EVALUATION OF QUALITY AND YIELD IN COMMERCIAL EGYPTIAN COTTON VARIETIES IN NORTH SINAI

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Abstract

Field experiments were conducted during 1995 and 1996 seasons in El-Arish, North Sinai, to evaluate eight Egyptian commercial cotton varieties (*G.barbadense* L.) viz. Giza 45, Giza 70, Giza 77, Dandara, Giza 75, Giza 80, Giza 83 and Giza 85. The evaluation was done under drip irrigation using slightly saline water (3480-4160 ppm) during the growth season. The results indicated that earliness characters were found in Dandara, Giza 80 and Giza 83 varieties over the two seasons of growth. Yield and its components were also highest in Giza 80 and Giza 83 varieties. The total cotton seed yield was best in Giza 83, and Giza 80 with mean values of 11.55 11.31 Kent/fed., respectively. For fiber properties; Giza 45, showed the highest fiber strength, whereas, mirconaire reading (fiber fineness and maturity) were highest in Giza 75, Giza 80, Giza 83 and Giza 85 had the highest value of reflectance (Rd%). Giza 83 and Dandara variety had the highest degree of yellowness and Giza 85 had the highest value of reflectance (Rd%). Giza 83 and Dandara had the hiqhest wax % and sugar %, respectively. The data suggested that the more suitable varieties to be grown in North Sinai with both highest total seed cotton yield and good fiber properties were Giza 80 and Giza 83. On the other hand, more studies are needed to determine the suitable varieties for each region of North Sinai.

INTRODUCTION

North Sinai lands are characterized by limiting of water availability and repidly increasing salt affected land. The major constraint in these lands is accumulative salt in underground water and soil. The Egyptian government is implementing a national project that includes a substantial expansion in agricultural area in North Sinai. The project depends on irrigation water of a somewhat high level of salimity.Oftenly, crop yield is strongly reduced by environmental stresses, although species differ in their tolerance to stress conditions, however, plant growth is ulti-

mately affected (Hamdy et al., 1993). Cotton is classified as salt-tolerant plant, variation in salt tolerance has been observed among different varieties (Meas and Hoffman, 1977). It is also recognized that highly saline soil conditions can significantly reduce plant growth, boll production rate and size, and ultimately yield Jafri and (Ahmed, 1994). With regard to the effect of saline water on yield and yield components of cotton plants many investigators (El-Saidi, 1973, El-Nahal et al., 1979, Ahmed et al., 1991 and Munir et al., 1995) concluded that number of bolls, boll weight, seed index and seed cotton yield were decreased with increasing salinity and the reduction varied according to salt concentration, type of soil and time of irrigation. Lint percentage was not affected by salinity (Abbs, 1976; El-Gharib and Kadry, 1983). Regarding the effect of salinity on cotton fiber properties, Christidis and Harrison (1955) concluded that fiber quality is affected by the environmental conditions although are genetical characters. However, many investigators reported that cotton plants is well tolerant to soil salinization, but cotton fiber properties are found to be affected with varied degrees according to cotton variety, salt concentration, composition of dissolved salt and time of application Abbs, 1976, El-Saidi and Hegazay, 1980 and Abdel-Rehim, 1989). On the other hand. Nawar (1989) found that fiber fineness and maturity were not affected by salinity up to 4000 ppm of irrigation water.

The purpose of these experiments was to evaluate the performance of eight Egyptian cotton varieties in response to semi-arid conditions with drip irrigation system grown in sandy calcareous soil in El-Arish, North Sinai Governorate.

MATERIALS AND METHODS

Field experiments were conducted during 1995 and 1996 seasons at the Research Farm in the Faculty of Environmental Agricultural Science, El-Arish, North Sinai. Eight Egyptian commercial cotton varieties (G. barbadense L.) namely; Giza 45, Giza 70, Giza 77, Dandara, Giza 75, Giza 80, Giza 83 and Giza 85 were tested. Planting seeds were obtained from Cotton Research Breeding section CRI, ARC, Giza and planted at 25 April in both 1995 and 1996 seasons. Nitrogen fertilizer was added at a rate of 75 kg N per Feddan as urea, and superphosphate was added at a rate of 22.5 kg P_2O_5 per feddan. The experimental area was. The experiments were drip-irrigated as needed and the total quantity of water consumed during the growth season was approximately 2500 m3 per feddan. Experiments were thinned to two plants around each dripper, the spaces between lines of irrigation were 70 cm and

between drippers were 25 cm apart. Conventional weed and insect controls were used during each growing season, and other agricultural practices were carried out as recommended for cotton. Experimental design was a randomized complete block with four replications and a factorial arrangement of eight varieties. Soil and irrigation water samples were collected from the site and analyzed at the laboratories of Faulty of Environmental Agricultural Science, according to AOAC (1980).

Data were recorded on 10 individual guarded plants from the middle row in each plot to determine the following characteristics:

1. Earliness characters, including :

Position of first fruiting branch per plant, date of appearance of first flower (days), and date of first opened boll (days).

Table 1a. Chemical analysis of irrigation water of experimental site.

PH	E.C.	Cations meq/L				Anions meq/L			
	mmhos/cm	Ca**	Mg**	Na**	K**	Ca3	HCO3	Cr	SO4
7.12	6.0-6.5	22.3	14.7	25.8	0.3	-	4.1	42.1	16.9

Table 1b. Chemical analysis of experimental soil.

E.C.	Cations meq/L				Anions meq/L				SAR
mmhos/cm	Ca**	Mg**	Na**	K**	Ca3	HCO3	Cr	SO4	3.6
0.36	1.00	1.46	0.75	0.39	-	0.55	1.20	1.85	3.6

Table 1c. Soil mechanical analysis of the experimental site.

Clay %	Silt %	Sand %
6.4	4.5	89.1

2. Yield and yield components, including :

Boll weight in grams, seed index (weight of 100 seeds in grams), lint percentage (lint weight /seed cotton weight) x 100], number of opened bolls per plant, seed

cotton yield per plant, and seed cotton yield (kentar/feddan).

3. Fiber properties, including :

Fiber length parameters, i.e. staple length (2.5% S.L.) and mean length (50% S.L. in mm) as tested by the Digital Fibrograph method according to A.S.T.M. (D-1447-97), fiber strength and elongation % as determined by the Stelometer instrument instrument at 1/8 inch gauge length according to A.S.T.M. (D-1445-67), and micronaire reading was testted according to A.S.T.M. (D-1448).

4. Chemical parameters and cotton colour :

The HVI (High Volume Instrument) system was used to determine the reflectance of lint to light (Red %) and fiber yellowness (+b), total wax in cotton according to the method of Conrad, 1944, reducing sugars content, the levels of extractable that are removed from cotton fiber 95 % ethyl alcohol were determined in 6 hours Soxhlet extraction according to the method of Smith (1956).

All samples were tested under controlled atmospheric conditions of 65 ± 2% relative humidity and 70±2oF temperature at the laboratory of Cotton Researhc Institute.

Data was recorded and analyzed according to Steel and Torri (1960). The mean values were compared at 0.05 level of probability by Duncan's Multiple Range Test of Mean Separation (Duncan, 1955).

RESULTS AND DISCUSSION

1. Earliness characters :

Table (2) presents the mean squares for earliness characters. It can be noticed that the mean squares of varieties showed highly significant differences among varieties and between years, but they were not significant in their interactions (varieties x years). The difference between the two years may be due to environmental conditions such as temperature, wind speed, relative humidity and water quality during irrigation. With respect to the first fruiting node, Table (3) indicated that Giza 45 was the latest variety, whereas Giza 80 and Giza 83 were the earliest varieties, the position of first fruiting branch was on 9.5 and on 5.9 node respectvely. For date of the first flower appearance same trends were found as Giza 45 va-

riety took about 84.7 days and the earliest variety Giza 83 with 59.6 days. For date of first opened boll, the longest period of first open boll was noticed in Giza 45 variety with 144.8 days and shortest period was found in Giza 83 variety with 114.6 days.

Table 2. Mean squares of earliness characters of eight Egyptian varieties grown in Al-Arish, North Sinai (1995 and 1996).

Source	d.f.	Position of first fruiting branch per plant	Date of appearance of first flower	Date of first opened boll
Years	1	0.98	156.56**	153.14**
Varieties	7	14.94**	654.79**	1054.02**
Year X Varieties	7	0.12	4.97	4.28
Erro	45	0.25	3.50	4.71
C.V. %		6.72	2.71	1.72

* and ** = Significant at the 0.05 and 0.01 probability levels, respectively.

Table 3. Mean of earliness characters of eight Egyptian varieties grown in Al-Arish, North Sinal (seasons of 1995 and 1996 and its combine).

Varieties	Position of first fruiting branch per plant			Date of appearance of first flower (days)			Date of first open boll (days)		
	1995	1996	Combine	1995	1996	Combine	1995	1996	Combine
Giza 45	9.25 a	9.75a	9.50a	81.78a	87.75a	84.76a	141.75a	147.75a	144.75a
Giza 70	8.55 a	8.90b	8.73b	71.18c	73.00c	72.09c	131.00c	133.00c	132.00c
Giza 77	8.50 a	8.75b	8.65b	77.85b	80.00b	78.93b	137.75b	140.00b	138.88b
Giza 75	7.65 b	7.60c	7.63b	66.50d	70.25d	68.38d	126.50a	130.25c	128.38d
Giza 85	6.85 c	7.40cd	7.13e	63.75e	67.50e	65.63e	120.75e	123.25d	122.00e
Giza 80	5.88 d	5.82e	5.86e	62.00e	62.75f	62.38f	116.50f	117.75e	117.13f
Giza 83	5.90 d	5.90e	5.90e	58.00f	61.25f	59.63g	113.00g	116.25e	114.63g
Dandara	6.35 cd	6.80d	6.58d	58.68f	62.25f	60.46g	112.25g	116.00e	114.13g
Mean	7.37	7.17	7.50	67.47	70.59	69.03	124.44	128.03	126.48

* Means with same letter are not significantly different at 5% level of probability according to Duncan's multiple

2. Yield and yield components :

Table (4) presents the mean squares of yield and yield components of eight cotton varieties. There were highly significant differences among the eigh varieties. The interactions between years x varieties were significantly different for yield per plant (g) and seed cotton yield (ken/fed) at 1% and 5% of probability levels, respectively. As an indication of yield and its components (Table 4), there differences were more pronounced among varieties.

Table 4. Mean squares of earliness characters of eight Egyptian varieties grown in Al-Arish, North Sinai (1995 and 1996).

Source	d.f.	Boll weight	Seed index	Lint percentage	No of open bolls per plant	Yield per plant	Seed cotton yield
Years	1	0.86**	0.06	3.15	0.68	124.60**	6.70**
Varieties	7	1.09**	1.46**	24.15**	29.69**	547.33**	28.81**
Year X Varieties	7	0.02	0.07	2.81	2.94	30.22**	1.33*
Erro	45	0.02	0.29	3.13	1.99	10.27	0.56
C.V. %		3.33	4.87	4.36	9.37	8.05	8.26

* and ** = Significant at the 0.05 and 0.01 probability levels, respectively.

Boll weight

The results indicated that Giza 75 and Giza 83 varieties had the highest boll weight with mean values of 3.04 and 3.01 grams over the two seasons, respectively. While Giza 85 and Giza 45 exhibited the lowest boll weight with mean values of 2.11and 2.13 grams, respectively. The relatively reduction in boll weight may be due to the quality of irrigation water which ranged from 3840 to 4160 ppm. This water might affect boll weight in both season. However, the reduction in boll weight for all varieties was due to the poor sandy soil and increased soil and water salinity at flowering stage in both seasons. These reductions, of boll weight could be attributed to the reduction in seed weight. These results agreed with those results obtained by El-Saidi and Hegazy (1980) and Abd El-Rehim (1989).

Seed index

From Table (5), it is clearly evident that the site conditions such as the un-

Table 5. Mean of yield and yield components of eight Egyptian varieties grown in Al-Arish, North Sinai (1995 and 1996 and its combinations).

Varieties	1995	1996	Combine	1995	1996	Combine	1995	1996	Combine
	Boll weight (g)			Seed index			No. of open bolls per plant		
Giza 45	2.25d	2.00c	2.13f	10.57b	10.55b	10.56c	11.73c	11.73c	12.18c
Giza 70	3.00ab	2.68b	2.84cd	10.84b	10.78b	10.81bc	12.60b	12.60b	12.69c
Giza 77	2.73c	2.50b	2.61e	10.92b	10.80b	10.86bc	14.88ab	14.88b	14.25b
Giza 75	3.18a	2.90a	3.04cd	11.21ab	11.22ab	11.22b	15.15b	15.15b	14.50b
Giza 85	2.18d	2.05c	2.11f	10.89b	11.30ab	11.10bc	16.63ab	16.633ab	16.86a
Giza 80	2.93b	2.88a	2.90bc	10.97b	11.04b	11.00bc	18.10a	18.10a	17.08a
Giza 83	3.15a	2.88a	3.01ab	10.50b	10.75b	10.62bc	16.00ab	16.00ab	16.73a
Dandara	2.90bc	2.58b	2.74d	11.93a	11.89a	11.91a	16.08ab	16.08ab	16.05a
Mean	2.79	2.56	2.67	10.98	11.04	11.01	15.14	15.14	15.04
	Lint percentage %			Seed cotton yield kentar /feddan			Plant yield (g)		
Giza 45	39.21cd	37.85d	38.53c	5.96e	5.76d	5.86d	26.05f	25.20e	25.63d
Giza 70	37.08d	39.96cd	38.52c	7.98a	7.99c	7.99c	34.09c	34.95cd	34.93c
Giza 77	39.99abc	40.07dcd	40.03bc	9.27c	7.77c	8.52c	40.53d	33.98a	37.25c
Giza 75	40.01dc	39.93bcd	39.79abc	10.26b	8.92bc	9.59b	44.85cd	38.98bc	41.91b
Giza 85	41.37abc	41.93abc	41.65ab	7.63a	8.24c	7.94c	33.55e	37.13bcd	35.24c
Giza 80	42.76a	43.21a	42.99a	12.06a	10.55a	11.31a	52.75a	46.13a	49.44a
Giza 83	42.59ab	72.76ab	42.68a	11.62a	11.47a	11.55a	50.80ab	50.15a	50.48a
Dandara	39.31cd	40.16bcd	39.74bc	10.50b	9.37b	9.94b	46.55bc	40.95b	43.75b
Mean	40.29	40.73	40.51	9.41	8.76	9.08	41.22	38.43	39.83

* Means with same letter are not significantly different at 5% level to Duncan's multiple range test.

derground irrigation water ranged between 3840-4160 ppm and calcareous soil had a significant influence on seed index among all varieties in both seasons. For seed index over the two years. Dandara variety showed significantly differnt mean with 11.91 gram compared with other varieties. Whereas Giza 45 had the lowest mean of seed index with 10.56 gram.

Lint percentage :

Results in Table (5) revealed that North Sinai conditions had significantly affected lint percentage among varieties in both seasons. Giza 80 variety produced the highest lint percentage with mean value of 42.99% compared with the other varieties in both seasons, Giza 70 produced the lowest mean values with 38.52%. Data suggested that Giza 80 could be one of the the best varieties to be selected for highest lint production in North Sinai conditions. These results are in agreement with those of El-Gharib and Kadry and Kadry (1983), and Abd El-Rahim (1989).

Number of opened bolls per plant

Table (5) indicated that Giza 80, Giza 85, Giza 83 and Dandara had more opened bolls per plant than other varieties under study. However, Giza 80 had the highest value of opened bolls per plant with mean value of 17.08 and the lowest variety was Giza 45 with mean value of 12.18. These results showed that under North Sinai conditions Giza 80 is the best variety to have the highest open bolls number per plant and this character is highly correlated with seed cotton yield.

Plant yield

Table (5) indicated that Giza 83 and Giza 80 had the significantly highest plant yield with mean value of 50.48 and 49.44 grams over the two years, respectively. Both varieties exhibited highest mean values for other yield components parameters.

Seed cotton yield (ken/fed)

Similar results were found as with previous parameter, (Table, 5), Giza 83 and Giza 80 had the highest seed cotton yield with mean values of 11.55 and 11.31 ken/fed, respectively. In both varieties (Giza 80 and Giza 83) highest seed cotton yield was positively correlated with yield component parameters which measured in

these study as indicated in Table (5).

3. Field properties :

The analysis of variance in Table (6) showed that the differences among varieties in fiber properties were highly significant.

Table 6. Mean squares of fiber physical and mechanical properties of eight Egyptian varieties grown in Al-Arish, North Sinai (seasons of 1995 and 1996).

Source	d.f.	Fiber span length			Elongat-ion %	Tenacity at 1/8* (g/tex)	Micronaire reading
		2.5% S.L.	50% S.L.	Uniformity %			
Years	1	0.423	0.008	0.006	5.599**	2.764	0.601**
Varieties	7	52.96**	15.517**	4.188**	5.802**	103.865**	1.134**
Year X Varieties	7	0.696	0.040	0.951	0.981**	9.019**	0.073
Erro	45	0.74	0.078	0.455	0.126	0.760	0.050
C.V. %		2.65	1.71	1.34	5.71	2.70	5.27

* and ** = Significant at the 0.05 and 0.01 probability levels, respectively.

Fiber length parameter (2.5% S.L. (mm), 50% S.L. (mm) and uniformity ratio :

The results in Table (7) indicated that Giza 45 variety in 1995 season gave the highest values of 35.55, 18.40 mm and 50.96%, whereas Dandara gave the lowest values of 28.92, 14.49 and 48.73 for 2.5 % S.L. 50% S.L. and uniformity ratio over the two seasons, respectively.

Fiber fiber strength at 1/8 inch (g/tex)

Results in Table (7) indicated that irrigation with saline water, cotton varieties, calcareous sandy soil, drip irrigation and their interactions had a highly significant effect on fiber strength during the two seasons. The highest value over the two years of tenacity was obtained in Gize 45 variety (36.71 g/tex), while the lowest value was obtained by Dandera variety (27.15 g/tex). The observed significant differences between the eight cotton varieties were expected and due to their genetical differences.

Fiber elongation %

The analysis of variance (Table 6) showed that the differences among the val-

ues of eight cotton varieties under investigation were highly significant. The highest value of fiber elongation % was obtained for Dandara variety (7.61 %), while Giza 83 variety gave the lowest value 4.80% over two seasons 1995 and 1968 as shown in Table (7).

Table 7. Mean of fiber physical and mechanical properties of eight Egyptian varieties grown in Al-Arish, North Sinai (seasons of 1995 and 1996 and its combine).

Varieties	1995	1996	Combine	1995	1996	Combine	1995	1996	Combine
	2.5% S.L. mm			50% S.L. mm			Uniformity %		
Giza 45	35.50a	35.60a	35.55a	18.18a	18.10a	18.14a	51.10a	50.83ab	50.96a
Giza 70	35.08a	35.01b	35.04a	17.85ab	17.85b	17.85b	50.85ab	50.93ab	50.89a
Giza 77	34.94a	35.05c	34.99a	17.65b	17.48b	17.56c	50.55ab	50.33bc	50.44abc
Giza 75	33.00b	32.81a	32.91b	16.68c	16.70c	16.69d	50.15bc	50.10bc	50.13bc
Giza 85	29.60d	29.88	29.74d	14.85e	15.13e	14.99g	49.90bc	50.23c	50.68ab
Giza 80	31.28c	31.40cd	31.34c	15.75d	15.78d	15.76e	50.38ab	51.45a	50.30abc
Giza 83	31.00c	30.90e	30.95c	15.48d	15.35e	15.41f	49.93bc	49.70c	49.81c
Dandara	29.70d	29.13d	28.92d	14.55e	14.43f	14.49h	49.15c	48.30d	48.73d
Mean	35.51	32.35	32.43	16.37	16.37	16.36	50.25	50.23	50.24
	Tenacity at 1/8 (g/tex)			Elongation %			Micronaire reading		
Giza 45	37.00a	36.43a	36.71a	7.35b	6.36bc	6.86b	3.38c	3.45e	3.41e
Giza 70	34.22b	36.73a	35.47b	6.89abc	5.79a	6.34c	4.10ab	4.28bcd	4.19cd
Giza 77	33.61b	37.11a	35.36b	5.76de	5.85d	5.81de	4.00b	3.98d	3.99d
Giza 75	33.00b	31.70c	32.35a	5.79de	5.25e	5.52e	4.40a	4.60ab	4.50a
Giza 85	33.24b	33.57b	33.40c	6.71c	6.69ab	6.70b	4.35ab	4.50abc	4.43ab
Giza 80	29.29c	31.13c	30.21e	6.06d	6.25cd	6.15cd	4.35ab	4.78a	4.56a
Giza 83	29.33c	26.35d	27.84f	5.34e	4.26f	4.80f	4.18ab	4.70a	4.44ab
Dandara	27.16d	27.15d	27.15f	8.26a	6.96a	7.61a	4.23ab	4.25ab	4.24bc
Mean	32.10	32.52	23.31	6.52	5.93	6.23	4.12	4.32	4.22

* Means with same letter are not significantly different at 5% level to Duncan's multiple range test.

Fiber fineness and maturity

The results in Table (7) indicated that cotton varieties, saline water, drip irrigation, sandy calcareous soil and their interactions had significant effects on micronaire reading during both the two seasons. The highest value of micronaire reading was obtained by Giza 75 variety (4.50), while the lowest value was obtained by Giza 45 variety (3.41), over the two years.

4. Cotton colour and chemical characters:

Degrees of yellowness (+b)

Cotton colour is white or creamy brownish. It is worthy to mention that the decrease in the degree of yellowness (+b) means increasing in whiteness. The results in Table (8) showed highly significant differences among all varieties, Dandara variety had the highest value for yellowness in both seasons with value of 13.83 (+b) whereas Giza 75 variety had the lowest values 10.71 (+b) for both seasons. Generally, yellowness could be explained as a genetical property. Thus, the trend of the values was stable during the two seasons.

Table 8. Mean squares of colour and chemical characters of eight Egyptian varieties grown in Al-Arish, North Sinai (seasons of 1995 and 1996).

Source	d.f.	Cotton colour		Chemical properties	
		+ b	Rd %	Wax %	Sugar %
Years	1	0.031	5.573	0.147	0.013**
Varieties	7	12.961**	174.098**	0.331	0.004**
Year X Varieties	7	50.033	20.125	0.057	0.001
Erro	45	0.146	32.866	0.157	0.000
C.V. %		3.15	8.16	31.28	5.59

** = Significant at the 0.01 probability levels, respectively.

Reflectance to light Rd %

It is quite clear from Table (9) that the color reflectance of different varieties showed highly significant effect for years, Giza 85 had the highest value of Reflectance (Rd%) 76.26, while Dandara varieties was gave the lowest value of 63.66.

Wax content %

data in Table (9) indicated that wax content (%) showed no significant differences among the eight varieties in both 1995 and 1996 seasons. Moreover, the varieties did not follow any specific trend during the two seasons, for the combine, effect over the two years, Giza 83 variety had the highest value of wax content of 1.46%, whereas Giza 80 variety had the lowest one of 0..89%. In general, wax content may be considered as a genetical character affected slightly by environmental conditions and infection of insects and diseases.

Table 9. Mean of fiber physical and chemical of eight Egyptian varieties grown in Al-Arish, North Sinai (seasons of 1995 and 1996 and its combine).

Varieties	1995	1996	Combine	1995	1996	Combine	1995	1996	Combine
		Yellowness (+b)					Rellectance (Rd %)		
Giza 45		10.85d	10.88a	10.86d		75.13ab		75.43a	75.28a
Giza 70		11.75e	11.75d	11.75c		70.48abc		70.58ab	70.53ab
Giza 77		12.83a	12.98bc	12.90b		66.73bc		67.35ab	67.04b
Giza 75		10.68d	10.75e	10.71d		75.23ab		75.40a	75.31a
Giza 85		10.73	10.95e	10.84d		76.08a		76.45a	66.51b
Giza 80		13.65b	13.45ab	13.55a		65.58c		67.45ab	65.79b
Giza 83		12.80d	12.78c	12.79b		69.95abc		61.63b	65.66b
Dandara		13.78a	13.88a	13.83a		63.58c		65.75b	65.66b
Mean		12.13	12.18	12.16		70.59		70.00	70.30
			Wax %				Sugar %		
Giza 45		1.30ab	0.88a	1.09ab		0.38h		0.33e	0.34e
Giza 70		1.25ab	1.08a	1.17ab		0.43b		0.40b	0.42a
Giza 77		1.38ab	1.38a	1.38a		0.40d		0.40b	0.40c
Giza 75		1.45ab	1.43a	1.44a		0.39e		0.39c	0.39d
Giza 85		1.38ab	1.26a	1.32ab		0.42c		0.38d	0.40e
Giza 80		0.83b	0.95a	0.89b		0.43b		0.40b	0.42a
Giza 83		1.55a	1.38a	1.46a		0.42c		0.41a	0.41b
Dandara		1.40ab	1.43a	1.41a		0.48a		0.93c	0.42a
Mean		1.32	1.22	1.27		0.41		0.39	0.40

* Means with same letter are not significantly different at 5% level to Duncan's multiple range test.

Soluble sugar percentage

Data in Table (9) presented the percentage of sugar for the eight variety under investigation. The values showed highly significant differences among all varieties in both 1995 and 1996 seasons. For the combined effect over the two years, both Dandara and Giza 80 varieties gave the highest value of sugar percentage (0.42%), whereas Giza 45 had the lowest value of 0.34%.

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التقييم التكنولوجى والمحصولى لأصناف القطن المصرى المنزرعة فى شمال سيناء

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تولى جمهورية مصر العربية الاهتمام بمنطقة شمال سيناء كمنطقة للتوسع الزراعة فى المستقبل وقد أجرى هذا البحث لتقييم ثمانية أصناف من القطن المصرى والتى تزرع على نطاق تجارى وهى جيزة ٤٥ وجيزة ٧٠، وجيزة ٧٧ من الأصناف فائقة الطول وجيزة ٧٥ وجيزة ٨٥ وجيزة ٨٠ وجيزة ٨٣ ودندرة من الأصناف الطويلة. وذلك لاختيار أكثرها ملائمة لظروف المنطقة وذلك خلال موسمين للزراعة هما موسم ١٩٩٥ و ١٩٩٦ .

صممت التجربة بنظام القطاعات العشوائية الكاملة فى مزرعة كلية العلوم الزراعية البيئية بالعريش وكانت أرض التجربة رملية بها نسبة من الكالسيوم واستخدمت مياه الآبار فى الرى وكانت تحتوى على نسبة عالية من ملح كلوريد الصوديوم تراوحت ما بين ٣٨٤٠ – ٤١٦٠ جزء فى المليون واتبع نظام الرى بالتنقيط بمعدل ٢٥٠٠ م ٣ للفدان. وأجريت باقى المعاملات الزراعية طبقاً لتوصيات وزارة الزراعة مع التسميد النيتروجينى بمعدل ٧٥ وحدة للفدان والتسميد الفوسفاتى بمعدل ٢٢,٥ وحدة سوبر فوسفات للفدان وكان ميعاد الزراعة هو ٢٠ أبريل فى كلا الموسمين .

تفوق الصنفان جيزة ٨٠ وجيزة ٨٣ عن باقى الاصناف فى كل من عدد اللوز المتفتح على النبات ومحصول النبات الفردى بالجرام ومتوسط محصول الفدان بالقنطار وتصافى الحليج. كما أظهر الصنف دندرة ميلاً الى التبكير فى النضج عن باقى الاصناف، وأعطت الأصناف جيزة ٧٥ وجيزة ٨٠ وجيزة ٨٣ أعلا متوسط لوزن اللوز.

أشارت نتائج الاختبارات التكنولوجية للالياف الى تفوق الصنف جيزة ٤٥ فى قياسات الطول، وكان أعلا الأصناف فى نسبة الاستطالة ٪ هو الصنف دندرة كما أشارت قرارة الميكرونير الى أن اعلا قيمة كانت للصنف جيزة ٨٠ ، ودلت نتائج التحليل الكيميائى للالياف الى ان الصنف جيزة ٨٣ به أعلى نسبة للشمع وكانت أعلا قيم لنسبة السكر هي ٠,٤٢٪ لجيزة ٨٠ وكانت بينما كانت أقل قيمة فى الصنف جيزة ٤٥ (٠,٣٤٪). تشير نتائج الدراسة الى الاحتمالات القوية لنجاح زراعة الأقطان الثمانية تحت ظروف الرى بالتنقيط بمياه رى عالية الملوحة ويلزم استمرار هذه الدراسة لتاكيد النتائج المتحصل عليها.