

EVALUATION OF THE EXTRA-LONG STAPLE EGYPTIAN COTTON VARIETY "GIZA 87"

HANEM A. EL-SALAM, SAYEDA S. EL-HELOW, AND M.A.M. ALLAM

Cotton Research Institute, Agricultural Research Center, Giza.

(Manuscript received March, 2002)

Abstract

Giza 87 is a new extra-long staple variety of Egyptian cotton. It had been introduced by the Cotton Breeding Research Section through artificial hybridization between the two parents Giza 45 and Giza 77 to combine their splendid economic qualities.

Giza 87 is characterized with its extra-fine, extra-long and very strong fibers with 35.2 - 37.2 mm 2.5% span length, 17.2 - 19.0 mm 50% mean length, 3.4 - 3.6 micronaire reading, 114 - 128 millitex (10-8 g/cm) for hair weight and 2615 - 3050 (60s carded) yarn strength

Also the lint percentage about 31-33% and the seed index about 9 gm.

This variety may be a suitable substitute of Giza 45 variety. Moreover, it is resistant to fungal Fusarium wilt.

INTRODUCTION

For a long time, the Cotton Research Institute made serious attempts to produce new varieties to replace the extra-long Egyptian cultivars such as Malaky, Amoun and Karnak (Al-Didi, 1972). Recently, "Giza 45" the oldest cultivar in this category began to be the lowest in yield and lint percent with some decrease in its fiber quality.

Breeding new Egyptian cotton varieties passes through three stages (Fig. 1) Haikal *et al* (1996). The first stage (seed development stage) starts by the hybridization between two desired genotypes followed by selection between and within families. This stage carried out in the progeny field of the breeding programme and continue concomitantly with the next stage. The next stage (evaluation stage) starts, for each cross, at the fifth generation where, its superior families tested in preliminary yield trial (A) and advanced yield trials (B). The preliminary yield trial (A) carried out at one location (Sakha), with the advanced yield trials carried out at about seven locations over Nile Delta of Egypt. As a result of the advanced yield trials, the selected families, of the cross which seems to be better than the commercial varieties for at least three seasons, considered as mother families for the new variety, then the selfed seeds of their plants raises to the third stage. The objectives of the third stage (production of

breeder seeds) is to propagate the seeds and to achieve the maximum improvement and homogeneity to the new variety. This stage started by planting the progeny rows of the mother families in isolated field. The isolated field starts by $\frac{1}{2}$ feddan and increased annually. During this stage the breeder selects best plants and divide it into two groups. The first group contains the supper plants which will reproduce the progeny rows and its bulk for the next season. The other group contains the remaining plants which will produce both selfed and open nucleoli for the next season. The seeds of selected selfed nucleoli will produce a nuclei and its open nuclei will evaluated in the yield trial to select the best nucleus. The seed of the selected nucleus will mix together to produce the breeder seed.

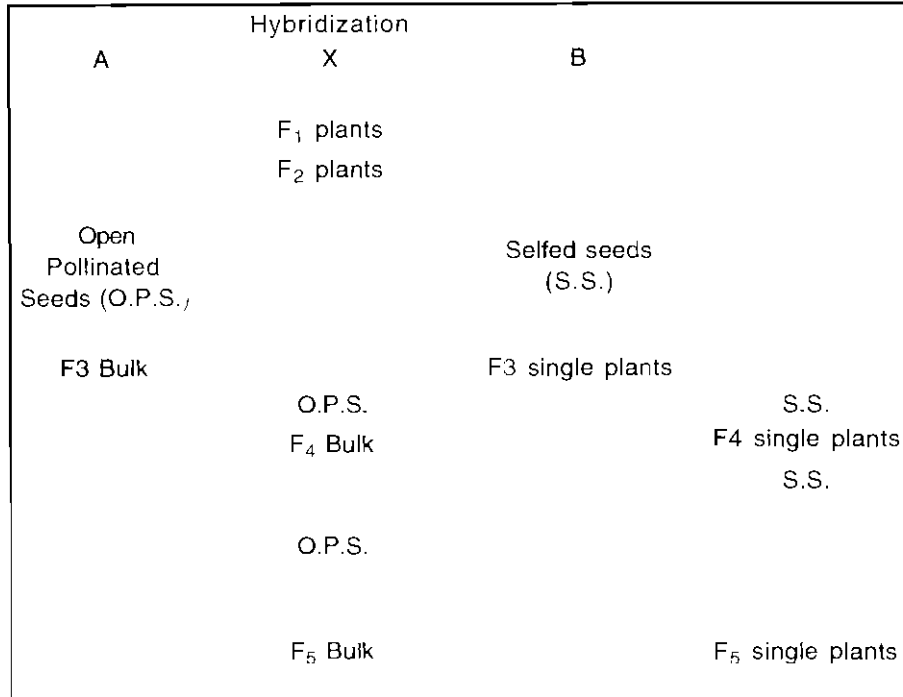
The main objective of the cotton-breeding program undertaken by the Cotton Breeding Research Section is to breed and release outstanding cultivars of high productivity and fiber quality to be alternative to the extra-long cultivars such as Giza 45. Such alternative variety ought to maintain super fiber properties and should excel the old one (Giza 45) in yield at the same time, the latest of which were Giza 70, Giza 76 and Giza 77, (El-Moghazi *et al.* 1981 and 1982).

In this investigation, the breeding and production of the new variety "Giza 87" will be discussed.

MATERIALS AND METHODS

Breeding and production of the new variety "Giza 87" depended mainly upon using hybridization through the pedigree method as mentioned by Hays *et al.* (1955). Artificial hybridization between the two parental varieties; Giza 45 and Giza 77, had been carried out in 1977 season at Giza Experimental Station. The parental variety "Giza 77" is characterized by high extra-long fibers and high yield whereas, "Giza 45" characterized by its extra-long and extra fine fibers. The F_1 hybrid seeds were grown in the second season (1978) at Sakha Experimental Station. Beginning with the F_2 till the F_8 generation, selection had been held in both the field and laboratory. The selected families from the F_5 generation were evaluated through trials A and B at Sakha and at different six locations; Monofia, Sharkia, Dikahlia, Beharaa, Gharbia and Demeata governorates, along lower Egypt to select and evaluate the promising families which excelled the extra-long commercial varieties. Progenies of the promising maternal families in the F_8 generation, which were selected from the breeding nursery, were grown in an isolated field to maintain the selected strains of the new variety. Comparisons among the new strains and the selected nuclei were included in a yield trial.

Seed Development Stage



Continued to the later generations
(up to 11th -20th generation)

Seed increase Selected families (Based in Trial A results) Trial B Mother families Surpassed the check varieties at least in one trial for 3 successive seasons	Trial A Replicated Progeny Rows (Multi locations) 5-7 environment s year	Normal type plants O.P.S Open nuclei Selection Potential yield trial evaluating nuclei	S.S. of selected mother families (Replicated trial in one environment) Superior plants Bulk S.S. Self nuclei Breeder seeds (Mixture of selected nuclei)
---	---	--	--

Evaluation of selected lines

Production of breeder seeds

Fig. 1. The pathway for breeding new Egyptian cotton varieties.

A randomized complete block design with six replications was used in each experiment with five rows in each plot. The rows were four meters long, 60 cm apart and 20 cm between hills. The hills were thinned to two plants. The yield was obtained from the three middle rows of the plot. In this experiments, the following characters were considered:

1. Seed cotton yield (S.C Y., C/F); estimated as the weight of seed cotton yield in cantars per feddan.
2. Lint cotton yield (L.C.Y., C/F); estimated as the weight of lint in cantars per feddan.
3. Boll weight (B.W.), obtained from the average weight in grams, of 50 sound-opened bolls picked at random from the first and fifth rows of each plot.
4. Earliness index: expressed as percent yield at first pick relative to total seed cotton.
5. Lint percent (L%) is the amount of lint in a seed cotton sample expressed in percentage.
6. Micronaire reading: an indication of fineness and maturity.
7. Values of 2.5% and 50% span length in mm were measured by the digital fibrograph according to ASTM, D, 1447-63T.
8. Hair weight (H.W.) in terms of millitex (10-8 g/cm).
9. Yarn strength (Y.St.) is the product of "lea strength x yarn count" (60's carded and 306 twist multiplier) measured by the Good Brand Tester.

The lint cotton samples were tested for the technology characters in the Cotton Research Laboratory of the Cotton Research Institute.

Analysis of variance for the randomized complete block design was calculated using the appropriate method mentioned by Snedecor (1956) and Le-Clerg *et al.* (1962).

RESULTS AND DISCUSSION

Breeding Methodology:

In 1977 season, hybridization had been carried between the two parents (G. 45 and G. 77) at Giza Agric Exp. Sta., whereas the F_1 hybrid seed and later generations were planted from 1978 season at Sakha Exp. Sta. Selection through pedigree method had been applied starting from the F_2 generation up to the F_8 generation in the breeding nursery. The outcome results of preliminary trial A, and the advanced trial B of crop evaluation at Sakha and different locations of lower Egypt, had proved that the five maternal families (F_8 808/86, F_8 809/86, F_8 813/86, F_8 816/ 86 and F_8 842/86 Table 1) had almost excelled the control

cultivated varieties. Moreover, all the selected families starting from F_3 generation had been undergone tests against *Fusarium oxysporum* and *F. vasinfectum* at the Cotton Disease Research Section. These families have proved their resistance to wilt disease.

The descendant progeny of the five selected families of the cross G.77 x G.45 from trial A were grown in trial B representing the maternal families in the 8th generation to have more information about their productivity and fiber quality and to study the genotype-location interaction under different environments. They were evaluated in five different locations in the Delta including one experiment at El-Nataf in the experimental station of Sakha.

The combined data of trials B in five locations for the economic characters are presented in Table 1. Yield results showed that all selected strains of the cross surpassed significantly the control variety Giza 45. The mean value of seed cotton yield over the five locations exceeded significantly Giza 45 parent of a range of 1.26 to 2.35 C/F.

Moreover, the main lint cotton yield was in agreement with those of seed cotton yield and surpassed Giza 45 by a range of 1.95 to 2.97 C/F. The results of lint percent for the five families showed higher lint percent values compared with Giza 45 variety except the family F_8 809/86 which was nearly the same, however, the family F_8 842/86 surpassed Giza 77 in lint percent.

There were no significant differences between the values of the five families and the other commercial varieties in all examined characters except for fineness and strength, which showed slight differences. All the families at single locations were in agreement with the combined data. Micronaire values of the five families were the same and very close to Giza 45 except family F_8 842/86 which was slightly coarser than Giza 45, the families of the cross almost tended to be similar to the commercial variety Giza 45 in fiber quality.

Moreover, the results of the yield and fiber properties indicated that this promising cross "which was named Giza 87" may replace the extra-long staple variety Giza 45.

In 1998 season, there were a number of 21 selected nuclei of the variety Giza 87, induced from the progeny of the maternal families F_8 808/86, F_8 809/86, F_8 813/86, F_8 816/86 and F_8 842/86. Those nuclei were tested in a trial to compare their yield with that of the previous foundation seed of the variety (Giza 87/97, Giza 87/96 and Giza 87/95), which were circulated by the variety's propagation in Sakha farm.

Table 1. Means of economic characteristics of the promising families of the cross Giza 77 x Giza 45 and commercial cultivars involved in the combined analysis of trials "B" at five different locations in 1988 season.

Family or variety	Parent	S.C.Y C/F	L.C.Y C/F	L%	B.W. gram (50 bolls)	Fiber properties				Yarn str.
						Mic	H.W. (millitex)	S.L. 50% (mm)	S.L. 2.5% (mm)	
F ₈ 808/86	F ₇ 604/85	4.69b	4.48b	30.07	130	3.1	128	16.1	34.6	2825
F ₈ 809/86	F ₇ 604/85	5.04a	4.77b	29.35	128	3	125	15.8	34.4	2940
F ₈ 813/86	F ₇ 613/85	4.80b	4.61b	29.86	127	2.9	122	15.8	34.5	2943
F ₈ 816/86	F ₇ 613/85	4.39b	4.91b	29.95	127	2.9	122	15.9	34.4	2871
F ₈ 842/86	F ₇ 655/85	4.99a	5.70a	33.43	127	3.4	141	16.1	33.7	2793
Giza 45	G.28 x G.7	3.13c	2.95c	29.76	129	2.9	125	16.7	35	2804
Giza 77	G.70xG.68	5.40a	5.72a	33.17	129	3.4	145	16.9	34.7	2870
S.E.		0.56	0.59							
L.S.D.	0.05	1.11	1.17							
	0.01	1.47	1.55							
Interaction		1.81**	2.09**		1.57**					
Heritability%		78.8	87.39		60.38					

Five nuclei (4/98, 10/98, 12/98, 13/98 and 15/98) were selected according to their vegetative, spinning and fiber qualities characteristics in the lint yield of the strains as shown in Table 2. The analysis of variance showed insignificant differences indicating the homogeneity for the strains of Giza 87 variety. The seeds of the five nuclei were mixed to form the foundation seed of the variety (Giza 87/98).

In the previous season (1997), 50 plants were selected from the progeny lines of the variety Giza 87 representing the desired characteristics of the variety. Their selfed seed were planted bulkily in 1998 season forming 50-selfed nucleoli/98 and their natural seeds were propagated as well. Fifteen nucleoli/98 were selected according to their vegetative spinning and fiber qualities to form nuclei for 1999. The natural propagation seeds of these nuclei/99 were tested along with the previous foundation seeds of the variety (Giza 87/98, Giza 87/97, Giza 87/96 and Giza 87/95 seed belt), in a yield trial that was grown in the middle of the variety's propagation at Sakha farm in 1999 season.

The selection limits of the nucleoli/98 Table 2. forming nuclei/99 were:

1. Spinning strength over 2630 units.
2. Fiber fineness (H.W.) ranged from 100 to 115 millitex.
3. Staple length (50%) over 17.0mm and staple length (2.5%) not less than 34.0mm.
4. Limit percent (L%) no less than 30%.

On the other hand, 50 plants from the progeny lines were selected in 1997 to form the individual plants of the variety. These selected plants showed excellent fiber qualities to be used in forming the progeny lines in 1998 season. Their selfed seeds were planted in wide space, while the natural seed had been bulkily planted as the farmers do. However, the selected superior plants, in 1998, that form the progeny in 1999 were also 50 plants.

In 1999 season, there were a number of 19 nuclei of the variety Giza 87 belonged to two maternal families; F_8 813/86 and F_8 816/86., while the progeny of the families (F_8 808/86, F_8 809/86 and F_8 842/86) were discarded. Those nuclei had been evaluated in a yield trial along with the previous foundation seed Giza 87/98.

The nuclei 2/99, 7/99, 8/99, 9/99 and 14/99 Table 3. had been selected on the same selection levels that were mentioned previously. Those nuclei also belonged to the same maternal families F_8 813/86 and F_8 816/86. Their seeds were mixed to form the foundation seed of Giza 87/99 in 2000 season.

Table 2. Comparison between the selected nuclei/1998 and Giza 87 strains of Giza 87 variety in 1998 season.

Nuclei and strains	L.C.Y C/F	S.C.Y C/F	L%	B.W. (50)	Mic	H.W. millitex	Staple Length (mm)		Y.st.	Earliness %
							50% (mm)	2.5% (mm)		
Apr-98	8.36	8.4	31.57	114	2.5	103	17.8	34.6	2640	70.88
Oct-98	7.7	7.85	31.17	116	2.7	111	17.8	34.3	2860	65.42
Dec-98	7.71	7.72	31.68	114	2.5	100	17.8	34.6	2920	71.7
13/98	8.4	8.35	31.93	116	2.8	113	17.6	34.8	2660	73.16
15/98	7.97	8.12	31.18	118	2.7	112	17.6	34.3	2830	70.04
Giza 87/97	7.73	7.92	30.96	118	2.8	112	17.8	34.7	2925	68.17
Giza 87/96	6.77	7.19	29.94	125	2.7	115	17.8	34.6	2730	69.37
Giza 87/95	6.4	6.72	30.26	120	2.6	100	17.2	34	2740	65.09

For the progeny lines in 1999 season, 50 individual plants of the variety Giza 87 (from 1998 season) representing the desired qualities were selected and their natural seeds had been planted bulkily forming 50 nucleoli /99.

These nucleoli were selected on the basis of vegetative, spinning and fiber qualities in order to form nuclei/2000. On the other hand, their natural seeds were tested with the previous foundation seed of the variety Giza 87, Giza 87/99, in a yield trial, which had been held amidst propagation of the variety in 2000 season.

The selection limits of the characters were:

1. Staple length (50%) from 16.6 to 17.7mm and staple length (2.5%) from 32.7 to 34.7mm.
2. Lint percent (L%) not less than 28.9%.
3. Lint cotton yield not less than 5.38 C/F.
4. Seed cotton yield from 5.73 to 6.94 C/F.

Fifty plants were selected from the progeny lines of the variety Giza 87 in 1999 season which proved to be excellent in their qualities. These selected plants formed the progeny lines in 2000 season, whereas their selfed seeds were widely planted and the natural seeds were bulkily planted.

On the other hand, in 1999 also, 50 plants of the progeny lines of Giza 87 were selected, representing the desired qualities of the variety. Their selfed seed had been planted bulkily in 2000 season forming 50 nucleoli/2000 while, their natural seeds were propagated as well. Twenty nuclei of which were selected due to their quality in order to be used as nuclei/2000. The natural propagation seeds of those nuclei had been evaluated along with the previous foundation seed of Giza 87/99 strain in a yield trial amidst the variety propagation in 2000 season. In selecting the nucleoli/99 to form the nuclei/2000 the following selection limits had been considered: 4..

1. Spinning strength ought to be 2600 unit.
2. Fiber fineness range from 114 to 128 millitex.
3. Staple length (50%) over 17.2mm and staple length (2.5%) over 35.0mm.
4. Lint percent not less than 35.0%.

Fifty plants of the progeny lines of the variety Giza 87 were selected in 2000, representing the desired qualities of the variety in order to plant their selfed seeds in 2001 forming nucleoli/2001. Their natural seeds were propagated as well to evaluate their yield and quality later on with the foundation seeds in 2001 season.

Table 3. Comparison of the selected nuclei/1999 of Giza 87 variety and Giza 87 strains in 1999 season.

Nuclei and strains	L.C.Y C/F	S.C.Y C/F	L%	B.W. (50)	Mic	H.W. millitex	Fiber Length (mm)		Earliness %
							50% (mm)	2.5% (mm)	
Feb-99	6.34	6.74	29.84	106	2.3	99	16.6	32.7	68.5
Jul-99	5.9	6.35	29.48	105	* --	--*	17	34.7	61.71
Aug-99	6.34	6.94	28.98	107	--	--	17.7	35.5	63.67
Sep-99	5.83	6.16	30.06	101	--	--	16.8	34	67.47
14/99	5.9	6.32	29.65	108	--	--	17	34.2	62.52
Giza 87/98	5.38	5.73	29.81	115	--	--	16.8	33.7	60.85

* The samples were not fitted to extract the results of Mic., H.W. and Y.St. characters.

Moreover, 50 plants of the progeny of the variety had been selected in 1999, which were superb in their quality to form the progeny lines in 2000. Their selfed seeds had been cultivated in wide spaces. The natural seeds were bulkily planted. In 2000, the plants of the progeny lines of the variety were selected. These selected plants were excellent in their qualities to form the progeny lines in 2001. Table 4. indicated the characteristics of the five selected nuclei: 2/2000, 4/2000, 7/2000, 8/2000 and 12/2000 compared with the foundation seeds of Giza 87/99 strain.

The analysis of variance showed no significant differences indicating the homogeneity and the genetic stability of all the strains of Giza 87 variety.

Evaluation of the new variety Giza 87:

Comparison studies were held between the new variety Giza 87 and the commercial varieties Giza 45 and Giza 77 for lint yield, seed cotton yield and boll weight through 1998, 1999 and 2000 seasons. The data were extracted from the yield trial B that had been grown at five different locations in 1998 and 1999 seasons and six locations in 2000 representing lower Egypt. It is perceived from Table (5) that the variety Giza 87 recedes significantly the variety Giza 45 in lint yield by 2-30 met. contars per feddan (26.99%), while it had an excess of 0.75 C/F (8.80%) in average over Giza 77. Giza 87 exceeded Giza 45 and Giza 77 in all governorates in the late three seasons in lint cotton yield and in seed cotton yield. Seed cotton yield results showed an excess of Giza 87 (2.37 C/F = 27.95%) over Giza 45 average of the three seasons, while the excess was 1.19 C/F (14.03%) over Giza 77.

Boll weight results showed fluctuation between Giza 87 and Giza 45 in the three seasons.

The present study of the new variety Giza 87 has proved its superiority over all other Egyptian cotton varieties, that belong to the category of extra-long and extra fine staple cotton varieties concerning all economic characteristics particularly its lint yield. The variety Giza 87 could be a best alternative of Giza 45 and Giza 77. Its area reached five feddans in 2001 season. As perceived in this study, the variety Giza 87 has excelled Giza 45 in lint yield by about 2-30 C/F equivalent to 29.99% as shown in Table (5) therefore, replacement of Giza 87 might lead to an increase in the total yield of the extra-long staple cottons.

The morphological characteristics:

The cotton breeders of the Extra Long Stable Section reported the morpho-

Table 4. Comparison of the selected nuclei/2000 of Giza 87 variety and Giza 87 strains in 2000 season.

Nuclei and strains	L.C.Y C/F	S.C.Y C/F	L%	B.W. (50)	Mic	H.W. millitex	Fiber Length (mm)		Y.st.	Earliness %
							50% (mm)	2.5% (mm)		
Feb-00	8.23	7.72	33.84	137	3.5	114	19	37.2	3005	44.66
Apr-00	8.82	7.93	35.3	132	3.4	115	18	36.7	3050	46.46
Jul-00	8.22	7.38	35.39	134	3.6	128	18	35.8	3005	43.47
Aug-00	8.25	7.45	35.16	129	3.5	119	18.2	36.5	3035	45.92
Dec-00	8.57	7.71	35.29	125	3.5	121	18.2	36.5	2615	43.22
Giza 87/99	7.48	7.18	33.1	136	3.4	119	17.2	35.2	2830	47.48

Table 5. Comparison of Giza 87 variety and the commercial varieties Giza 45 and Giza 77 concerning lint yield, seed cotton yield (c/f) and the mean weight of 50 bolls at Kaliobia, Menofia, Kafr El Sheikh, Behara, Gharbia and Damitta governorates in 1998, 1999 and 2000 seasons.

Varieties	Characters	1998					1999					2000						G. mean
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	L6	
Giza 87	L.C.Y. C/f	7.18	6.5	4.64	4.46	11.09	5.09	8.65	6.46	11.4	13.06	9.92	9.71	8.56	9.59	10.77	9.25	8.52
Giza 45		4.28	3.93	3.81	2.62	10.14	2.52	6.59	3.92	9.59	7.58	7.79	7.83	4.87	7.94	8.01	8.11	6.22
S.E.		0.33					0.41					0.41						
L.S.D.		0.1	0.65					0.8					0.8					
		0	0.86					1.06					1.06					
Giza 87	S.C.Y. C/f	7.22	6.8	5.18	4.81	12.02	5.11	8.95	6.25	10.4	11.86	9.57	9.35	8.51	9.54	10.65	9.5	8.48
Giza 45		4.27	3.95	4.14	2.77	10.73	2.47	6.69	3.85	8.61	6.75	7.5	7.66	4.83	7.82	7.75	7.91	6.11
S.E.		0.33					0.41					0.41						
L.S.D.		0.1	0.65					0.8					0.8					
		0	0.86					1.06					1.06					
Giza 87	B.W. (50)	137	127	117	116	122	134	117	136	141	137	144	152	145	151	146	146	136
Giza 45		155	133	114	103	104	123	118	133	142	144	147	145	147	149	145	141	134
S.E.		2.18					1.8					1.2						
L.S.D.		0.1	4.27					3.6					2.3					
		0	5.64					4.7					3.1					

** Grand mean.

logical characteristics of the promising cross through the breeding and selection stages. It could be stated that (the fixed) or distanced characters are, the medium long erect stem, the moderate or deeply lobed and light green smooth leaves, the middle leaf gland is present while the other two glands are almost absent, one gland at the base of one bract and the other two glands are absent and the boll is shiny green and date's sheep with white lint.

ACKNOWLEDGEMENT

The writers express their deep gratitude to the staff of Cotton Breeding Research Section, Cotton Research Institute and the extra long staple branch breeders for their co-operation, valuable help and assistance, in preparing this investigation.

REFERENCES

1. Al-Didi, M.A., 1972. History of Egyptian cotton varieties. Egypt. Cott. Gaz., 58: 36-56.
2. El-Moghazi, M., A.A. Sallam and A.A. El-Gohary, 1981. Breeding behavior of lint yield and its contributing variables for some strains of long staple hybrids compared with cultivated cultivars at different environments. Agric. Res. Rev. Egypt, 59.
3. El-Moghazi, M., A.A. El-Gohary and A.A. Sallam, 1982. Evaluation of some strains of long stable hybrids compared with cultivated cultivars at different locations II. Lint yield and fiber properties. Ain Shams Univ., Fac. Agric. Res. Bull. 1753.
4. Haikal, I.M.; Y.T. Atta; M.A. Rahoumah; M.A. Megahed; S.A. El-Shaarawy and M.A. Raafat, 1996. the new long stable Egyptian cotton variety Giza 86. Egypt J. Appl. Sci., 11(3), 130-138.
5. Hays, H.K.; F.R. Immer and D.C. Smith, 1955. Methods of plant breeding, 2nd ed., McGraw-Hill Book Co., New York.
6. Leclerg, E.L., W.H. Leonard and A.G. Clark, 1962. Field plot technique Burgess Publ. Co.
7. Sendecor, G.W., 1956. Statistical Methods. Iowa State Univ. Press Ames, Iowa U.S.A.

تقييم الصنف الجديد جيزة ٨٧ من طبقة الأقطان المصرية الطويلة التيلة الممتازة

هانم عبد السلام محمد - سيدة سعيد حسن الطو
محمد علاء الدين محمد علام

معهد بحوث القطن - مركز البحوث الزراعية - الدقى - الجيزة

يعتبر الصنف جيزة ٨٧ من أحدث أصناف القطن المصرى من الطبقة فائقة الطول والنعومة حيث استنبط بواسطة قسم بحوث تربية القطن - معهد بحوث القطن وذلك بالتهجين بين الصنفين جيزة ٧٧ وجيزة ٤٥ .

ويتميز الصنف الجديد بأنه فائق الطول والنعومة والمتانة وتيلته بيضاء، ونباتاته قائمة مفرغة من أسفل ويتراوح طولها بين ١٢٠ - ١٣٠ سم ذات لون أخضر فاتح، وتفصييص الورقة بين متوسط وغائر وحجمها متوسط أو صغير ملساء خضراء، وتوجد غدة واحدة أسفل الورقة على العرق الوسطى وأيضاً غدة واحدة أسفل إحدى قنابلات اللوزة .

بتلات الأزهار صفراء فاتحة أنبوبية ملتفة والبقعة البتلية واضحة وحبوب اللقاح صفراء فاتحة والمتك قصير الخيط نسبياً. وتتميز لوزة الصنف ج ٨٧ بأنها مستطيلة بلحية الشكل لها قنابات كبيرة واللوزة خشنة الملمس ذات نقر خضراء لامعة ثلاثية الفصوص والتيلة بيضاء، والبذرة متوسطة أو صغيرة نصف ملبسة والرغب أخضر أو بنى والفصرة بنية اللون.

والصنف يميل للتأخر فى النضج قليلاً وأول فرع ثمرى مرتفع نسبياً (العقدة الثامنة أو التاسعة) وتتفتح أول زهرة بعد ٨٥-٩٠ يوم من الزراعة وكذا تتفتح أول لوزة بعد حوالى ١٤٠ يوم من الزراعة .

وتتراوح تصافى الحليج للصنف ج ٨٧ بين ٢١-٢٣% ومعامل البذرة حوالى ٩ جرام/مئة بذرة . وصفات التيلة تعتبر أعلى أصناف القطن المصرى والعلى جودة على الاطلاق . حيث تتراوح طول التيلة بين ٢.٢٥ - ٢.٢٧ ملليمتر عند معدل ٥.٢% وبين ٢.١٧-٢.١٩ ملليمتر عند معدل ٥.٠%، كذلك يتراوح متوسط وزن الشعرة بين ١١٤-١٢٨ ملنيكس بينما تتراوح متانة الغزل ما بين ٢٦١٥ - ٣.٥٠ وحدة عند عد ٦٠ .

والدراسات الحديثة على الصنف جيزة ٨٧ أظهرت تفوقه على الاصناف فاتقة الطول وخاصة جيزة ٤٥ التابع لطبقة فائق الطول والنعومة وذلك فى محصول الشعير وصفات التيلة كما يتميز هذا الصنف أيضاً بمقاومة الامراض الفطرية وخاصة الفيوزاريوم .