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Determination of Yield and Yield Components of Some Cotton Cultivars in Semi Arid Conditions

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Abstract: This study was carried out during 2000 and 2001 growing season in Şanlıurfa province, Southeastern Anatolia Region of Turkey in order to determine yield, yield component and fiber technological traits of some cotton varieties. The experimental plots were arranged in a randomized complete block design with three replications. In the research, 15 cotton varieties were used to determine the higher yielding varieties. Seed cotton yields varied between 1884-4322 kg ha^{-1} in the research. In all the observed characters, statistically significant differences were determined among cultivars. As a result, Stoneville 453 was the highest yielding cultivar just ahead of Sayar-314 under irrigated conditions in Southeastern Anatolia Region.

Key words: Cotton, *Gossypium* sp., cultivars, yield, yield component

INTRODUCTION

Cotton is widely grown in semi-arid and arid zones of the world (Wang *et al*., 2004). Harran plain is located in the Southeast of Turkey, which is a semi arid area. Cotton is an important cash crop for the farmer and textile industry Southeast area. Turkey is the seventh cotton growing country in the world, after China, the USA, India, Pakistan, Brazil and Uzbekistan, producing 821,000 tons or 3% of the annual lint cotton in the world (Anonymous, 2005). In Turkey, cotton (*Gossypium hirsutum* L.) is grown on about 635, 000 ha or 3% of the arable land. Approximately 400,000 rural families are involved in the cultivation of cotton, illustrating the economic and social significance of this crop.

For economical cotton production, cultivar use as well as cultural practices for the region is very important. There are several breeding methodologies for cotton cultivar development. Plant introduction is one of the first applicable breeding strategies in the development of new cultivars for the specific region. Plant introduction usually requires adaptation studies, determination of plant characteristics and yield potential. Therefore, preliminary information is gathered about the candidate cultivar and cultivar release (Çopur and Oğlakçı, 1997).

In recent years, the liberation of the seed market resulted in the introduction of a large number of cotton cultivars into Turkey from which the cotton growers had to choose one, a difficult decision indeed. Moreover, genotype expression is affected by the environment, limiting realization of the full genetic potential and making empirical evaluation more difficult (Bradow and Bauer, 1998).

For a long time, breeders have recognized a negative association between yield and fiber strength and have tried hard to break it (Green and Culp, 1990). In a study of six diverse cotton genotypes, complex linkages between lint yield and fiber strength and length were confirmed and elucidated (Coyle and Smith, 1997; Smith and Coyle, 1997). Soil properties such as water content, porosity, aeration, aggregation and fertilization can affect yield and fiber properties (Sawan *et al*., 2001; Gormus, 2002; Avgoulas *et al*., 2005).

In previous studies, the yield and adaptation of different varieties of cotton were investigated and results varied widely. Seed cotton yield varied between 2007. 2-5175.7 kg ha^{-1}, plant height were 65.2 to 101.3 cm, earliness ratio 65 to 90%, number of sympodial branch 11 to 22 number $plant^{-1}$, number of bolls were 10.1 to 14.2 number $plant^{-1}$, fiber percentage 37 to 42%, fiber length 26.2 to 30.5 mm, fiber fineness 3.80 to 5.06 micronaire and fiber strength 25 to 40 g tex^{-1} (Gençer *et al*., 1992; Karademir *et al*., 2003; Basbag and Temiz, 2004; Wang *et al*., 2004; Ogur *et al*., 2005)

The aim of this study was to compare yield and fiber quality of the fifteen cotton cultivars under semi arid agro-environmental conditions and determination of the most suitable cotton varieties in Southeast Anatolia Region of Turkey.

MATERIALS AND METHODS

This study was conducted at Harran University's experimental area during 2000 and 2001 growing seasons. The experimental field is located in Harran Plain, Southeast of Turkey, where the climate varies from arid to

semi-arid. Altitude for the area is 465 m and latitude and longitude are 37°08' North and 38°46' East, respectively. Mediterranean and East Anatolian climates are generally dominant. The average annual temperature is 18.2°C, rainfall is 463.1 mm and the average relative humidity is about 49%. The average maximum temperature could be as high as 33.3°C in July and August while the lowest average can be 3°C in December and January. The earliest frost in the region is usually at the end of October and last frost around third week of April. Most of the rainfall in winter and there is no rainfall from July to September. The highest humidity (69%) occurs in winter and the lowest (28%) in summer time (Anonymous, 2003). Since most of the rain falls between October and April, cotton was irrigated every 7-10 days in average between May and September.

The soil of the experimental area was clay (40%) in the 0-120 m soil profile. Field capacity of the soil was 33.8% in dry basis. Permanent wilting point was 22.6% and bulk density of the soil was 1.41 g cm^{-3}. The soil was low in organic material and phosphorus (Anonymous, 2002).

Fifteen cotton varieties were used as a plant material in this research. The cultivars, their species and origins are shown in Table 1.

The experimental plots were arranged in a randomized complete block design with three replications. Seed was sown by experimental mechanical planter in four rows plots with row spacing 0.7 m apart. Intrarow spacing and row length were 0.2 and 12 m, respectively. Sowing date was April 30, 2000 and May 3, 2001. 70 kg ha^{-1} pure nitrogen and 70 kg ha^{-1} pure phosphorus at planting and 90 kg ha^{-1} pure nitrogen at the beginning of flower were applied, while K_2O was not applied due to its abundance in soil. Plants were hoed two times by hand and three times by tractors. All plots were grown under irrigated conditions. Cultural inputs applied were consistent with agronomic practices. Pest control was carried out according to the local standard. The harvest was done by hand two times from 23 September to 21 October 2000 and from 30 September to 24 October in 2001. Before harvesting, 1 m was left in each parcel's top and bottom and 1 row was left as side effect from each side of every plot.

Table 1: Cotton cultivars belonging to *G. hirsutum* L. and *G. barbadense* L. and their origins

Cultivars	Species	Country released
Sayar-314	*Gossypium hirsutum* L.	Turkey
Stoneville-453	*Gossypium hirsutum* L.	USA
Condor	*Gossypium hirsutum* L.	Spain
Lachata	*Gossypium hirsutum* L.	Spain
Nata	*Gossypium hirsutum* L.	Spain
DPL-5690	*Gossypium hirsutum* L.	USA
DPL-5409	*Gossypium hirsutum* L.	USA
DPL-90	*Gossypium hirsutum* L.	USA
Giza-75	*Gossypium barbadense* L.	Egypt
Delcerro	*Gossypium hirsutum* L.	Venezuela
OFN-7	*Gossypium hirsutum* L.	Turkey
Luisa	*Gossypium hirsutum* L.	Australia
N-727	*Gossypium hirsutum* L.	Australia
Brown color line	*Gossypium hirsutum* L.	USA
Mc namara	*Gossypium hirsutum* L.	USA

In the study, seed cotton yield (kg ha^{-1}), first harvest ratio (%), plant height (cm), number of sympodia, (number $plant^{-1}$), number of boll (number $plant^{-1}$), ginning percentage (%) as agronomical characteristics; fiber length (mm), fiber fineness (micronaire) and fiber strength (g tex^{-1}) as fiber technological properties were investigated. Fiber technological properties were determined by using the HVI (High Volume Instrument) 900-A in the laboratories of Şanlıurfa Exchange. Data were analyzed according to randomized complete block design for each year with MSTAT-C statistic program and cultivars were compared by LSD (Least Significant Difference) test.

RESULTS AND DISCUSSION

Seed cotton yield: Differences among the cultivars with respect to the seed cotton yield were significant for each year and over both years. The average seed cotton yield was 3119.1 kg ha^{-1} in 2000 and 3062.4 kg ha^{-1} in 2001. Averaging value was 3090.73 kg ha^{-1}. The highest seed cotton yield was obtained from Stoneville 453 that was followed by Sayar-314 in 2000 and in the second year again. Stoneville 453 produced the highest yield and followed by Sayar-314, DPL-5409 and Condor cultivars. Averaged over two years, Stoneville 453 (4077.93 kg ha^{-1}) had the highest seed cotton yield, followed by Sayar-314. It was not seen another genotype which passed the region's check varieties Stoneville 453 and Sayar-314, respectively (4077.93 and 3710.72 kg ha^{-1}). The lowest yields were obtained from Giza-75, Brown Cotton Line, Mc Namara (Table 2). Cotton yield showed differences among cultivars and years and it was lower in 2001. One of the reasons was that the climate and soil condition were not similar in both year. Also, the first week in May 2001, after seeding, the lower temperature affected the early growth of cotton.

First Harvest Ratio (FHR): Differences among the cultivars with respect to FHR for each year and over both years were significant (Table 2). The average FHR was 81.33% in 2000, 85.07% in 2001 and the two years average value was 83.19%. The highest FHR was obtained from N-727 in 2000 and it was followed by Condor, Luisa, Lachata and OFN-7 respectively. In 2001, Lachata produced the highest FHR and this was followed DPL-5409, Luisa, N-727 and DPL-90. Averaged over the

two years, Lachata (91.88%) produced the highest FHR, followed N-727, Luisa, and Condor. Some researchers reported similar results (Gencer *et al*., 1992; Mert and Caliokan, 1999). FHR results showed that silk cotton, which is more expensive and mainly imported, could be produced in Turkey (Efe *et al*., 2004). The lowest FHR were obtained from Giza-75, Mc Namara, Sayar-314 and Stoneville 453 (Table 2). FHR showed differences among cultivars and years and it was lower in 2000. One of the reasons was that the climatically condition changing year by year. Also, Condor, Lachata, Luisa and N-727 varieties were originated from Spain and Australia and they were developed for short growing period. For that reason, these varieties were produced high earliness ratio. Furthermore, DPL 5409 and DPL 90 varieties were affected by high temperature and bolls were opened early. In addition to this, DPL 90 and DPL 5409 varieties are not hairy and they were affected by *Emposca* sp. resulting in early maturity due to stress. Luisa, Condor, N-727 and Lachata varieties could be used as parent in breeding program for first harvest ratio.

Plant height: The plant height of the cotton cultivars are presented in Table 3. Differences between the cultivars with respect to the plant height were found significant for each year and average of these years. The average plant height was 82.73 cm in 2000, 78.74 cm in 2001. The average of two years was 80.74 cm. The highest plant height was

Table 2: The average seed cotton yields (kg ha^{-1}) and first harvest ratio (%) for the cultivars and LSD groupings

	Seed cotton yield (kg ha^{-1})			First harvest ratio (%)		
Cultivars	2000	2001	Average	2000	2001	Average
Sayar-314	3879.0b*	3542.4b	3710.72b	69.20f	72.70e	70.95 f
Stoneville-453	4322.5a	3833.4a	4077.93a	73.61ef	80.82d	77.22e
Condor	3428.3c	3530.1b	3479.20c	91.75a	88.50bc	90.13ab
Lachata	3373.0cd	3213.0c	3293.02de	88.73abc	95.02a	91.88a
Nata	3480.0c	3364.3bc	3422.13cd	81.87cd	87.36bc	84.62cd
DPL-5690	3461.0c	3295.1bc	3378.07cde	83.12bcd	88.93bc	86.03bcd
DPL-5409	3542.3c	3504.4b	3523.37c	87.73abc	91.37ab	89.55ab
DPL-90	3175.6de	3306.2bc	3240.92e	85.03abcd	90.72ab	87.88abc
Giza-75	1997.0g	1884.7g	1940.83h	58.29g	70.42e	64.36g
Delcerro	2842.7f	2706.5de	2774.58f	79.16de	86.07bcd	82.61d
OFN-7	3054.3ef	2562.1e	2808.22f	88.71abc	84.10cd	86.40bcd
Luisa	3453.7c	3477.7b	3465.68c	90.91ab	90.83ab	90.87a
N-727	2942.1f	2941.4d	2941.75f	92.66a	90.73ab	91.70a
Brown color line	1906.0g	2559.4e	2232.72g	82.17cd	95.75bcd	83.96cd
Mc Namara	1928.3g	2215.4f	2071.85gh	66.61f	72.77e	69.69f
Average	3119.1	3062.4	3090.73	81.30	85.07	83.19
LSD (0.05)	205.4	249.8	167.30	6.98	5.73	4.40
CV (%)	3.94	4.88	3.24	5.13	4.02	3.16

*: Means shown with the same letter(s) in the same column are not significantly different at p = 0.05 probability level

Table 3: The average plant height (cm) and number of sympodial branch (plant^{-1}) with LSD groupings for the cultivars

	Plant height (cm)			No. of sympodial branch (n p^{-1})§		
Cultivars	2000	2001	Average	2000	2001	Average
Sayar-314	91.00cd*	82.33cde	86.67c	16.17a	13.20bc	14.68ab
Stoneville-453	81.00fg	79.27def	80.13d	16.87a	15.03a	15.95a
Condor	71.58h	72.00h	71.79f	11.54de	10.70de	11.12ef
Lachata	72.54h	72.80gh	72.67f	11.97cde	11.53cd	11.75de
Nata	82.77ef	74.13fgh	78.45d	12.30bcd	11.77cd	12.03de
DPL-5690	73.56h	73.77fgh	73.66ef	12.47bcd	11.30de	11.88de
DPL- 5409	71.71h	70.13h	70.92f	11.70de	12.03cd	11.87de
DPL-90	71.87h	70.43h	71.15f	11.00def	11.07de	11.03ef
Giza-75	124.63a	108.77a	116.70a	13.77b	15.23a	14.50b
Delcerro	93.30bc	84.70bcd	89.00bc	12.33bcd	13.23bc	12.78cd
OFN-7	98.43b	85.27bc	91.85b	13.50bc	14.10ab	13.80ef
Luisa	70.29h	69.97h	70.13f	11.13def	11.00de	11.07def
N-727	76.08gh	69.97h	73.02ef	11.20de	11.57cd	11.38ef
Brown color line	75.07h	78.53efg	76.80de	9.57f	11.77cd	10.67f
Mc namara	87.13de	89.10b	88.12bc	10.60ef	9.57e	10.08
Average	82.73	78.74	80.74	12.41	12.21	12.31
LSD (0.05)	5.36	5.94	3.78	1.63	1.77	1.43
CV (%)	3.88	4.51	2.80	7.84	8.68	6.92

*: Means shown with the same letter(s) in the same column are not significantly different at p=0.05. §: (n p^{-1}) number plant^{-1})

belong to Giza-75 in 2000 and were followed by Delcerro and OFN 7. In 2001, Giza-75 had the highest plant height and this was followed by Delcerro, OFN 7 and Mc Namara. Averaged over the years, Giza-75 (116.70 cm) had the highest plant height, followed by Delcerro, OFN 7 and Mc Namara, respectively. The lowest values were obtained from Luisa, DPL-5409, DPL-90, Condor and Lachata (Table 3). Differences observed for plant height among the cotton varieties were probably related to genetic variation and ambient conditions. Giza 75, Delcerro and OFN 7 cotton varieties could be used as parent in breeding for plant height.

Number of sympodial branch: From Table 3, sympodia number is very important in order to form yield. For the higher yield more sympodia number desired. It can be realized that the least sympodia number was counted in 2001 (12.21 number plant^{-1}), but the most sympodia number was counted in 2000 (12.41 number plant^{-1}). Both years and average, Stoneville-453 had the most sympodia number and this was followed by Sayar-314 and Giza 75 and others cultivars had similar results. Stoneville-453 and Sayar-314 were local standard. This situation explains the fact that Giza 75, Stoneville 453 and Sayar-314 cultivars were could be used as parent in breeding for the higher number of sympodial branch.

Number of boll: Number of boll of the cotton genotypes are presented in Table 4. Differences between the cultivars with respect to the number of bolls were found significant for each year and average of these years. The average number of boll was 13.37 (plant^{-1}) in 2000, 12.42 (plant^{-1}) in 2001 and two years average value was 12.89 (plant^{-1}). The highest number of boll value was from Stoneville-453 in 2000, they were followed by Giza-75, Nata and Sayar-314. In 2001, Stoneville 453 and Giza-75 had the highest number of boll and these were followed by Lachata, Sayar-314 and OFN 7. Averaged over two years, Stoneville-453 and Giza-75 had the highest number of bolls, followed consequently by Sayar-314, Nata and OFN-7. The lowest values were obtained from N-727, Mc Namara and Condor (Table 4). Boll number trait is one of the most important yield components. But it is not enough alone for higher yield. For example Giza-75 had lowest seed cotton yield due to having small bolls. Similar situation has also been mentioned on other varieties by Gencer *et al*., (1992); Efe *et al*. (2004). This may explain the fact that Stoneville 453, Giza-75 and Sayar-314 cultivars should be used as parent in breeding for higher number of bolls.

Ginning percentage: From the Table 4, there were significant differences between cultivars for each year and average of these years. It has been seen that the highest value of ginning percentage was obtained from DPL-90, followed by DPL-5690, DPL-5409, Luisa and N-727 in 2000. In 2001, the highest value of ginning percentage was obtained from DPL-5690 followed by Luisa, DPL-5409, DPL-90 and N727 and the two years average highest ginning percentage value was from DPL-5690 followed by DPL-90, Luisa, DPL-5409 and N-727. Conversely, these varieties were not high yielding cotton. This case showed that there aren't positives relationships between yield and ginning percentage. Our findings were agreement with Wang *et al*. (2004), but it was not supported by Efe *et al*. (2004). This may be due to year effect, location difference or use of different cultivars in these studies.

Table 4: The average number of boll (plant^{-1}) and ginning percentage (%) of different cultivars of cotton and statistical groupings

	No. of Boll (plant^{-1})			Ginning percentage		
Cultivars	2000	2001	Average	2000	2001	Average
Sayar-314	15.07bc*	13.30b	14.18b	38.25cd	38.05cd	38.15de
Stoneville 453	18.50a	16.37a	17.43a	37.95cd	37.60cde	37.78de
Condor	11.50de	12.20bc	11.85def	38.70bcd	39.94ab	39.32bc
Lachata	10.97e	13.40b	12.18cde	38.07cd	38.79bc	38.43cd
Nata	15.17bc	11.67bcd	13.42bc	38.05cd	38.47cd	38.26d
DPL-5690	14.00bcd	11.27cd	12.63cd	39.76ab	41.19a	40.48a
DPL- 5409	13.97bcd	11.37cd	12.67cd	39.73ab	40.87a	40.30ab
DPL-90	12.40de	12.13bc	12.27cd	40.50a	40.18ab	40.34a
Giza-75	16.40ab	16.03a	16.22a	34.06ef	34.05f	34.05g
Delcerro	12.87cde	12.20bc	12.53cd	34.63e	36.22e	35.43f
OFN-7	12.37de	13.27b	12.82bcd	37.31d	37.10de	37.21e
Luisa	11.27e	12.10bc	11.68def	39.73ab	40.89a	40.32ab
N-727	11.07e	10.17d	10.62f	39.32abc	40.09ab	39.71ab
Brown color line	13.20cde	10.80cd	12.00cdef	33.07f	34.01f	33.54g
Mc namara	11.67de	9.97d	10.82ef	25.32g	24.66g	24.99h
Average	13.37	12.42	12.89	36.96	37.47	37.22
LSD (0.05)	2.23	1.77	1.42	1.25	1.40	1.00
CV (%)	9.98	8.50	6.61	2.02	2.22	1.61

*: Means shown with the same letter(s) in the same column are not significantly different at p = 0.05 probability level

Table 5: The average fiber length (mm) and fiber fineness (mic) of different cultivars of cotton and statistical groupings

	Fiber length (mm)			Fiber fineness (mic.)		
Cultivars	2000	2001	Average	2000	2001	Average
Sayar-314	28.23d*	27.93cd	28.08f	5.03ab	4.80bcd	4.92abcd
Stoneville 453	30.13bc	28.30c	29.22cd	4.70abcd	4.80bcd	4.75bcde
Condor	30.00bc	26.87e	28.43ef	4.83abc	5.40ab	5.12ab
Lachata	29.56bcd	27.63cde	28.60def	4.67abcd	4.57cde	4.62de
Nata	30.47bc	28.30c	29.38c	4.40cde	5.13abc	4.77bcde
DPL-5690	29.73bcd	28.13cd	28.93cde	4.10de	5.27ab	4.68cde
DPL- 5409	29.27bcd	28.17cd	28.72cdef	4.23cde	5.17abc	4.70bcde
DPL-90	30.10bc	28.47c	29.28cd	4.80abc	5.63a	5.22a
Giza-75	34.77a	33.57a	34.17a	4.20cde	4.00e	4.10f
Delcerro	34.67a	31.77b	33.22b	4.27cde	4.03e	4.15f
OFN-7	30.43bc	28.33c	29.38c	4.50bcde	4.40de	4.45ef
Luisa	30.53b	27.73cde	29.13cde	4.33cde	4.67cde	4.50def
N-727	28.87cd	27.33de	28.10f	3.93e	4.80bcd	4.37ef
Brown color line	24.00e	24.40f	24.20g	5.27a	4.90bcd	5.08abc
Mc namara	23.87e	24.10f	23.98g	4.57bcde	4.83bcd	4.70bcde
Average	29.62	28.07	28.86	4.52	4.82	4.67
LSD (0.05)	1.39	0.96	0.72	0.55	0.62	0.42
CV (%)	2.80	2.04	1.48	7.26	7.68	5.36

*: Means shown with the same letter(s) in the same column are not significantly different at p = 0.05

Fiber length: Fiber length of the cotton genotypes are presented in Table 5. Fiber length was significantly influenced by genotype. Giza-75 and Delcerro varieties had the longest fibers in 2000 and 2001 years and average of these years (Table 5). This result was expected. These results show that long fiber trait of silk cotton wasn't lost in the semi arid environmental conditions, which is highly remarkable observation. But fiber length values of others varieties (except Mc Namara and Brown color line) have marketable values in spinning industry. Fiber length depends on genotype but is also affected by environmental and cultural practices. Previous studies reported that fiber length could vary widely with plant variety and growing conditions (Bradow and Davidonis, 2000; Cagirgan and Barut, 2000). Giza-75 and Delcerro had low seed cotton yield, but these varieties should be used as parent in breeding for longer fibers.

Fiber fineness: Differences between the cultivars with respect to the fiber fineness were found significant for each year and average of these years (Table 5). The average fiber fineness was 4.52 micronaire in 2000, 4.82 micronaire in 2001 and the two years average value was 4.67 micronaire. The highest fiber fineness value was from N-727 in 2000, they were followed by DPL-5690 and Giza-75. In 2001, Giza-75 yielded the highest fiber fineness and this was followed by Delcerro, OFN 7. Averaged over two years, Giza-75 (4.10 mic.) had given the highest fiber fineness, followed consequently by Delcerro, and N-727. The coarsest values were obtained from DPL-90, Brown Color Line, Sayar-314 and Condor (Table 5). Heerden *et al*., 1989 reported that fiber fineness can vary according to genotypes and ecological conditions in different years and significant interactions were found between genetic additive variance and environmental variability for fiber fineness, fiber strength and fiber length (Tang *et al*., 1996). However, when Giza-75 and Delcerro are produced in the Southeast environmental conditions its fine fiber which is required by textile industry will be conserved and these cultivars should be used as parent in breeding for fiber fineness.

Table 6: The average fiber strength (g tex^{-1}) of different cultivars of cotton and statistical groupings

	Fiber strength (g tex^{-1})		
Cultivars	2000	2001	Average
Sayar-314	31.90fgh*	33.10cd	32.50fg
Stoneville 453	32.53efgh	33.20cd	32.87efg
Condor	34.80cde	32.57cde	33.68def
Lachata	30.37h	29.50ef	29.93h
Nata	33.77defg	35.63bc	34.70cde
DPL-5690	34.53de	34.63cd	34.58de
DPL- 5409	34.83cde	33.87cd	34.35de
DPL-90	34.30def	39.53a	36.92b
Giza-75	37.70b	38.90ab	38.30b
Delcerro	44.77a	40.07a	42.08a
OFN-7	37.17bc	35.90bc	36.53bc
Luisa	35.47bcd	34.40cd	34.93cd
N-727	34.40def	32.83cde	33.62def
Brown color line	26.10ı	27.77f	26.93ı
Mc namara	31.47gh	31.23def	31.35gh
Average	34.27	34.21	34.22
LSD (0.05)	2.27	3.53	1.85
CV (%)	3.96	6.18	3.23

*:Means shown with the same letter s) in the same column are not significantly different at p = 0.05

Fiber strength: Means for fiber strength of the varieties and arisen groups were given in Table 6. When looking at the results of fiber strength for two years, it was obvious that varieties were significantly different. These differences were correlated with genotype only (Green and Culp, 1990; Smith and Coyle, 1997). Delcerro variety

had the highest fiber strength in both of years and the two years average. Except Brown Color Line, all cotton cultivars were in very strong class (28-35 g tex^{-1}). Giza-75 and Delcerro were given low seed cotton yield, but these varieties were should be used as parent in breeding for fiber strength.

As concluding remarks, it was not seen another genotype which passed the region's standard varieties Stoneville-453 and Sayar-314, but Giza-75 and Delcerro kept its long, fine and strong fiber characters under the Southeast Anatolian region's ambient conditions. However it was determined that Giza-75 and Delcerro had lower seed cotton yield compared to standard varieties. Although these cultivars are low yielding, they could be grown due to higher fiber quality characteristics. For this reason, economical analyses should be done to compensate yield vs. quality for these cultivars to make suggestions about growing these cultivars in Harran Plain.

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