	180	1950
15/2000	2.9	41.8	7.8	10.9	81	31.7	25.5	4.6	182	1975
16/2000	3.1	40.4	7.5	11.1	80	31.2	25.3	4.5	181	1950
17/2000	3.1	41.0	7.9	11.3	80	31.9	25.8	4.5	180	1950
18/2000	3.1	39.9	7.4	11.2	81	31.6	25.7	4.4	180	1930
19/2000	3.5	40.0	7.6	11.4	81	31.2	25.6	4.5	180	1875
20/2000	2.8	40.7	7.7	11.2	82	31.3	25.4	4.4	181	2045
21/2000	3.0	40.1	7.5	11.2	82	31.9	25.5	4.4	180	1855
22/2000	2.8	40.4	7.3	10.7	81	31.7	25.6	4.5	180	1890
23/2000	2.9	39.3	7.1	10.9	80	31.7	26.0	4.4	182	1920
24/2000	3.2	40.4	7.5	11.0	81	31.6	26.1	4.4	181	1850
25/2000	3.2	40.4	7.6	11.2	81	31.8	26.0	4.4	183	1700
26/2000	3.2	40.2	7.3	10.8	80	32.0	26.0	4.5	180	1825
27/2000	3.2	40.0	7.5	11.3	81	31.3	25.5	4.4	186	1830
28/2000	2.9	40.1	7.3	10.9	80	31.2	25.5	4.5	185	1795
29/2000	3.1	39.8	7.1	10.8	80	31.0	25.4	4.5	183	1820
30/2000	3.1	40.5	7.8	11.5	81	31.4	25.7	4.6	188	1740
31/2000	3.6	39.1	7.2	11.2	81	31.5	25.7	4.4	183	1705
32/2000	3.5	39.7	7.2	11.0	82	31.0	25.0	4.5	187	1720
33/2000	3.4	39.2	7.4	11.4	82	31.5	25.7	4.5	187	1745
34/2000	3.3	40.2	7.6	11.3	86	31.5	25.6	4.4	175	1765
35/2000	3.0	39.7	7.4	11.2	85	31.2	25.3	4.6	185	1820
36/2000	3.1	38.9	7.6	11.9	86	31.7	25.5	4.5	181	1925
37/2000	3.2	38.2	7.5	12.1	85	31.8	25.7	4.6	184	1860
38/2000	3.4	38.6	7.6	12.1	84	31.5	25.5	4.6	188	1860
39/2000	3.2	38.8	6.9	10.9	86	31.0	25.3	4.5	179	1850
40/2000	3.1	39.5	7.4	11.3	85	31.0	25.3	4.5	182	1830
41/2000	3.1	39.1	7.4	11.6	85	32.0	26.0	4.5	183	1845
42/2000	3.1	39.9	7.3	11.0	88	31.7	26.0	4.4	168	1890
43/2000	3.2	39.3	7.3	11.2	84	32.0	26.0	4.5	181	1830
44/2000	3.3	39.6	7.7	11.7	83	32.0	26.1	4.6	190	1740
45/2000	3.2	38.8	7.4	11.7	91	31.5	26.1	4.4	176	1970
46/2000	3.1	39.1	7.8	12.2	93	31.5	26.0	4.6	177	2000
47/2000	3.3	39.1	7.6	11.9	90	32.0	26.0	4.4	175	2010
48/2000	3.3	37.6	7.6	12.6	91	31.7	25.7	4.5	179	2110
49/2000	3.4	38.4	7.4	11.9	92	31.6	25.8	4.5	174	2030
50/2000	3.2	38.7	7.4	11.7	[illegible]	[illegible]	25.6	4.3	180	2205
51/2000	3.3	38.1	7.2	11.7	88	31.5	26.1	4.4	180	2150
52/2000	3.1	39.1	7.4	11.5	88	31.8	25.6	4.4	182	2050
53/2000	3.0	39.2	7.1	11.0	88	31.7	26.0	4.4	181	2130
54/2000	3.2	38.2	7.3	11.8	85	32.0	25.7	4.5	180	2120
55/2000	3.0	39.4	7.2	11.1	85	31.9	25.9	4.3	180	2110
56/2000	3.2	39.8	7.5	11.3	86	31.0	25.7	4.5	184	1980
57/2000	2.8	38.6	7.1	11.3	87	31.5	25.3	4.5	185	2060
58/2000	2.9	40.6	7.5	10.9	85	31.3	25.7	4.5	180	2095
59/2000	3.5	41.0	7.9	11.2	83	32.1	25.8	4.4	183	2060
60/2000	3.4	40.6	7.5	11.0	86	31.6	25.6	4.3	180	1995
X̄ families	3.1	39.8	7.5	11.3	84	31.5	25.7	4.4	181	1954
X̄ comparisons	3.3	39.6	7.4	11.3	87	31.5	25.6	4.5	180	1996
S.E.	0.025	0.118	0.031	0.051	0.448	0.041	0.034	0.012	0.599	17.493
C.V. %	6.186	2.300	3.215	3.483	4.135	1.013	1.022	2.154	2.391	6.935

Table 2. **Means of agronomic and fiber properties for the 60 Giza 83 selected increase A families in 2001 growing season.**

Families	Boll weight (g)	Lint percent %	Lint index (g)	Seed index (g)	Maturity %	Fiber length 2.5% mm	Fiber length 50% mm	Micronaire	Fineness Millitex	Yarn strength 60's carder
1/2000-1	2.6	40.5	6.7	9.9	88	31.4	26.5	4.0	151	2070
1/2000-4	2.7	40.5	6.9	10.1	87	30.4	25.5	3.8	155	1975
3/2000-12	2.7	41.1	7.3	10.4	89	31.4	26.3	3.9	149	1980
3/2000-15	2.7	41.8	7.1	9.9	85	30.4	25.7	3.8	150	1970
7/2000-1	2.8	40.3	7.1	10.5	91	30.8	25.8	3.9	143	1960
10/2000-14	2.5	40.7	6.9	10.0	89	30.5	25.7	3.8	141	2010
14/2000-7	2.7	41.6	7.3	10.3	90	30.6	25.9	4.0	158	2000
16/2000-12	2.7	40.5	6.7	9.9	92	30.0	25.0	4.1	155	2030
19/2000-2	2.8	41.4	7.5	10.6	88	30.5	25.7	3.9	158	2060
19/2000-11	2.8	41.7	7.5	10.5	89	31.6	26.5	4.3	167	1995
20/2000-10	2.6	39.8	6.5	9.9	89	30.0	25.3	4.0	156	2220
21/2000-9	2.6	41.4	6.9	9.8	89	30.6	25.7	4.0	155	1980
21/2000-24	2.6	40.8	6.8	9.9	86	31.4	26.3	4.0	165	1730
22/2000-1	2.8	41.6	7.2	10.1	90	31.4	26.4	4.1	158	1820
22/2000-2	2.5	40.0	6.7	10.0	90	30.5	25.7	4.0	158	1710
22/2000-11	2.6	42.6	7.1	9.6	89	30.6	25.5	3.9	155	1735
22/2000-15	2.5	41.0	6.7	9.7	94	31.2	26.1	4.3	160	1820
23/2000-2	2.6	40.3	6.7	9.9	94	31.0	26.2	4.2	159	1725
23/2000-7	2.6	39.8	6.5	9.8	92	30.8	26.3	4.2	160	1820
24/2000-1	2.7	41.9	7.0	9.7	84	30.8	26.1	4.2	158	1830
24/2000-3	2.7	41.6	6.9	9.7	83	30.7	25.7	4.2	159	1850
24/2000-28	2.6	40.6	6.8	9.9	81	31.2	26.1	4.3	168	1930
24/2000-29	2.7	41.2	7.0	10.0	81	30.8	26.0	4.2	165	1905
25/2000-2	2.8	42.5	7.6	10.3	91	30.0	25.5	4.3	168	1820
25/2000-13	2.7	42.0	7.5	10.3	89	30.5	25.9	4.3	171	1850
25/2000-17	2.8	40.8	7.0	10.2	89	30.4	25.5	4.3	175	1805
25/2000-19	2.7	40.5	7.0	10.3	90	30.4	25.7	4.2	166	1750
26/2000-7	3.0	42.7	7.3	9.8	94	30.5	25.6	4.3	163	1915
26/2000-8	2.9	40.6	7.0	10.2	88	30.2	25.5	4.3	172	1910
26/2000-16	2.8	38.6	6.5	10.4	91	30.0	25.5	4.3	168	1950
27/2000-12	2.9	40.3	7.1	10.5	91	30.0	25.4	4.3	169	1910
27/2000-16	3.1	39.4	6.9	10.6	91	30.5	25.7	4.4	172	2020
27/2000-20	3.1	40.6	7.4	10.8	91	31.5	26.6	4.3	171	1840
27/2000-28	2.8	39.4	7.0	10.7	97	30.5	25.7	4.3	159	2010
28/2000-5	2.7	40.1	7.2	10.7	93	30.4	25.7	4.4	169	1950
28/2000-15	2.6	40.1	6.4	9.6	84	30.4	25.7	4.2	179	1750
30/2000-17	2.8	41.2	7.4	10.6	87	30.5	25.7	4.3	177	1760
30/2000-19	2.7	41.1	7.0	10.0	91	30.6	25.9	4.2	163	1830
32/2000-1	3.0	41.4	7.3	10.3	90	30.6	25.7	4.1	158	1795
32/2000-8	3.1	40.6	7.2	10.6	88	30.6	25.7	4.2	171	2040
32/2000-12	2.9	40.1	7.0	10.4	87	30.6	25.8	4.1	169	2080
32/2000-15	2.9	41.0	6.9	10.0	89	30.7	25.7	4.1	164	2005
33/2000-1	3.1	40.7	7.3	10.6	90	30.6	25.9	4.2	167	1880
33/2000-2	2.8	40.5	6.7	9.8	88	30.5	25.4	4.1	156	2030
33/2000-21	3.0	40.2	6.9	10.3	88	31.5	26.5	3.9	150	1880
34/2000-8	3.0	40.7	7.8	11.3	87	31.0	26.0	4.0	152	1750
34/2000-12	2.9	39.7	6.8	10.4	83	31.2	26.2	4.0	157	1980
36/2000-13	2.8	39.6	6.7	10.2	84	31.3	26.3	3.9	154	1890
36/2000-20	2.9	39.9	6.9	10.4	87	31.3	26.2	4.0	155	1810
37/2000-11	2.7	40.1	6.8	10.2	86	31.5	26.4	4.0	153	2040
38/2000-21	2.8	40.6	7.0	10.3	82	32.0	27.1	4.0	160	2080
38/2000-23	2.8	40.3	6.9	10.2	87	31.1	26.4	4.0	152	2120
38/2000-29	2.8	40.0	6.8	10.2	84	31.3	26.4	4.0	158	2070
39/2000-13	2.9	39.9	6.8	10.3	87	31.2	26.5	4.1	167	2010
41/2000-11	2.9	41.0	6.9	10.0	86	30.8	25.8	4.1	169	1970
41/2000-19	2.9	40.9	7.1	10.2	89	30.8	26.0	4.2	169	1875
49/2000-12	3.0	40.0	6.9	10.4	90	31.0	26.0	4.3	170	1850
55/2000-12	2.7	39.6	6.9	10.5	88	31.0	26.2	4.1	165	1920
56/2000-2	2.8	41.0	7.4	10.7	89	30.8	26.0	4.1	160	2035
59/2000-4	2.7	42.0	7.2	9.9	90	30.8	25.9	4.2	166	1835
X families	2.8	40.7	7.0	10.2	88	30.8	25.9	4.1	161	1920
X comparisons	2.8	40.5	7.0	10.2	87	31.0	26.1	4.2	170	1833
S.E.	0.02	0.108	0.038	0.044	0.417	0.059	0.050	0.020	1.048	14.926
C.V %	5.521	2.053	4.154	3.350	3.674	1.482	1.495	3.858	5.041	6.022

Table 3. Mean yield, yield components and fiber properties for the 22 selected increases B families in 2002 growing season.

Selected families	Yield and yield components						Maturity %	Fiber properties				
								Fiber length		Fiber fineness		Yarn strength
	Seed cotton yield K/F	Lint yield K/F	Boll weight (g)	Lint percent (%)	Lint index (g)	Seed index (g)		2.5% mm	50% mm	Micro naire	Millite x	60's carded
1/2000-1	10.66	13.44	2.4 d	39.8 f	6.4 d	9.7 e	97	30.1	25.5	4.2	156	2005
3/2000-12	10.74	13.51	2.5 cd	41.7 a-c	7.1 b-d	9.9 de	98	29.7	25.1	4.3	155	1820
14/2000-7	11.46	14.70	2.7 a-c	42.2 ab	7.7 a	10.5 a-c	98	29.0	24.3	4.4	164	1850
19/2000-2	11.52	14.77	2.6 b-d	42.3 a	7.3 a-c	9.9 de	97	30.3	25.7	4.4	150	1860
19/2000-11	10.83	12.60	2.7 a-c	40.1 d-f	6.9 b-d	10.3 b-d	99	29.7	25.3	4.4	163	1795
21/2000-9	10.94	13.09	2.5 d	41.3 a-e	7.0 b-d	10.0 c-e	99	29.7	25.1	4.3	154	1960
24/2000-28	10.37	13.02	2.6 b-d	41.0 a-f	7.1 bc	10.2 b-e	95	29.4	24.8	4.4	164	1790
24/2000-29	11.32	14.35	2.4 d	41.2 a-e	7.0 b-d	10.0 c-e	99	29.3	24.9	4.4	162	1790
26/2000-7	9.46	12.11	2.6 b-d	41.1 a-f	7.0 b-d	10.0 c-e	95	29.4	24.9	4.3	160	1850
28/2000-5	12.05	15.26	2.7 a-c	41.7 a-c	6.9 b-d	9.7 e	98	29.3	24.8	4.4	161	1795
32/2000-8	11.91	15.35	2.8 ab	40.9 b-f	7.2 e-c	10.4 a-d	97	30.5	25.9	4.3	155	1790
32/2000-12	11.68	14.77	2.8 ab	41.0 a-f	7.4 ab	10.6 ab	97	30.1	25.7	4.4	162	1790
32/2000-15	12.44	15.70	2.6 b-d	40.1 d-f	7.0 b-d	10.4 a-d	98	28.8	24.1	4.4	166	1795
33/2000-2	11.70	14.84	2.7 a-c	41.1 a-f	7.4 ab	10.6 ab	99	29.5	25.4	4.3	157	1905
34/2000-12	11.94	15.05	2.8 ab	41.0 a-f	7.3 a-c	10.5 a-c	98	30.1	25.6	4.3	154	1970
37/2000-11	10.37	13.02	2.7 a-c	41.1 a-f	7.3 a-c	10.5 a-c	96	30.5	26.4	4.5	162	1820
38/2000-21	12.83	15.47	2.7 a-c	41.3 a-e	7.3 a-c	10.4 a-d	99	28.9	24.4	4.4	157	1885
38/2000-23	11.37	14.00	2.9 a	40.4 c-f	7.4 a-b	10.9 a	97	29.6	25.4	4.4	166	1770
38/2000-29	11.74	14.77	2.7 a-c	41.4 a-d	7.2 a-c	10.2 b-e	98	29.4	24.5	4.4	161	1830
39/2000-13	11.26	14.14	2.7 a-c	41.2 a-e	7.3 a-c	10.4 a-d	98	29.4	24.6	4.4	165	1830
41/2000-11	11.99	15.09	2.7 a-c	40.0 ef	7.1 bc	10.6 ab	97	29.8	24.6	4.4	160	1820
56/2000-2	11.29	14.35	2.9 a	40.4 c-f	7.1 bc	10.5 a-c	99	29.6	24.8	4.3	152	1830
X selected families	11.36	14.66	2.7	41.0	7.1	10.3	98	29.6	25.1	4.4	159	1843
X comparisons	11.99	15.36	2.7	40.6	7.0	10.3	97	29.6	24.8	4.4	160	1885
F-test	N.S.	N.S.	**	**	*	**	-	-	-	-	-	-
S.E.	0.163	0.217	0.021	0.142	0.053	0.068	0.259	0.101	0.123	0.014	1.001	13.772
C.V. %	6.721	6.951	5.305	1.627	3.497	3.108	1.242	1.604	2.302	1.495	2.953	3.505

K = Kentar = 157.5 kg Lint of the Kentar = 50.0 kg.

Table 4. Mean of studied characters for the 18 types selected increases B families in 2002 growing season which are massed to form the new nucleolus (Breeder seed) of Giza 83 in 2003 season.

Selected families	Yield and yield components						Maturity %	Fiber properties				
								Fiber length		Fiber fineness		Yarn strength 60's carded
	Seed cotton yield K/F	Lint yield K/F	Boll weigh t (g)	Lint percent (%)	Lint index (g)	Seed index (g)		2.5% mm	50% mm	Micronaire	Millitex	
1/2000-1	10.65	13.36	2.4	39.8	6.5	9.7	97	30.1	25.5	4.2	156	2005
3/2000-12	10.76	14.07	2.5	41.7	7.0	9.9	98	29.7	25.1	4.3	155	1820
14/2000-7	11.46	15.21	2.7	42.2	7.7	10.5	98	29.0	24.3	4.4	164	1850
19/2000-2	11.53	15.34	2.6	42.3	7.2	9.9	97	30.3	25.7	4.4	150	1860
19/2000-11	10.84	13.69	2.7	40.1	6.9	10.3	99	29.7	25.3	4.4	163	1795
21/2000-9	10.95	14.24	2.4	41.3	7.0	10.0	99	29.7	25.1	4.3	154	1960
24/2000-28	10.33	13.31	2.6	41.0	7.1	10.2	95	29.4	24.8	4.4	164	1790
24/2000-29	11.34	14.70	2.4	41.2	7.0	10.0	99	29.3	24.9	4.4	162	1790
26/2000-7	9.47	12.23	2.6	41.1	7.0	10.0	95	29.4	24.9	4.3	160	1850
28/2000-5	12.06	15.82	2.7	41.7	6.9	9.7	98	29.3	24.8	4.4	161	1795
32/2000-12	11.69	15.05	2.8	41.0	7.4	10.6	97	30.1	25.7	4.4	162	1790
33/2000-2	11.70	15.14	2.7	41.1	7.4	10.6	99	29.5	25.4	4.3	157	1905
34/2000-12	11.95	15.40	2.8	41.0	7.3	10.5	98	30.1	25.6	4.3	154	1970
37/2000-11	10.38	13.44	2.7	41.1	7.3	10.5	96	30.5	26.4	4.5	162	1820
38/2000-21	12.84	16.69	2.7	41.3	7.3	10.4	99	28.9	24.4	4.4	157	1885
38/2000-23	11.38	14.48	2.9	40.4	7.4	10.9	97	29.6	25.4	4.4	166	1770
38/2000-29	11.74	15.29	2.7	41.4	7.2	10.2	98	29.4	24.5	4.4	161	1830
39/2000-13	11.27	14.59	2.7	41.2	7.3	10.4	98	29.4	24.6	4.4	165	1830
$\bar{X}$ selected families	11.24	14.56	2.6	41.2	7.2	10.2	98	29.6	25.1	4.4	160	1851
$\bar{X}$ comparison	11.99	15.36	2.7	40.6	7.0	10.3	97	29.6	24.8	4.4	160	1885

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إنتاج النوية (بذرة المربى) والمحافظة على النقاوة الوراثية لصنف القطن المصرى جيزه ٨٣ خلال المواسم من ٢٠٠٠ إلى ٢٠٠٣

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معهد بحوث القطن – مركز البحوث الزراعية

يوضح هذا البحث كيفية إنتاج بذرة المربى والمحافظة على الصنف جيزه ٨٣ . أجرى برنامج هذا البحث بمحطة البحوث الزراعية بملوى فى الفترة من ٢٠٠٠-٢٠٠٣ حيث تم زراعة ٦٠ نبات منتخب من حقل التربية للصنف موسم ٢٠٠٠ مكونة ٦٠ عائلة . وفى نهاية الموسم تم انتخاب ٦٠ نبات زرعت موسم ٢٠٠١ مكونة خطوط ونسل إكثارات-أ . ثم أنتخب منها ٢٢ عائلة طراز الصنف أدخلت مع مقارنتان فى تجربة قطاعات كاملة العشوائية فى أربعة مكررات موسم ٢٠٠٢ لتقييمها للمحصول والتجانس وصفات جودة التيلة والغزل .

وفى نهاية الموسم وحسب الاختبارات التى أجريت تم أنتخاب ١٨ عائلة نموذجية بناء على الصفات القياسية للصنف والتى تم خلط بذرتها لتكوين النوية الجديدة للصنف (بذرة المربى) والتى زرعت موسم ٢٠٠٣ فى مساحة قدرها ١٨ فدان فى نفس المسنحة المخصصة للصنف ، والتى بالتالى ستزرع فى موسم ٢٠٠٤ إن شاء الله بالمزرعة البحثية والمزرعة الحقلية بملوى لتكون السلالة الجديدة للصنف والتى تنتج سنويا تحت مسمى نواة وهى تمثل تقاوى الأساس للصنف والذى بدوره سيدخل فى مراحل إكثار عند المزارعين المتعاقدين بمرتب الصنف بالزراعة العامة لتكون درجتى التقاوى المسجلة والمعتمدة بالقدر الذى يكفى تغطية مساحة الصنف جميعها بتقاوى نقية معتمدة .

وتشير النتائج المتحصل عليها أن السلالة الناتجة بهذه الطريقة تمثل المصدر الجيد للبذرة النقية وراثيا والمنتجة بواسطة المربى والتى يمكن بواسطتها المحافظة على النقاوة الوراثية للصنف جيزه ٨٣ ، واذا أحصنت عمليا تداول التقاوى وإحتياطات منع الخلط سواء ميكانيكى أو وراثى فى حقول إكثار التقاوى بالزراعة العامة .

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