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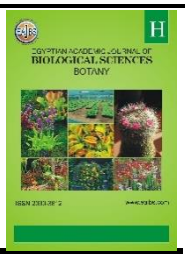

Quality Assessment of Some Newly Produced Egyptian Cotton Varieties

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ABSTRACT

The aim of this study is a comparison between old cultivated commercial varieties (Giza 86, Giza 90 and Giza 88) and new varieties (Giza 94, Giza 95 and Giza 96) by evaluation of the fiber characteristics and the qualities of spinning. The fiber properties of the studied varieties on HVI and Nep tester instruments were made at Cotton Arbitration and Testing General Organization (CATGO) and measure the efficiency qualities of spinning yarn varieties for 3 yarn counts at Delta company (20 - 30- 40 'S for cotton varieties Giza 95 and Giza 90) and (50 - 60- 70 'S for Giza 94 and Giza 86) and (60 - 90- 120 'S for Giza 96 and Giza 88)). The mean squares of cotton varieties for all studied fiber properties were highly significant differences as well as the two growing seasons mannered the same trend for all studied fiber properties as cotton varieties except fiber length, fiber elongation, short fiber index and neps count revealed insignificant differences.The interaction between six Egyptian cotton varieties and two growing seasons was recorded as highly significant for all studied fiber properties except for two traits fiber elongation and trash area. The yarn properties revealed high significance for the yarn traits of Giza 94 and Giza 86 for three yarn counts (50 - 60- 70 'S). The yarn properties (yarn strength(cN/tex) , thin places /400 m, thick places/400 m and yarn evenness (CV%)) under three yarn counts 20 ,30 and 40's of some Egyptian cotton varieties(Giza 95and Giza 90). Highly significant recorded for both of the Egyptian cotton varieties except yarn strength for both cotton varieties. The yarn properties were had recorded as highly significant for the yarn traits of Giza 96 and Giza 88 with regard to three yarn counts (60 - 90- 120 'S) except thick places/400m for cotton varieties. The interaction between Egyptian cotton varieties (Giza 94 and Giza 86) and yarn count is clear that highly significant for yarn properties. The interaction between Egyptian cotton varieties (Giza 95 and Giza 90) and yarn count had highly significant on yarn strength and thick places only. The interaction between cotton varieties Giza 96 and Giza 88 and yarn count is highly significant for all yarn properties.

INTRODUCTION

Egyptian cotton takes an important position in the world as it is considered one of the finest cotton in the world by excellence in the yarn qualities, where the characteristics of fiber play an important role in the efficiency of the performance of spinning operations.

Cotton is one of the main pillars of the Egyptian economy. Many industries are based on this crop, where cotton lint is used in the spinning and weaving industry and the oil is extracted from the seeds, which is used in the production of oils as oil for food and the manufacture of vegetable ghee and soap, and the seed gain is used in animal feed

The fuzz on the seed is also used to make cheap carpets and to make paper. Cottonwood is used as fuel in farmers' homes and in the management of steam machines, and whatever exceeds the need for fuel is used for filling ponds and swamps, and for setting up sheep pens and the like

The link between the breeders and the spinners is through the production of new varieties and replacing varieties with other ones that are superior to the yarn qualities to meet the requirements of the textile industry.

Cotton quality assessment is an important component of the global cotton trade the expectations of the spinners regarding the technological progress of textile production depend on the properties of quality fiber. The lower quality of cotton fibres means the lower quality of yarn produced . Gonca and Erhan (2006).

Wherefrom the commercial face, Egyptian cotton is considered the highest quality cotton where the quality of cotton depends on the properties of quality fiber, which depends on the quality of the yarn. However, qualify it for use in the high-quality textile industry. Quality is their most important attribute of Egyptian cotton and this is why grading and quality controls must be highly prioritized. Magdalena Nilsson (2005) .

Fiber quality is an important indicator of the quality of the cotton as a yarn where spinners today are interested in other fiber properties that affect the quality of their yarns. The cotton variety had a highly significant effect on all studied fiber length and strength traits. Osman (2007).

According to CATGO the cultivated area of the Egyptian cotton in the season 2018/2019 is 336042* Feddan where the area of Extra-long varieties was 17786* Feddan while the cultivated area for long varieties was 318256* Feddan.

During the 2019/2020 season, the cultivated area was 2389987* feddan where the area of Extra-long varieties was 3215* feddan while the cultivated area for long varieties was 235491* feddan.

The latest report for the 2020/2021 season, the cultivated area was 182987.5* feddan where the area of Extra-long varieties was 1780* feddan while the cultivated area for long varieties was 180396.5* feddan

Evaluation of new cotton varieties is very important every year for fiber properties plus agronomic characters in order to the high-quality race or varieties and good agronomic character still cultivated from year to year until the quality or agronomic trait decreased or deteriorated. So, these lower races of varieties don’t sow in Egypt area and research about new races by breeding methods (selection, hybridization and new approach by tissue culture).

The study aims to:

1- Evaluation of the fiber characteristics of some old cultivated commercial varieties Giza 86, 90 and 88.
2- Evaluation of the fiber characteristics of some new varieties Giza 94, 95 and 96.
3- Evaluate the qualities of spinning off some old cultivated commercial varieties Giza 86, 90 and 88.
4- Evaluate the qualities of spinning of some new varieties Giza 94,95 and 96.
5- Comparison between old cultivated commercial varieties and new varieties.

MATERIALS AND METHODS

This study was carried out at the Faculty of Agriculture (Saba Basha), Alexandria University and laboratories of Central Administration for Fiber and Spinning testing at Cotton Arbitration &Testing General Organization (CATGO), Egypt.

To study Fiber properties of the new variety, measure efficiency qualities of spinning yarn variety and the relationship between the quality characteristics of new and commercial Egyptian cotton cultivars.

This investigation aimed at Identifying the quality properties of the staple and spinning quality of the new Egyptian cotton variety Giza 94 under standard test conditions for the quality properties of staple and yarn compared to the cultivated variety of the same layer Giza 86.

The Varieties of Egyptian Cotton Were Used:

New varieties from the Cotton Research Institute (Table 1):

- Giza 94 as long-staple cotton. - Giza 95 as long-staple cotton.
- Giza 96 as Extra-long staple cotton.

Cultivated commercial varieties from the Cotton Research Institute:

- Giza 86 as long-staple cotton. - Giza 90 as long-staple cotton.
- Giza 88 Extra- long-staple cotton.

Table 1: Pedigree and origin of some Egyptian cotton varieties:

Variety of cotton	Pedigree	Original	Fiber length (mm)	Colour	Growing zone
Giza 94	(Giza 86 X 10229)	Egypt	Long-staple	white	Lower Egypt
Giza 95	(Giza 83(Giza75x5844) x Giza 80)	Egypt	Long-staple	creamy	Upper Egypt
Giza 96	(Giza 84(Giza 70X51 B) X62S)	Egypt	Extra-long staple	white	Lower Egypt
Giza 86	(Giza 81XGiza 75)	Egypt	Long-staple	white	Lower Egypt
Giza 90	(Giza83XDandara)	Egypt	Long-staple	creamy	Upper Egypt
Giza 88	(Giza 77XGiza45B)	Egypt	Extra-long staple	creamy	Upper Egypt

For two seasons 2018/2019 and 2019/2020, where the grade for each variety was Good (G).

Then to Study the fiber properties of the used varieties on:

- HVI 1000 M700 instrument according to standard methods ASTM (D 5867-12).
- Nep tester according to standard methods ASTM (D 5866-12).

The weight of the sample according to the specification ASTM (D 5867-12) and the HVI Application Handbook is 200 grams for each replication.

Measure efficiency qualities of spinning yarn varieties for 3 yarn counts at Delta company:

1 -Giza 95 and Giza 90 for 3 yarn counts (20 - 30- 40).

2 -Giza 94 and Giza 86 for 3 yarn counts (50 - 60- 70)ز

3 - Giza 96 and Giza 88 for 3 yarn counts (60 - 90- 120).

Yarn count according to English system as follows:

Study the properties of the fiber and yarn in four replications.

Studied Properties:

The properties of the fibers were studied under standard conditions of (65% ±2%) relative humidity and (21 ± 1º C) temperature before being tested according to the instruction manual for the HVI instrument and ISO 139 Standard atmospheres for conditioning and testing.

A.Fiber Properties:

I- (HVI) High Volume Instrument:

1-Micronaire reading

2- Maturity index (%)

3- UHML, Upper half mean length (mm)

4- Length uniformity index(%)
5-Fiber bundle strength (g /tex)
6- Fiber elongation (%)
7- Short fiber index (%)
8-Reflectance degree (Rd%)
9-Yellowness degree (+b)
10-Trash area(%)
11-Trash count

II -Nep Tester:

The number of neps / grams

b.Yarn Characteristics:

1- Single yarn strength (cN/tex)
2. Yarn evenness (CV%)
3. Thin places / 400 m.
4. Thick places / 400 m.

Statistical Procedures:

This investigation was carried out in a completely randomized block design with four replications for each season. The least significant difference (L.S.D.) was used at 0.05 level of probability to compare the mean of treatments cotton varieties, Yarn count.

As well as regression coefficient was used to define the relationship between fiber properties and spinning consistency index (SCI) with multiple regression model according to the following equation:

$Y = a + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + B_6 X_6 + B_7 X_7 + B_8 X_8 + B_9 X_9 + B_{10} X_{10} + B_{11} X_{11} + B_{12} X_{12}$

Where: Y is the SCI
a is the intercept from y axil
X 1 is the Micronaire reading
X 2 is the Maturity index
X 3 is the Fiber length
X 4 is the Uniformity index
X 5 is the Fiber strength
X 6 is the Elongation
X 7 is the short fiber index
X 8 is Reflectance degree
X 9 is the Yellowness degree
X 10 is the Trash count
X 11 is the Trash Area
X 12 is the Neps

Where the regression coefficient was used to determine the relationship between the fiber properties and spinning consistency index (SCI) with the multiple regression model and the non-significant traits in their effect were excluded by repeating the regression analysis to exclude the non-significant properties.

RESULTS AND DISCUSSION

Egyptian Cotton Varieties, Two Growing Seasons (2018/2019 and 2019/2020) and the Interactions Between Them:

According to Table (2) The mean squares of cotton varieties for all studied fiber properties were highly significant differences as well as the two growing seasons mannered the same trend for all studied fiber properties of cotton varieties except fiber length, fiber

elongation, short fiber index and Neps count revealed insignificant differences. The interaction between six Egyptian cotton varieties and two growing seasons was recorded as highly significant for all studied fiber properties except two traits fiber elongation and trash area.

Table 2: Mean squares of fiber properties as influenced by the Egyptian cotton varieties (V) , growing seasons (S) and their interactions during 2018/2019 and 2019/2020 seasons .

S.O.V	d.f	Micronaire reading	Maturity index	Fiber length		Mechanical properties		Short fiber index	Spinning Consistency Index	Color		Trash		Neps
				Length (U.H.M.L.)	Uniformity index	Fiber strength	Fiber elongation			Reflectance degree	Yellowness degree	Trash Count	Trash Area	
Replicate	3	0.003 ns	0.00002 ns	0.04 ns	0.99 ns	0.29 ns	0.02 ns	0.03 ns	13.7 ns	0.15 ns	0.02 ns	187.2 ns	0.01 ns	21.19 ns
Cotton Variety (V)	5	0.27 **	0.001 **	75.11 **	46.4 **	164.10 **	9.18 **	9.30 **	8026.7 **	164.3 **	11.90 **	2057.2 **	0.37 **	1054.00 **
Seasons (S)	1	0.18 **	0.002 **	0.32 ns	7.2 **	35.70 **	0.01 ns	0.11 ns	553.5 **	15.1 **	0.39 **	945.2 **	0.06 *	1.69 ns
Interaction (V x S)	5	0.99 **	0.001 **	0.62 **	1.43 *	22.60 **	0.06 ns	1.14 **	140.8 **	15.33 **	0.09 **	358.5 **	0.01 ns	130.19 **
Error	33	0.01	0.00003	0.13	0.48	0.35	0.03	0.04	25.30	0.33	0.02	86.98	0.01	13.45
Total	47													

, *Significant and highly significant difference at 0.05 and 0.01 levels of probability, respectively

n.s : Not significant difference at 0.05 level of probability

According to Table (3) cotton variety, Giza 95 recorded the highest value for short fiber index (7.6) while cotton variety Giza 90 recorded the highest values for micronaire reading (4.16), fiber elongation (7.8), short fiber index (7.8), trash count (83) and trash area (1.07).

Concerning the cotton variety, Giza 94 recorded the highest value for reflectance degree (75.1) while cotton variety Giza 86 recorded the highest values for micronaire reading (4.18), maturity index (0.88) and fiber strength (44.3).

Cotton variety Giza 96 recorded the highest values for length (35.6), fiber strength (44.2), spinning consistency index (212), reflectance degree (75) and neps (113) while Cotton variety Giza 88 recorded the highest values for length (35.5), uniformity index (88.5), fiber strength (44.5), spinning consistency index (215) and yellowness degree (11.6).

Table 3: Mean performance of fiber properties as affected by the Egyptian cotton varieties (V) , growing seasons (S) and their interactions during 2018/2019 and 2019/2020 seasons.

Traits / Entries	Micronaire reading	Maturity index	Fiber length		Mechanical properties		Short fiber Index	Spinning Consistency Index	Color		Trash		Neps
			Length (U.H.M.L)	Uniformity index	Fiber strength	Fiber elongation			Reflectance degree	Yellowness degree	Trash Count	Trash Area	
		(%)	(mm)	(%)	(g/ tex)	(%)	(%)	SCI	Rd	+b	TC	TA	neps
Cotton Variety (V)													
Giza 95	3.89 b	0.86 b	28.7 d	82.3 d	35.0 c	6.9 b	7.6 a	145 c	67.7 c	11.4 b	69 b	0.91 b	93 c
Giza 90	4.16 a	0.86 b	29.0 d	83.8 c	35.3 c	7.8 a	7.8 a	148 c	65.1 d	11.4 ab	83 a	1.07 a	82 d
Giza 94	3.79 cd	0.87 b	33.9 b	87.3 b	40.3 b	6.0 c	5.5 c	199 b	75.1 a	9.2 d	52 c	0.73 c	94 c
Giza 86	4.18 a	0.88 a	32.5 c	87.3 b	44.3 a	5.8 d	5.8 b	203 b	74.2 b	9.1 d	49 cd	0.6 d	84 d
Giza 96	3.76 d	0.85 c	35.6 a	86.9 b	44.2 a	5.0 f	5.8 b	212 a	75.0 a	9.4 c	46 cd	0.7 cd	113 a
Giza 88	3.85 b c	0.86 b	35.5 a	88.5 a	44.5 a	5.2 e	5.4 c	215 a	67.2 c	11.6 a	41 d	0.47 e	103 b
L.S.D 0.05	0.074	0.006	0.36	0.70	0.6	0.18	0.21	5.12	0.59	0.15	9.5	0.11	3.73
Seasons (S)													
Season2018/2019	3.88 b	0.87 a	32.48 a	85.6 b	39.8 b	6.1 a	6.4 a	184 b	71.3 a	10.4 a	52 b	0.78 a	94 a
Season2019/2020	4.0 a	0.86 b	32.65 a	86.4a	41.5 a	6.1 a	6.3 a	190 a	70.2 b	10.3 b	61 a	0.71 b	95 a
L.S.D 0.05	0.043	0.003	0.21	0.40	0.35	0.10	0.12	2.95	0.34	0.08	5.5	0.07	2.15
Interaction													
(V x S)	**	**	**	*	**	ns	**	**	**	**	**	ns	**

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability

* *, * Significant and highly significant difference at 0.05 and 0.01 levels of probability, respectively

n.s : Not significant difference at 0.05 level of probability

Concerning Table (4**)** cotton variety Giza 95 recorded the highest value in the first season 2018/2019 for micronaire reading (4.26), maturity index (0.88 %), upper half mean length (28.93mm), strength (37.4g/tex), spinning consistency index (149), yellowness degree (11.5) and neps count (96) while cotton variety Giza 90 recorded the highest value in second season 2019/2020.

For micronaire reading (4.43), maturity index (0.87 %), strength (37.6g/tex), spinning consistency index (154), yellowness degree (11.5), trash count (99) and neps count (86) These results confirmed the finding obtained by Fouda, (2008), Ibrahim (2010), Rasha (2016), and El-Saeed *et al*. (2020).

Respecting Cotton variety Giza 94 the highest value recorded in the second season 2019/2020 for micronaire reading (4.20), maturity index (0.87 %), upper half mean length (34.42mm), strength (41.8 g/tex) and short fiber Index (5.6) while recorded in first season2018/2019 highest value for Reflectance degree (77.1), trash count (57) and neps count(96) as well Cotton variety Giza 86 in first season 2018/2019 recorded the highest value for micronaire reading (4.57), upper half mean length (32.8 mm), reflectance degree (76.3), Yellowness degree(9.4) and neps count (88) whereas in the second season 2019/2020 the highest value recorded for maturity index(0.90%), strength(45.5 g/tex), short fiber index (5.9%), spinning consistency index(210) and trash count (53). Similar results were found by Hanan (2018), El-Saeed *et al.* (2020) and Amer (2019).

Table 4: The interaction between Egyptian cotton varieties(V) and seasons (S) for fiber properties on HVI 1000 instrument during 2018/2019 and 2019/2020 seasons.

Cotton Variety (V)	Seasons (S)	Fiber Properties										
		Micronaire reading	Maturity index (%)	Length (U.H.M.L) (mm)	Uniformity Index (%)	Fiber strength (g/ tex)	Short fiber Index (%)	Spinning Consistency Index (SCI)	Reflectance degree (Rd)	Yellowness degree (+b)	Trash Count (tc)	Neps
Giza 95	2018/2019	4.26 c	0.88 b	28.93 ef	82.2 f	37.4 f	7.1 b	149 de	66.6 gh	11.5 a	67 bc	96 c
	2019/2020	3.51 g	0.85 f	28.61 f	82.4 f	32.5 g	8.1 a	142 e	68.8 f	11.3 b	72 b	90 de
Giza 90	2018/2019	3.89 e	0.85 f	28.62 f	83.6e	33.0 g	8.3 a	143 e	66.2 h	11.4 ab	68 bc	79 f
	2019/2020	4.43 b	0.87 bc	29.39 e	83.9 e	37.6 f	7.2 b	154 d	64.1 i	11.5 a	99 a	86 e
Giza 94	2018/2019	3.39 h	0.86 e	33.54 c	87.4 bc	38.8 e	5.4 ef	199 c	77.1 a	9.3 d	57 cd	96 c
	2019/2020	4.20 c	0.87 bc	34.42 b	87.3 bc	41.8 d	5.6 ef	198 c	73.1 d	9.2 d	48 d	92 ed
Giza 86	2018/2019	4.57 a	0.87 cd	32.8 d	87 c	43.2 c	5.7 de	197 c	76.3 ab	9.4 d	45 de	88 de
	2019/2020	3.78 f	0.90 a	32.31 d	87.6 bc	45.5 ab	5.9 d	210 b	72.1 e	8.9 e	53 d	80 f
Giza 96	2018/2019	3.47 gh	0.84 g	35.55 a	85.9 d	43.2 c	6.2 c	206 b	74.3 c	9.6 c	45 de	106 b
	2019/2020	4.06 d	0.87 cd	35.65 a	88 b	45.3 b	5.4 ef	218 a	75.8 b	9.3 d	47 d	119 a
Giza 88	2018/2019	3.69 f	0.86 de	35.47 a	87.8 bc	42.9 c	5.4 f	208 b	67.3 g	11.6 a	34 e	103 b
	2019/2020	4.02 d	0.86 de	35.52 a	89.2 a	46.2 a	5.3 f	221 a	67.1 g	11.6 a	49 d	102 b
LSD		0.11	0.008	0.52	0.99	0.85	0.29	7.23	0.83	0.21	13.4	5.28

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability

Regarding cotton variety Giza 96 recorded the highest value in second season 2019/2020 for micronaire reading (4.06), maturity index (0.87 %), uniformity index (88%) ,strength (45.3 g/tex) , Spinning Consistency Index(218) , Reflectance degree (75.8), trash count (47) and neps count(119) . as well as cotton variety Giza 88 recorded the highest value in the second season 2019/2020 for micronaire reading (4.02), uniformity index (89.2%), strength (46.2 g/tex), spinning consistency index (221) and trash count (49) There results were in line with those obtained by Wali (2003) and Ibrahim (2018).

Data presented in Table (5) showed the mean squares of yarn properties as influenced by the Egyptian cotton varieties (Giza 94 and 86), Yarn strength(cN/tex) , Thin places /400 m, Thick places/400 m and Yarn evenness (CV%) under three yarn counts 50,60 and 70 were highly significant differences.

Table 5: Mean squares of yarn properties as influenced by the Egyptian cotton varieties (V) (Giza 94 and 86), yarn count (c) and their interactions.

S.O.V	d.f	Strength	Thin places /400 m	Thick places /400 m	Yarn evenness CV%
Replicate	3	0.04 ns	1.04 ns	3.00 ns	0.08 ns
Cotton Variety (V)	1	17.90 **	805.04 **	2521.50 **	5.37 **
Count (C)	2	5.99 **	11226.50 **	30809.40 **	3.07 **
Interaction (V x C)	2	4.58 **	242.50 **	765.12 **	0.29 **
Error	15	0.03	4.37	3.50	0.02
Total	23				

* *Highly significant difference at 0.01 level of probability.

n.s: Not significant difference at 0.05 level of probability

In Table (6) that Cotton variety Giza 94 recorded the highest value for Thin places /400 m (85.25/400 m) and Giza 86 recorded the highest values for yarn strength (27.47 cN/tex), thick places (82.25/400m) and yarn evenness (11.73%) while yarn count (50) recorded the highest value for yarn strength and yarn count (70) recorded the highest value for thin places (119) , thick places(140.75) and yarn evenness (11.92).

Table 6: Mean performance of yarn properties as affected by the Egyptian cotton varieties (V), yarn count (c) and their interactions during 2018/2019 and 2019/2020 seasons.

Traits / Entries	Strength	Thin places /400 m	Thick places /400 m	Yarn evenness CV%
Cotton Variety (V)				
Giza 94	25.74 b	85.25 a	61.75 b	10.79 b
Giza 86	27.47 a	73.67 b	82.25 a	11.73 a
L.S.D 0.05	0.15	1.82	1.63	0.12
YARN COUNT (C)				
C 50's	27.40 a	44.50 c	20.13 c	10.68 c
C 60's	26.73 b	74.88 b	55.13 b	11.18 b
C 70's	25.69 c	119 .00a	140.75 a	11.92 a
L.S.D 0.05	0.19	2.23	2	0.14
Interaction				
(V x C)	**	**	**	**

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability

* * Highly significant difference at 0.01 level of probability.

n.s: Not significant difference at 0.05 level of probability

Table 7: The interaction between Egyptian cotton varieties(V) and yarn count (c) for yarn properties.

Cotton Variety (V)	Yarn Count (c)	Yarn Properties			
		Strength (cN/tex)	Thin places /400m	Thick places/400m	Yarn evenness Cv %
Giza 94	50's	27.36 b	56.5 d	18.5 f	10.03 e
	60's	25.72 c	78.75 b	34.25 d	10.68 d
	70's	24.15 d	120.5 a	132.5 b	11.64 b
Giza 86	50's	27.45 b	32.5 e	21.75 e	11.34 c
	60's	27.74 a	71 c	76 c	11.67 b
	70's	27.22 b	117.5 b	149 a	12.19 a
LSD		0.26	3.15	2.82	0.20

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability.

Data presented in Table (8) indicated the mean squares of yarn properties,Yarn strength(cN/tex) , Thin places /400 m, Thick places/400 m and Yarn evenness (CV%) under three yarn counts 20 ,30 and 40 of some Egyptian cotton varieties (Giza 95 and 90).

With regrade to Table (9) that Cotton variety Giza 95 recorded highest value for Yarn strength(18.10cN/tex) , Thick places (54.42/400 m) and yarn evenness(14.6%) while Cotton variety Giza 90 recorded highest value for Yarn strength(17.9cN/tex) and Thin places (24.8/400 m) whilst yarn count (20) recorded highest value for Yarn strength(18.36cN/tex) and yarn evenness (16.9 %) and yarn count (30) recorded highest value for Yarn strength(18.42cN/tex) and yarn count (40) recorded highest value for Thin places(25.8 /400 m) and Thick places (77/400 m).

Table 8: Mean squares of yarn properties as influenced by the Egyptian cotton varieties (V) (Giza 95 and 90), yarn count (c) and their interactions.

S.O.V	d.f	Strength	Thin places /400 m	Thick places /400 m	Yarn evenness CV%
licate	3	0.096 ns	4.22 ns	4.27 ns	0.02 ns
Cotton Variety (V)	1	0.148 ns	400.16 **	80.66 **	4.71 **
Yarn Count (C)	2	3.241 **	191.16 **	8728.16.**	43.67 **
Interaction (V x C)	2	1.694 **	5.16 ns	112.16 **	0.30 ns
Error	15	0.13	1.58	2.51	0.11
Total	23				

,* * Significant and Highly significant difference at 0.01 level of probability

n.s: Not significant difference at 0.05 level of probability

Table 9: Mean performance of yarn properties as affected by the Egyptian cotton varieties (V), yarn count (c), and their interactions:

Traits / Entries	Strength (cN/tex)	Thin places /400 m	Thick places /400 m	Yarn evenness CV%
Cotton Variety (V)				
Giza 95	18.10 a	16.6 b	54.42 a a	14.6 a
Giza 90	17.9 a	24.8 a	50.75 b	13.7 b
L.S.D 0.05	0.31	1.1	1.38	0.30
COUNT (C)				
C 20's	18.36 a	16.0 c	15.00 c	16.9 a
C 30's	18.42 a	20.3 b	65.75 b	13 .0b
C 40's	17.29 b	25.8 a	77.00 a	12.7 b
L.S.D 0.05	0.39	1.34	1.69	0.36
Interaction				
(V x C)	**	ns	**	ns

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability

* *Significant and Highly significant difference at 0.01 level of probability

n.s : Not significant difference at 0.05 level of probability

Presented data in Table (10) showed Mean squares of the Egyptian cotton varieties (Giza96 and 88) highly significant for yarn count (60,90and120).

In Table (11) that Cotton variety Giza 96 recorded the highest value for Thin places (74.3 /400 m) and Thick places (68.42/400 m) while Cotton variety Giza 88 recorded the highest value for Yarn strength(26.86cN/tex), Thick places (66.17/400 m) and yarn evenness (12.47%) and yarn count (60) recorded the highest value for Yarn strength (27.10 cN/tex) and yarn count (120) recorded the highest value for Thin places (106.5 /400 m) , Thick places (105.38/400 m) and yarn evenness (15.9%).

Table 10: Mean squares of yarn properties as influenced by the Egyptian cotton varieties (V) (Giza 96 and 88), yarn count (c) and their interactions:

S.O.V	d.f	Strength (cN/tex)	Thin places /400 m	Thick places /400 m	Yarn evenness CV%
Replicate	3	0.012 ns	27.22 ns	16.93 ns	0.017 ns
Cotton Variety (V)	1	57.20 **	112.67 **	30.38 ns	0.18 **
Count (C)	2	38.39 **	8994.67 **	9350.04 **	75.7 **
Interaction (V x C)	2	0.56 **	228.67 **	143.38 **	1.03 **
Error	15	0.030	9.49	16.73	0.013
Total	23				

* *Highly significant difference at 0.01 level of probability
n.s : Not significant difference at 0.05 level of probability

Table 11: Mean performance of yarn properties as affected by the Egyptian cotton varieties (V), yarn count (c) and their interactions.

Traits / Entries	Strength (cN/tex)	Thin places /400 m	Thick places /400 m	Yarn even (CV%)
Cotton Variety (V)				
Giza 96	23.77 b	74.3 a	68.42 a	12.3 b
Giza 88	26.86 a	70.0 b	66.17 a	12.47 a
L.S.D 0.05	0.15	2.68	3.56	0.10
YARN COUNT (C)				
C 60's	27.10 a	39.5 c	39.25 c	10.17 c
C 90's	25.98 b	70.5 b	57.25 b	11.09 b
C 120's	22.87 c	106.5 a	105.38 a	15.90 a
L.S.D 0.05	0.19	3.28	4.36	0.12
Interaction				
(V x C)	**	**	**	**

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability
* ,* *Significant and highly significant difference at 0.05 and 0.01 levels of probability, respectively
n.s: Not significant difference at 0.05 level of probability

The Interaction Between Egyptian Cotton Varieties(V) and Yarn Count (C) For Yarn Properties:

Cotton variety Giza 95 recorded the highest value for single yarn strength (18.78 cN/tex) by yarn count (20'S) and thick places (77.75) by yarn count (40'S) while Cotton variety Giza 90 recorded the highest value for single yarn strength (18.15 cN/tex) by yarn count (30'S) and thick places (76.25) by yarn count (40'S) as shown in Table (7). Similar results were found by Haitham (2019).

With regard to cotton variety, Giza 94 recorded the highest value for yarn strength (27.36 cN/tex) by yarn count (50'S) , thin places (120.5/400m.) by yarn count (70'S) , thick places (132.5/400m.) by yarn count (70'S) and yarn evenness (11.64 %) by yarn count (70'S) while Cotton variety Giza 86 recorded the highest value for yarn strength (27.74 cN/tex) by yarn count (60'S) , thin places (117.5/400m.) by yarn count (70'S) , thick places

(149/400m.) by yarn count (70'S) and yarn evenness (12.19%) by yarn count (70'S) as shown in Table (12) .

Table 12: The interaction between Egyptian cotton varieties(V) and yarn count (c) for yarn properties.

Cotton Variety (V)	Yarn Count (c)	Yarn Properties	
		Strength (cN/tex)	Thick places /400 m
Giza 95	20's	18.78 a	13.75 e
	30's	18.69 ab	71.75 b
	40's	16.85 d	77.75 a
Giza 90	20's	17.95 c	16.25 d
	30's	18.15 bc	59.75 c
	40's	17.74 c	76.25 a
LSD		0.55	2.39

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability.

Concerning cotton variety Giza 96 in Table(13) recorded the highest value for yarn strength (25.76 cN/tex) by yarn count (60'S) while by yarn count(120'S) recorded the highest value for thin places (104/400m.), thick places (111/400m.) and yarn evenness (16%) while Cotton variety Giza 88 recorded the highest value for yarn strength (28.45 cN/tex) by yarn count (60'S) whilst yarn count(120'S) recorded highest value for thin places (109/400m.), thick places (99/400m.) and yarn evenness (15%). Their results were in line with those obtained by Pharoun(2020).

Table 13: The interaction between Egyptian cotton varieties(V) and yarn count (c) for yarn properties

Cotton Variety (V)	Yarn Count (c)	Yarn Properties			
		Strength (cN/tex)	Thin places /400m	Thick places/400m	Yarn evenness CV %
Giza 96	60's	25.76 c	47 d	39 d	10 e
	90's	24.54 d	71 c	55 c	10 d
	120's	21.03 e	104 b	111a	16 a
Giza 88	60's	28.45 a	32 e	39 d	10 e
	90's	27.43 b	69 c	59 c	11c
	120's	24.72 d	109 a	99 b	15 b
LSD		0.26	4.64	6.16	0.18

Means within each column followed by the same letter are not a significant difference at 0.05 level of probability.

Regression Coefficient Between Spinning Consistency Index (SCI) and 12 Fiber Properties for Cotton Varieties Giza 95 and 90:

The regression coefficient which describes the relationship between the spinning constant index and the fiber properties for Giza 95 and Giza 90, was explained by the equation:

SCI=-293.81 -16.97 (micronaire) -3.90(Length)+2.27(Strength)+66.30(Maturity)+6.58 (fiber length Uniformity)

The equation was the suitable one to define the relationship between the spinning constant index with significant fiber properties where the fiber properties were micronaire, length, strength, maturity and uniformity as shown in Table (14).

Table 14: Mean square of regression coefficient between Spinning Consistency Index (SCI) and 12 fiber properties and cancelation trait by trait according to significance F value with 12 fiber properties (cotton varieties Giza 95 and Giza 90).

Source	SCI With 12 p	SCI With 11 p	SCI With 10 p	SCI With 9 p	SCI With 8 p	SCI With 7 p	SCI With 6 p
Mic	254.88 *	254.88*	254.88**	254.88**	254.88**	254.88**	254.88**
Length	56.77 ns	56.77 ns	56.77 ns	56.77 *	56.77 ns	56.77 *	56.77 *
Strength	64.23 ns	64.23 ns	64.23 ns	64.23 *	64.23 *	64.23 *	64.23 *
Maturity	51.16 ns	51.16 ns	51.16 ns	51.16 ns	51.16 ns	51.16 *	51.16 *
uniformity	76.07 ns	76.07 ns	76.07 *	76.07 *	76.07 *	76.07 *	76.07 *
SFI	46.85 ns	46.85 ns	46.85 ns	46.85 ns	46.85 ns	46.85 ns	46.85 ns
Elongation	0.086 ns	----	-------	------	-----	-----	-----
Rd	10.57 ns	5.00 ns	5.00 ns	5.00 ns	5.00 ns	------	------
+b	1.50 ns	5.05 ns	-------	-------	------	------	------
Trash count	12.80 ns	13.34 ns	10.61 ns	10.61 ns	10.61 ns	15.60 ns	------
Trash area	8.17 ns	8.78 ns	16.07 ns	16.07 ns	------	------	------
Neps	2.89 ns	3.63 ns	2.73 ns	-------	-------	-------	-------

*, **: significant and highly significant differences at 0.05 and 0.01 levels of probability, respectively
ns: not significant differences at 0.05 level of probability

Regression Coefficient Between Spinning Consistency Index (SCI) and 12 Fiber Properties for Cotton Varieties Giza 94 And 86:

The regression coefficient which describes the relationship between the spinning constant index and the fiber properties for Giza 94 and Giza 86, was explained by the equation:

SCI=-393.81 -9.94 (micronaire) +2.03(Length)+3.13(Strength)-25.12(Maturity)+4.66 (length Uniformity) +0.01(Elongation)+0.67(Reflectance degree)

The equation was the suitable one to define the relationship between the spinning constant index with significant fiber properties where the fiber properties were micronaire, length, strength, maturity, uniformity, elongation and reflectance degree as shown in Table (15).

Table 15: Mean square of regression coefficient between Spinning Consistency Index SCI and 12 fiber properties and cancelation trait by trait according to significance F value with 12 fiber properties (cotton varieties Giza 94 and Giza 86).

Source	MS SCI With 12 p	MS SCI With 11 p	MS SCI With 10 p	MS SCI With 9 p	MS SCI With 8 p	MS SCI With 7 p
Mic	72.57 **	72.57 **	72.57 **	72.57 **	72.57 **	72.57 **
Length	47.58 **	47.58 **	47.58 **	47.58 **	47.58 **	47.58 **
Strength	449.86 **	449.86 **	449.86 **	449.86 **	449.86 **	449.86 **
Maturity	13.34 **	13.34 **	13.34 **	13.34 **	13.34 **	13.34 **
uniformity	129.83**	129.83**	129.83**	129.83**	129.83**	129.83**
SFI	0.12 ns	0.12 ns	0.12 ns	0.12 ns	0.12 ns	------
Elongation	1.49 **	1.49 **	1.49 **	1.49 **	1.49 **	1.20 **
Rd	4.75 **	4.75 **	4.75 **	4.75 **	4.75 **	5.09 **
+b	0.01 ns	0.01 ns	------	------	------	-------
Trash count	0.01 ns	------	------	------	------	-------
Trash area	0.05 ns	0.02 ns	0.03 ns	-------	------	------
Neps	0.03 ns	0.06 ns	0.06 ns	0.02 ns	-------	------

**: Highly significant differences at 0.01 level of probability
ns : not significant differences at 0.05 level of probability

Regression Coefficient Between Spinning Consistency Index (Sci) And 12 Fiber Properties for Cotton Varieties Giza 96 And 88:

The regression coefficient which describes the relationship between the spinning constant index and the fiber properties for Giza 96 and Giza 88, was explained by the equation:

SCI=-399.42 -10.17 (Mic) +1.62(Length)+2.94(Strength)-5.39(Maturity)+4.85 (Uniformity)-0.07(SFI)+0.06(Elongation)+0.60(Rd)

The equation was the suitable one to define the relationship between the spinning constant index with significant fiber properties where the fiber properties were micronaire, length, strength, maturity, uniformity, short fiber, elongation and reflectance degree as shown in Table (16).

Table 16: Mean square of regression coefficient between Spinning Consistency Index SCI and 12 fiber properties and cancelation trait by trait according to significance F value with 12 fiber properties (cotton varieties Giza96 and Giza 88).

Source	SCI With 12 p	SCI With 11 p	SCI With 10 p	SCI With 9 p	SCI With 8 p
Mic	522.19 **	522.19 **	522.19 **	522.19 **	522.19 **
Length	26.03 **	26.03 **	26.03 **	26.03 **	26.03 **
Strength	173.43 **	173.43 **	173.43 **	173.43 **	173.43 **
Maturity	20.59 **	20.59 **	20.59 **	20.59 **	20.59 **
uniformity	147.14 **	147.14 **	147.14 **	147.14 **	147.14 **
SFI	22.88 **	22.88 **	22.88 **	22.88 **	22.88 **
Elongation	2.93 *	2.93 *	2.93 **	2.93 **	2.93 **
Rd	20.11 **	20.11 **	20.11 **	20.11 **	20.11 **
+b	0.20 ns	0.20 ns	0.20 ns	-----	------
Trash count	3.44 ns	3.44 ns	-----	-----	-----
Trash area	0.32 ns	0.32 ns	0.25 ns	0.06	-----
Neps	2.20 ns	----	----	------	-----

*, **: significant and highly significant differences at0.05 and 0.01 levels of probability, respectively
ns: not significant differences at 0.05 level of probability

REFERENCES

Wali,,A.M. (2003). Effect of cotton fiber properties on yarn quality. M.Sc.Thesis,Fac.Agric., Saba-Basha, Alex. Univ., Egypt

ASTM (2020). Standard Test Methods for Measurement of Physical Properties of Raw Cotton by Cotton Classification Instruments. D5687-12.

Egyptcotton-catgo.org/ Egyptian cotton movement statistical center for seasons 2018/2019 and 2019/2020.

El-Banna, A.A.A.; M.N. El-Banna; M.A.A. Nassar; M.I. El-Bagoury and Rasha M. Abdo (2016). Evaluation of some Egyptian cotton varieties and promising cotton hybrids for fiber and yarn characters. Thesis, Fac. Agric, Saba-Basha, Alex. Univ., Egypt.

El-Banna, M. A., M. A. A. Nassar, M. A. M. Negm, A. A. A. El-Banna[1] and A. M. Pharoun(2020). Comparison between conventional ring and compact spinning of some Egyptian cotton varieties. *Journal of Advanced Agricultural Research,* (Fac. Agric. Saba Basha). 25(2) :130-143.

El-Saeed M. M. E; E. M. G. Abo-Baker.; E. Y. Abd-Elkawe; A. A. Hassan and R. M. Abdel-Twab(2020). Study on Fiber and yarn quality of some varieties and Egyptian cotton promising crosses. *Annals of Agriculture Science, Moshtohor,* 58(4) : 895 – 904.

Fouda, H.S.A. (2008). Effect of variety, locationand seed cotton level on the fiber quality index of the Egyptian cotton. . Thesis, Fac. Agric, Saba-Basha, Alex. Univ., Egypt.

Gonca Ozcelik and K.Erhan (2006). Examination of the influence of selected fibre properties on yarn neppiness. *Fibres & textiles in Eastern Europe July / September 2006,* 14, 3 (57): 52-57.

Haitham A. M. A. (2019). Effect of low-quality and inexpensive cotton materials on yarn properties using rotor spinning system. International Design J. 9 (4): 63-72. Hanan, H. A. E. (2018). Relationship between fiber and yarn technological

properties of some Egyptian cotton genotypes. Ph.D. Thesis, Fac. Agric., (Saba Basha), Alex. Univ., Egypt.

Hassan A.A. and A.E. I. Ibrahim (2018). Using some fiber properties to predict strength and regularity of carded yarn for some Egyptian cotton varieties. *Middle East Journal of Applied Science*, 8 (4): 1256-1263.

Ibrahim A.E.I (2013). Effect of cotton variety and lint grade on some fiber and yarn properties. *Journal of Applied Science Research,* 9(6): 4015-4020.

Ibrahim, A.E.I; A.S. Arafa and E.Z. Batisha (2011). The relationship between non-cellulosic content with fiber yarn properties. *Australian Journal of Basic and Applied Sciences*, 5(5): 1248-1256

Ibrahim,A. E. I,andA. A. A. El-Banna(2019). Response of Fiber Quality to temperature degree and lint cotton grade in two long staple varieties. *Alexandria Science Exchange Journal*, vol. 39, (3): 482-489

Ibrahim. A E.I (2010). Effect of cotton cultivar and seed grid adjustment on ginning efficiency and fiber properties. *Journal of Applied Science Research,* 6(11): 1589-1595.

Islam, A. G. (2015). Impact of micronaire reading on nep formation during cotton yarn processing. M.Sc. Thesis, Fac. Agric., (Saba Basha), Alex. Univ., Egypt

Magdalena Nilsson (2005). Reforming the Egyptian Cotton Sector - Competition and Coordination. Msc Thesis, The Department of Economics, Lund University. Sweden.

Nassar, M.A.A., I.A.E. Ibrahim, M.A.M. Negm, M.I. El Bagoury and R. S. M. Amer (2019). Effect of some egyptian cotton varieties and grades on fibers and yarn mechanical properties. *Journal of Advanced Agricultural Research,* (Fac. agric. Saba Basha). 24 (3):446-463.

Osman, N.A.A. (2007). Arithmetic estimation of fiber maturity in the Egyptian cotton. M.Sc. Thesis, Fac. of Agri. (Saba-Basha), Alex. Univ, Egypt

Sheikh, S.H., A. S. Tasin, A. Al Mamun, F. Ahmed, T. Ahmed and Rony Mi (2020). Statistical analysis of fiber quality to obtain a correlation between the fiber and yarn quality. *Textile Engineering & Fashion Technology* (JTEFT),6(6):236–239.

Uster HVI application hand book. Textile Technology /v2.0/march 2008/24568-04020.

ARABIC SUMMARY

تقييم جودة بعض أصناف القطن المصرى المنتجة حديثا

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أجرى هذا البحث فى قسم الإنتاج النباتى بكلية زراعة سابا باشا جامعة الإسكندرية ومعامل الهيئة العامة للتحكيم واختبار القطن و شركة دلتا لتقييم خصائص الألياف وتقييم صفات الغزل عن طريق المقارنة بين الأصناف التجارية القديمة المزروعة (جيزة 86 ، وجيزة 90 ، وجيزة 88) والأصناف الجديدة (جيزة 94 ، وجيزة 95 ، وجيزة 96) بدراسة خصائص الألياف للأصناف المدروسة على أجهزة HVI وNep Tester وقياس خصائص كفاءة أنواع خيوط الغزل لثلاثة نمر غزل في شركة دلتا ((20 - 30 - 40 لصنف جيزة 95وجيزة 90) و (50-60-70 لصنف جيزة 94 وجيزة 86) و (60-90-120 لصنف لجيزة 96 وجيزة 88)).

وأوضحت النتائج مايلى :

- كان المتوسطات لأصناف القطن لجميع خواص الألياف المدروسة ذات فروق عالية المعنوية كما ان موسمى الزراعة حققوا نفس النتائج ما عدا طول الألياف و إستطالة الألياف ومعامل الشعيرات القصيرة وعدد العقد كانت النتائج لها غير معنوية .
- سجل التفاعل بين ستة أصناف من القطن المصري وموسمين زراعة فروق عالية المعنويه
سجلت أعلى قيمة لمتوسط الميكرونير (4.57) للصنف جيزة 86 في الموسم الأول 2019/2018 , و سجلت أعلى قيمة (0.90) لمعامل النضج بالصنف جيزة 86 في الموسم الثاني 2020/2019 بينما متوسط الطول للنصف العلوي كانت أعلى قيمة (35.55 و 35.65 و 35.47 و 35.52 ملم) سجلت في جيزة 96 في كلا الموسمين وجيزة 88 في كلا الموسمين دون أي فرق معنوي على التوالي بالنسبة لمعامل إنتظامية الطول يتضح أن جيزة 88 سجلت أعلى قيمة (89.2٪) في الموسم الثاني 2020/2019 فيما يخص متانة الألياف أظهرت أن جيزة 88 سجلت أعلى قيمة لمتانة الألياف (46.2 جم / تكس) في الموسم الثاني 2020/2019.
- صنفى القطن (جيزة 94 وجيزة 86) وكذلك نمر الخيط (50-60-70) كان عالى المعنوية لخصائص الغزل .
- صنفى القطن (جيزة 95 وجيزة 90) كان عالى المعنوية لخصائص الغزل ماعدا متانة الخيط أما نمر الخيط (40-30-20) فكانت عالية المعنوية لجميع صفات الخيط .
- صنفى القطن (جيزة 96 وجيزة 88) كان عالى المعنوية لخصائص الغزل ماعدا الاماكن السميكة أما نمر الخيط (120-90-60) فكانت عالية المعنوية لجميع صفات الخيط .
- التفاعل بين أصناف القطن المصري (جيزة 94 وجيزة 86) ونمرة الخيط كان عالى المعنوية لخصائص الغزل حيث سجلت أعلى قيمة (27.7 سم نيوتن / تكس) لمتانة الخيط بواسطة صنف القطن جيزة 86 لنمرة الخيط (60) كما ان صنف القطن جيزة 94 أظهر أعلى قيمة (120.5 / 400 م) للأماكن الرفيعة / 400 م لنمرة خيط (70) كما تم الحصول على أعلى قيمة (400/149 م) للأماكن السميكة للصنف جيزة 86 مع نمرة الخيط (70) و سجل صنف القطن جيزة 86 أعلى قيمة (12.19 ٪) لإنتظامية الخيوط مع نمرة الخيط (70).
- كان للتفاعل بين أصناف القطن المصري (جيزة 95 وجيزة 90) ونمرة الخيط معنوية عالية لمتانة الخيط والأماكن السميكة فقط حيث سجل جيزة 95 أعلى قيمة لمتانة الخيط (18.78سم نيوتن/تكس) من خلال نمرة خيط (20) وللأماكن السميكة تم تسجيل أعلى قيمة (77.75 / 400 م) من خلال نمرة خيط (40)
- التفاعل بين أصناف القطن جيزة 96 وجيزة 88 ونمر الخيط ذات معنوية عالية لجميع خواص الغزل حيث سجل صنف القطن جيزة 88 أعلى قيمة (28.45 سم نيوتن /تكس) لمتانة الخيط لنمرة خيط(60) وحقق صنف القطن جيزة 88 أعلى قيمة (400/109 م) للأماكن الرفيعة / 400 م مع نمرة خيط (120) و سجلت أعلى قيمة (400/111 م) بالصنف القطني جيزة 96 مع نمرة الخيط (120) للأماكن السميكة و أعلى قيمة (16٪) لإنتظامية الخيط (cv٪) سجلت بواسطة صنف القطن جيزة 96 مع نمرة خيط (120)
- علاقة الانحدار التي توضح العلاقة بين معامل ثابت الغزل وخصائص الألياف لجيزة 95 وجيزة 90 والتي تم تفسيرها بالمعادلة:
معامل ثابت الغزل = 293.81- 16.97 (قراءة الميكرونير)- 3.90 (طول) +2.27 (متانة)+ 66.30(نضج)+6.58 (إنتظامية طول)
- علاقة الانحدار التي توضح العلاقة بين مؤشر ثابت الغزل وخصائص الألياف لجيزة 94 وجيزة 86 والتي تم تفسيرها بالمعادلة:
معامل ثابت الغزل = 393.81- 9.94 (قراءة الميكرونير)- 2.03 (طول) +3.13 (متانة)- 25.15 (نضج)+ 4.66 (إنتظامية طول)+ 0 ,.1 (إستطالة)+ 67, . (درجة إنعكاس)
- علاقة الانحدار التي توضح العلاقة بين مؤشر ثابت الغزل وخصائص الألياف لجيزة 94 وجيزة 86 والتي تم تفسيرها بالمعادلة:
معامل ثابت الغزل = 399.42-10.17 (قراءة الميكرونير)+1.62 (طول) +2.94(متانة)- 5.39(نضج)+ 4.85 (إنتظامية طول)- 0 ,07 (معامل شعيرات قصيرة)+ 06, . (إستطالة)+ 60, (درجة إنعكاس)