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RESPONSE OF COTTON CULTIVAR GIZA 85 TO IRRIGATION INTERVALS AND NITROGEN LEVELS

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ABSTRACT

Field experiments were conducted at Sakha Agricultural Research Station during 1998 and 1999 seasons to study the effect of three irrigation frequencies (every two, three and four weeks) and three nitrogen levels (40, 60 and 80 kg / Fed) on growth, maturity, yield and yield components of cotton cultivar Giza 85.The results indicated that plant height, length and number of internodes on the main stem, number of sympodia per plant , total dry weight of plant and leaf area were significantly increased as irrigation intervals decreased up to two weeks while number of monopodia / plant tended to increase but the differences were insignificant. Number of open bolls and unopen bolls / plant, boll weight and seed cotton yield per plant and feddan were significantly influenced by irrigation intervals in favor of the close irrigation (every two weeks). The days from sowing date to the first flower appearance and cracking the first boll were significantly decreased as the irrigation intervals increased. Earliness percentage was significantly increased by increasing irrigation intervals while position of first sympodium tended to form early by close irrigation intervals. Consumptive use of water was increased by close irrigation intervals , while water use efficiency was decreased in the two seasons .

With respect to nitrogen levels the results indicated that this factor had significant effect on most growth traits, as well as number of open bolls per plant, boll weight and seed cotton yield per plant and feddan. In favor of the high does of nitrogen (80 kg / fed), while unopen boll / fed was insignificantly influenced. The increase of nitrogen up to 80 kg / fed. caused delaying in maturity as a result of delaying the formation of the first sympodium which reflected on the appearance of the first flower, cracking of the first boll and earliness percentage. Consumptive use of water and water use efficiency were increased by increasing N levels in both seasons. The interaction between irrigation intervals and nitrogen levels had significant effect on total dry weight, number of open bolls / plant, boll weight, seed cotton yield per plant and seed cotton yield per feddan in 1998 season. The greatest values of these traits were obtained from the irrigation every two weeks and N application at 80 Kg while the irrigation every four weeks and N levels at 40 kg per feddan resulted low values of these traits.

INTRODUCTION

In Egypt, the reduction of cotton yield is the first problem facing the cotton producers. This reducing in yield due to many factors such as water supply, nitrogen fertilization and pest control management. Many researches were done in this field but the problem was more difficult because this problem concerned with the political, social and economic behavior of Egyptian farmers and at the same time the growing conditions overall the seasons were changed from year to year. In this respect, Gomaa *et al.* (1981) found that decreasing irrigation intervals significantly increased boll number, boll weight, number of sympodia per plant and seed cotton yield, but decreased earliness. Guinn *et al.* (1981) indicated that water deficit decreased plant height, leaf area index, number of branches per plant and

boll retention. Ali (1990) found that the irrigation every 15 days produced the highest seed cotton yield per feddan, number of open bolls per plant and boll weight more than at the irrigation every 10 or 20 days. Radin *et al.* (1992) indicated that plant height, number of vegetative branches, internode length on the main stem, boll weight and seed cotton yield were significantly increased in favor of reducing irrigation intervals. Ibrahim and Moftah (1997) indicated that leaf area, plant height, number of branches and bolls per plant were significantly decreased by extending the irrigation frequency intervals to 28 days while the position or number of fruiting branches / plant were not significantly effect. El-Shahawy and Abd El-Malik(1999) found that the close irrigation interval (every two weeks) resulted in higher number of main stem internodes, monopodia, sympodia, total dry weight, number of open bolls, boll weight and seed cotton yield (Kent. /fed.) . Final plant height and main stem internodal length reached the maximum with the intermediate interval (irrigation every three weeks). Close irrigation delayed maturation in terms of raising nodal position of the first sympodium, increasing number of days to first open flower and boll and decreasing earliness percentage. On the other side the highest nitrogen levels (80kg N/fed.) increased plant height, number of internodes, monopodia, sympodia, total dry weight, number of open bolls, boll weight and seed cotton yield(Kent./fed.), While increasing N levels delayed maturation as a presented by higher nodal position of the first sympodia, days to both first open flower and boll and lower earliness percentage. The interaction of irrigation intervals and nitrogen levels had insignificant effect on all traits under study. El-Shahawy *et al.* (2000) found that irrigation intervals every two weeks increased plant height, number of main stem internodes, both sympodial and monopodial branches, total dry weight of plant, number of open and unopen bolls per plant, boll weight and seed cotton yield (kentar per feddan), while it delayed the maturation as the increase number of days to both first open flower and boll as well as decreased earliness percentage irrespective to higher values of boll set and fewer shedding percentage. He added that node location of the first sympodium did not affect by irrigation intervals. On the other side Maples and Keogh (1971) found that both nitrogen deficiency and surplus nitrogen significantly reduced yield of cotton. Abou zeid and Mohamed (1985) stated that increasing nitrogen rate up to 60 kg / fed. increased seed cotton yield. Makram *et al.* (1994) reported that plant height, monopodia and sympodia, number of open bolls and boll weight were increased as nitrogen rate increased up to 90 kg / fed. While seed cotton yield per feddan was increased up to 75 kg / fed. On the contrary earliness percentage was decreased as nitrogen level increased. He added that number of unopen boll per plant and position of the first sympodium were insignificantly increased as nitrogen level increased. Little information on the interaction between watering interval and N fertilization were recorded. Gardener and Tuker (1967) stated that properly irrigate cotton utilizes more nitrogen fertilizer than water stressed cotton. Chaudhry (1969) found that irrigation every 15 days and highest level of nitrogen resulted in greatest production per feddan. while Ali (1990) and El-Shahawy and Abd El-Malik (1999) stated that the interaction between irrigation intervals and nitrogen levels had no

significant effect on all traits under study. Therefore this study was conducted to determine the effect of three irrigation frequencies and three N levels on growth, maturity, yield components of cotton cultivar Giza 85.

MATERIALS AND METHODS

Field experiments were conducted at Sakha Agricultural Research Station during 1998 and 1999 seasons using the Egyptian cotton cultivar Giza 85. The experimental design was split-plot with four replications. Irrigation intervals (every two , three and four weeks) occupied the main plots while nitrogen levels (40, 60 and 80 kg/fed .) occupied the sub-plots. The area of experimental plot was 19.5 m^2 (5 m. Length and 3.9 m. width) included 6 rows at 65 cm. apart. Plots were isolated by deep channels of 2m width to avoid the effect of lateral movement of irrigated water. Soil samples for moisture determination were taken by auger from 0-60 cm depths. The amount of consumptive use is assumed to be equal to the difference between both soil moisture contents at 48 hours after irrigation and just before the next irrigation. The consumptive use was calculated for 60 cm soil depth according to (Israelson and Hanson 1962) as follow:-

CU=θ2-θ1/100xBdx60/100x4200.

CU= Amount of consumptive use. Bd = Bulk density in g./cm .

θ2 = soil moisture after irrigation θ1 = soil moisture before irrigation

Water use efficiency (WUE) was calculated according to (Vites 1965) as follows:

WUE = seed cotton yield (kg / fed.) / consumptive use (m^3 / fed).

The preceding crop was rice (*Oryza sativa* L.)The seeds were planted on 28th and 30th March in 1998 and 1999 seasons respectively. The seeds were planted in hills20 cm apart and irrigated immediately after sowing. Plants thinned at two plants/ hill after formation the second true leaf. All other practices were done according to cotton production management, Chemical analysis of experimental soil were determined by Soil Research Department at Sakha Agricultural Research Station as shown in Table 1. Calcium super phosphate (15.5 % P2O5) was applied before sowing at the rate of 150 kg / feddan besides 50 Kg potassium sulphate (48 % K2O) per feddan before the fourth irrigation. Ten guarded plants were chosen at random from each sub/ plot to study the following characters :

(A) growth traits : final plant height (cm.) , number of internodes on the main stem / plant , internode length (cm.), number of sympodia and monopodia per plant, dry weight of plant(g) and leaf area (Dc^2).

(B) earliness: position of first sympodium, days to first flower appearance, days to first cracking boll and earliness percentage (yield of the first pick / total yield).

(C) yield components : number of open and unopen bolls per plant, boll weight (g), and seed cotton yield per plant (g). Seed cotton yield per feddan was estimated from the four inner rows of each sub/ plot in order to avoid any border effect. All the data were subjected to the statistical

analysis as identified by Snedecor and Cochran (1961) and means were tested according to Duncan's Multiple Range Test (1955).

Table 1: Chemical analysis of soil at the experimental sites in 1998 and 1999 seasons.

Soil contains / Seasons	Soil Structure	PH	TSS	Organic Matter	N ppm	P Ppm	K ppm
1998	Clay	8.15	0.43	1.55	11.3	8.8	280
1999	Clay	8.21	0.35	1.64	12.1	9.6	310

Table 2 : Monthly air temperature and relative humidity (R.H.) in 1998 and 1999 seasons .

Seasons	1998				1999			
	Air temp. c°		R. H. %		Air temp.c°		R. H. %	
Months	Max	Min	7.30	13.30	Max	Min	7.30	13.30
March	18.0	9.3	70.0	48.7	20.5	10.3	66.0	43.0
April	25.0	12.0	74.7	50.0	25.5	9.3	73.5	46.0
May	28.0	17.0	72.0	46.0	28.5	15.0	68.0	40.0
June	32.0	21.0	77.0	62.5	31.0	18.0	73.0	42.0
July	32.4	20.0	80.0	53.0	30.5	20.0	80.0	55.0
Aug	33.8	22.0	79.0	47.4	31.0	22.4	80.0	54.0
Sep	33.0	20.0	73.0	46.0	29.0	19.0	81.0	44.0
Oct	28.5	17.0	70.5	40.0	28.5	18.0	80.0	44.0

Data presented above were daily taken and calculated as average per month (c.f. Sakha Weather Station)

Table 3 : Number of irrigation over all the growing seasons .

Seasons	1998			1999		
Irrigation intervals	2 weeks	3 weeks	4 weeks	2 weeks	3 week	4 weeks
Number of irrigations	10	7	5	10	7	5

RESULTS AND DISCUSSION

A- Growth traits :

Data presented in Table 4 showed that most growth traits under study were significantly increased as irrigation intervals decreased in the two growing seasons.

The irrigation every two weeks gave the tallest plants and more number and length of internode on the main stem, number of sympodia per plant, total dry weight / plant and leaf area than the irrigation every three weeks followed by every four weeks. These results may be due to the sufficient water irrigation supply which was necessary to provide the cotton plants with its requirements of water to activate vital processes such as metabolism which reflected on growth, development and total dry matter weight of plants. Kater and Bill (1990) stated that severe water stress at any

time other than boll opening will decrease leaf function and growth. Similar finding were obtained by El-Shahawy *et al.* (2000).

Table 4 : Effect of irrigation interval , N levels and their interaction on some growth traits in 1998 and 1999 seasons.

Treatments / Characters	Seasons	Irrigation intervals			Sig.	Nitrogen Levels			Sig.	Inter I X N
		2 weeks	3 weeks	4 weeks		40 Kg	60 Kg	80 Kg		
Plant height (cm)	1998	a 104.67	b 91.89	b 86.44	*	c 89.00	b 94.44	a 99.56	*	NS
	1999	a 102.44	b 98.11	c 94.33	*	c 90.67	b 99.44	a 104.80	*	NS
Number of internodes Per plant	1998	a 20. 31	b 19.93	c 19.63	*	c 19.30	b 20.01	a 20.57	*	NS
	1999	20. 78	20.26	19.97	NS	c 19.13	b 20.58	a 21.59	*	NS
Internode length (Cm)	1998	a 5. 15	b 4.61	b 4.40	*	b 4.61	ab 4.72	a 4.83	*	NS
	1999	a 4. 92	a 4.48	b 4.72	*	c 4.73	b 4.82	a 4.92	*	NS
Number of monopodia per plant	1998	0.71	0.49	0.47	NS	0.49	0.53	0.64	NS	NS
	1999	1.70	1.22	1.00	NS	1.11	1.33	1.44	NS	NS
Number of sympodia Per plant	1998	a 13.00	b 12.56	b 12.17	*	b 12.21	ab 12.60	a 12.91	*	NS
	1999	a 14.11	ab 13.12	b 12.70	*	c 12.60	b 13.47	a 13.87	*	NS
Total dry weight per plant (g)	1998	a 121.5	b 114.2	c 98.2	*	c 105.2	b 111.9	a 116.8	*	**
	1999	a 118.8	b 111.4	c 104.3	*	c 103.0	b 110.8	a 120.7	*	NS
Leaf area (Dc^2)	1998	a 5.59	b 4.98	c 3.93	*	b 4.06	ab 4.66	a 5.78	*	NS
	1999	a 5.20	b 4.61	c 4.00	*	b 4.20	ab 4.55	a 5.05	*	NS

Means followed by the same letter are not significantly different at 0.05 level according to Duncan's test. *, and NS indicated p <0.05 , 0.01 and not significant , respectively .**

With respect to nitrogen levels the results illustrated in Table 4 cleared that all growth characters except number of monopodia were significantly increased by increasing nitrogen levels up to 80 kg / feddan in the both seasons. The tallest plants resulted from the high does of nitrogen. Also N levels were significantly influenced on both length and number of internodes which reflected on plant height, while number of sympodia per plant wes increased as a result of increasing number of internodes on the main stem. The high does of nitrogen encouraged cotton plants of Giza 85 cultivar to form more sympodia as a result of increasing leaf area and its activity which reflected on plant height and total dry weight of plant .These results were in line with those obtained by Makram *et al.* (1994) and El-Shahawy and Abd El-Malik (1999). The interaction between irrigation intervals and nitrogen levels had significant effect on total dry weight of plant in 1998 season as shown in Table 7. The greatest value of total dry weight of plant was

obtained when cotton plants were irrigated every two weeks and received 80 Kg nitrogen per feddan while the irrigation every four weeks and adding 40 kg nitrogen per feddan recorded the smallest value. While El- Shahawy and Abd El-Malik(1999) found that the interaction between irrigation intervals and N levels had no significant effect on total dry weight .

B-Earliness parameters:

The data presented in Table 5 indicated that position of the first sympodium, the days from sowing date to the first flower appearance ,the days to the first cracking boll and earliness percentage were significantly influenced by irrigation intervals in favor of the long irrigation intervals except the first trait. These results may be due to the water stress decreases overall metabolism and the leaf cuticle thickens in response to more limited water availability resulting in less uptake caused more rapid drying (Guthrie *et al*.,1993).ELShahawy and Abd EL-Malik (1999) came to the same conclusion . Nitrogen levels had a significant effect on position of the first sympodium, days from sowing date to the first flower appearance, days to the first cracking boll and earliness percentage.

The higher level of nitrogen caused delaying in the appearance of the first flower as a result of delaying the form of first fruiting branch which reflected on delaying the maturity of the yield in addition to the more bolls formed in case of high N level, which need to long time to mature than the less number of bolls which formed in case of low N level as well as the few bolls were more exposed to direct sunrise as a result of reducing the leaf area and its shading to bolls which helped in cracking bolls. Similar results were obtained by Makram *et al* 1994. The interaction between the nitrogen levels and irrigation intervals had no significant effect on all traits of earliness. Similar finding were obtained by El- Shahawy and Abd El-Malik(1999).

Table 5: Effect of irrigation intervals, nitrogen levels and their interaction on some earliness measurements in 1998 and 1999 seasons .

Treatments / Characters	Seasons	Irrigation intervals			Sig .	Nitrogen levels			Sig.	Inter I x N
		2 weeks	3 weeks	4 weeks		40 kg	60 kg	80 kg		
Position of first Sympodium	**1998**	8.23 a	8.39 b	8.51 a	NS	8.09 c	8.38 b	8.67 a	*	NS
	1999	7.67	8.13	8.36	*	7.57 a	8.09 b	8.50 a	*	NS
Days to first flower appearance	**1998**	82.80 a	82.44 a	81.91 b	*	81.70 b	82.11 b	88.33 a	*	NS
	1999	83.11	82.70	82.33	NS	82.60	82.80	83.80	NS	NS
Days to first cracking boll	**1998**	137.0 A	135.8 a	133.7 b	*	132. 9 b	133 .2 b	140. 3 a	*	NS
	1999	135.0	134.3	134.1	NS	131.8	132.8	138.9	*	NS
Earliness Percentage	**1998**	58.16 B	60.70 a	61.37 a	*	62.83 a	59.15 b	58.23 b	*	NS
	1999	62.85	64.80	65.17	NS	64.73	64.20	63.90	NS	NS

Means followed by the same letter are not significantly different at 0.05 level according to Duncan's test *,and NS indicated p < 0.05 , 0.01 and not significant , respectively .**

C- Yield and its components:

The data presented in Table 6 showed that seed cotton yield per plant and feddan were significantly increased by close irrigation intervals in the two seasons as a result of the effect of number of open bolls per plant and boll weight. These results may be due to water irrigation supply in case of close intervals (every two weeks) gave cotton plants of Giza 85 cultivar its requirements of water whereas the sufficient water lead to increase total dry weight per plant and fruiting set as a result of increase leaf area and metabolism process while the excessive or insufficient water can be deleterious the yield and maturity. These results were in agreement with those obtained by El-Shahawy *et al.* (2000). Number of open bolls and unopen bolls per plant and boll weight were significantly decreased by expanding irrigation intervals. Kater and Bill (1990) found that optimum moisture availability specially during bloom is desirable because water stress that causes wilting will reduce fruit set. Similar results were also obtained by Ali (1990). On the other hand nitrogen levels had a significant effect on seed cotton yield per plant and feddan number of open bolls per plant and boll weight in favor of the high dose of nitrogen in both seasons. The increase of yield due to the increase in both number of open bolls per plant and boll weight as a result of increasing leaf area and metabolism process which reflected on increasing number of heavier bolls per plant and seed cotton yield per plant and feddan.

Table 6 : Effect of irrigation intervals, nitrogen levels and their interaction on yield and its components in 1998 and 1999 seasons.

Treatments / Characters	Seasons	Irrigation intervals			Sig.	Nitrogen Levels			Sig.	Inter. I X N
		2 weeks	3 weeks	4 weeks		40 kg	60 kg	80 kg		
No of open boll per plant	1998	A 17.81	b 16.06	c 14.55	* *	c 14.16	b 16.48	A 17.78	* *	*
	1999	a 16.56	b 15.11	c 13.11	* *	c 13.00	b 15.22	a 16.56	* *	NS
No of unopen boll per plant	1998	2.72	2.59	2.56	NS	2.94	2.21	2.71	NS	NS
	1999	a 2.33	b 1.70	b 1.70	*	1.90	1.70	2.11	NS	NS
Boll weight (g)	1998	A 2.22	b 2.09	c 2.01	* *	c 1.96	b 2.10	A 2.26	* *	*
	1999	a 2.29	b 2.17	c 2.06	* *	c 2.01	b 2.19	a 2.32	* *	NS
Seed cotton yield per plant (g)	1998	A 39.86	b 33.77	c 29.32	* *	c 27.82	b 34.76	A 40.37	* *	* *
	1999	a 37.74	b 33.02	c 27.11	* *	c 25.93	b 33.46	a 38.49	* *	NS
Seed cotton yield per feddan (Kent)	1998	A 12.64	b 10.71	c 9.30	* *	c 8.93	b 11.02	A 12.70	* *	* *
	1999	a 11.98	b 10.48	c 8.61	* *	c 8.23	b 10.62	a 12.22	* *	NS

Means followed by the same letter are not significantly different at 0.05 levels according to Duncan's test . * , and NS indicated p < 0.05 , 0.01 and not significant, respectively .**

These results may be due to the cultivar Giza 85 has a high response to nitrogen fertilization and this response also may be due to the shortage of nitrogen in soil Table 1.besides to genotype of cultivar Similar results were obtained by Makram *et al.* (1994). The interaction between irrigation intervals and nitrogen levels had significant effect on number of open bolls / plant, boll weight, seed cotton yield per plant and feddan in 1998 season Table 7.the greatest values of this treats were optioned from the irrigation every two weeks and N application at 80 kg while the irrigation every four weeks and N levels at 40 kg/ feddan resulted low values of these traits . Similar results were finding b7y Chaudhry (1969) while Mahrous (1977) and Ali (1990) findings were reverse .It could be concluded that cotton cultivar Giza 85 response to application 80 kg N and watering every two weeks for maximum seed cotton yield.

Table 7 :Total dry weight of plant, No of open bolls per plant, boll weight, seed cotton yield per plant and feddan as significantly affected by the interaction between the irrigation intervals and N levels in 1998 season.

Characters	Irrig. Intervals Nitrogen levels	2 weeks	3 weeks	4 weeks
Total dry weight of plant (g)	40 kg	116.57 c	105.47 d	93.40 f
	60 kg	121.17 b	114.17 c	99.77 e
	80 kg	126.17 a	122.83 b	101.27 e
No of open bolls per plant	40 kg	15.33 e	13.83 f g	13.33 g 14.33 f
	60 kg	18.43 b	16.67 cd	16.00 de
	80 kg	17.76 a	17.67 bc	
Boll weight (g)	40 kg	2.4 de	1.99 e 2.Ⅱ d e	1.85 f 2.6 cde
	60 kg	2.18 bc	2.23 b	2.10 cd
	80 kg	2.44 a		
Seed cotton yield per plant (g)	40 kg	31.27d e	27.50 f	24.70 g
	60 kg	40.27b	34.33 c	29.67 e f
	80 kg	48.03 a	39.47 b	33.60 cd
Seed cotton yield per feddan (Kent)	40 kg	10.63 d	8.63 f	7.63 g
	60 kg	12.77 b	11.ウ c	9.27 e
	80 kg	14.53 a	12.47 b	11.10 c

Means followed by the same letter are not significantly different at 0.05 level according to Duncan's test.

D -Water relations :

1- Consumptive use of water was reduced by expanding the irrigation intervals Table 8. These results may be due to the fewer number of irrigation over all the growing season as shown in Table 3 .

2- Water use efficiency was increased by expanding the irrigation intervals Table 8. These results may be due to the reduction in consumptive use of water which was more than the reduction in seed cotton yield per

feddan in case of expanding irrigation intervals was effective rather than incase of close irrigation intervenes .

3- Consumptive use was increased as nitrogen levels were increased up to 80 Kg per feddan Table 8. These results may be due to increasing nitrogen encouraged cotton plants to form more dry weight and fruiting set as a result of increase leaf area and metabolism process.

4- Water use efficiency was increased by increasing nitrogen level up to 80 kg per feddan Table 8. These results may be due to the increase in consumptive use of water by increasing nitrogen level up to 80 kg / feddan which was less than the increase in seed cotton yield (kentar / feddan).

Table 8 : Consumptive use of water and water use efficiency as affected by irrigation intervals and N levels in 1998 and 1999 seasons .

Treatments / Characters	Seasons	Irrigation intervals			Nitrogen levels		
		2 weeks	3 weeks	4 weeks	40 Kg	60 Kg	80 Kg
Consumptive use of water (m^3/ feddan)	**1998**	3106	2741	2202	2503	2721	2825
	1999	2913	2709	2432	2709	2971	3019
Water use efficiency (Kg / m^3)	**1998**	0.53	0.55	0.66	0.55	0.58	0.59
	1999	0.55	0.60	0.63	0.56	0.59	0.61

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استجابة صنف القطن جيزة ٨٥ لفترات الري ومعدلات النتروجين

سيف الإسلام عبد الحي علي

قسم معاملات القطن – معهد بحوث القطن – مركز البحوث الزراعية – مصر

أقيمت تجربتان حقليتان بمحطة البحوث الزراعية بسخا خلال موسمي ١٩٩٨ ، ١٩٩٩ لدراسة تأثير ثلاثة فترات للري (كل أسبوعين - ثلاثة أسابيع - أربعة أسابيع) وثلاثة مستويات للتسميد الآزوتي ٤٠ - ٦٠ - ٨٠ كجم / فدان على النمو والنضج والمحصول ومكوناته لصنف جيزة ٨٥ واستخدم تصميم القطع المنشقة مره واحدة في أربعة مكررات حيث وضعت فترات الري في القطع الرئيسية و معاملات التسميد الآزوتي في القطع المنشفة و فيما يلي أهم النتائج المتحصل عليها :-

١- أدى نقص فترات الري إلى أسبوعين إلى زيادة معنوية في طول النبات و طول السلامية و عدد السلاميات على الساق الرئيسية و عدد الأفرع الثمر يه على النبات و الوزن الجاف الكلى للنبات ومساحة الأوراق على النبات بينما كانت الزيادة غير معنوية في حالة عدد الأفرع الخضرية على النبات .

٢- أدى الري كل أسبوعين إلى زيادة معنوية في وزن اللوزة و عدد اللوز المنفتح والغير متفتح للنبات ومحصول القطن الزهر للنبات والفدان ٠

٣ - أدت زيادة الفترة بين الريات إلى نقص الفترة من الزراعة حتى تفتح أول زهرة وتفتح أول لوزة بينما ارتفعت عقدة أول فرع ثمري معنوياً بزيادة فترات الري إلى أربعة أسابيع .

٤- ادت زيادة ا لأزوت الى ٨٠ كجم / فدان الى زياده معنويه فى معظم صفات النمو مثل طول النبات و طول السلامية وعدد السلاميات على الساق الرئيسي ومساحة الورقة وعدد الأفرع الخضرية والثمرية ووزن المادة الجافة للنبات في الموسمين.

٥- أدت زيادة الأزوت إلى ٨٠ كجم / فدان إلى زيادة معنوية في عدد اللوز المنفتح للنبات ووزن اللوزة ومحصول القطن الزهر للنبات والفدان بينما لم يتأثر عدد اللوز الغير متفتح معنوياً بمعدلات التسميد .

٦- أدت زيادة التسميد الأذوتى إلى ٨٠ كجم / فدان إلى تأخير النضج نتيجة لتأخير تكوين أول فرع ثمري الذي انعكس على تأخير ظهور أول زهرة وتأخير تفتح أول لوزة على النبات وبالتالي نقص نسبة التبكير.

7- كان للتفاعل بين معاملات الري ومعاملات التسميد الآزوتي تأثير معنوي على بعض الصفات تحت الدراسة مثل الوزن الجاف للنبات و عدد اللوز المتفتح و وزن اللوزة و محصول القطن الزهر للنبات وللفدان في الموسم الأول فقط .

8- أد ت زيادة فترات الري إلى نقص الاستهلاك الما ئى ومستوى الماء الأرضي وزيادة كفاءة استخدام المياه بينما أدت زيادة التسميد الآزوتي إلى زيادة الاستهلاك المائي وزيادة كفاءة استخدام المياه .

٩ - وعامة يمكن القول أن الصنف جيزة ٨٥ يستجيب للتسميد الآزوتي حتى ٨٠ كجم للفدان والري كل أسبوعين تحت ظروف التجربة .