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EFFECT OF SOME AGRICULTURAL PRACTICES ON PRODUCTIVITY OF PEANUT UNDER SANDY SOIL CONDITIONS

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ABSTRACT: Two field experiments were carried out in the Experimental Farm, El-Khattara region Faculty of Agriculture, Zagazig University, Sharkia Governorate, Egypt during two summer successive seasons (2002 and 2003). The experiment aimed to study the effect of planting density(67200 and 112000 plants/fad.), N (20 and 40kg/fad.)and PK fertilizer levels (1- P1K1 15.5 kg P_2O_5 +24 kg K_2O/fad. 2- P1K2 15.5 kg P_2O_5 +48 kg K_2O/fad. 3- P2K1 31.0 kg P_2O_5 +24 kg K_2O/fad.4- P2K2 31.0 kg P_2O_5 +48 kg K_2O/fad.) on productivity of peanut Giza - 6 cultivar.

The obtained results show that wide spacing of 25 cm between hills (67200plant/fad.)appeared to produce the higher values of No. of pods/plant, No. of seeds/pod, pod and seed yield/plant,100-seed weight, pod and seed yield/fad.and oil yield/fad. Increasing of N level from 20 to 40 kg N/fad. was followed by a significant increase in aforementioned characters in both seasons and their combined data.Application of PK at the rate of 15.5 kg P_2O_5+24 kg K_2O or 31.0 kg P_2O_5+24 kg K_2O appeared to produce the highest values of some yield and yield attributes.

Key words: Peanut, hill spacing, nitrogen, phosphorous, potassium and sandy soil.

INTRODUCTION

Peanut (*Arachis hypogea* L.) cultivates succesfully in newly reclaimed sandy soils in Egypt. So, it is of great importance to improve peanut production, by several agricultural practices such as planting density, nitrogen, phosphorous, and potassium fertilization.

Regarding the influence of hill spacing Basha (1994) showed that

widening hill spacing for peanut from 10 to 20 cm apart significantly increased weight of pods and seeds/plant, 100-seed weight, whereas pod, seed and oil yields/fad. were decreased. El-Seesy and Ashoub (1994) found gradually increases in 100-seed weight and shelling % with each widening in hill spacing from 10 to 20 then 30 cm. But, pod, oil and protein yields/ fad.were increased with each narrowing in hill spacing. El-Sayed,Asmaa, (2003) cleared that increasing hill spacing from 14 to 20 then to 25 cm caused a significant increase in weight of pods and seeds/plant, while mid spacing of 20 cm (84.000 plant / fad.) appeared to produce the highest pod, seed yields/fad., the heaviest seed-1 and shelling % as well as protein and oil yields/fad. As compared with either wide or close spaces. Ali et al., (2004) indicated that wide spacing of 25 cm (84.000 plant /fad.) appeared to produce the highest weight of pods, seeds /plant, shelling % and oil yield/fad. However, wide and mid-spacing of 25 and 20 cm produced heavier seeds, higher pod, seed and protein yield/fad. As compared with close spacing of 15 cm between hills.

Nitrogen plays an important role in plant life and is considered an indispensable element for several vital functions.El-Ahmer et al., (1986) found that the highest yield of peanut was obtained by applying the highest level of N (45kgN /fad.) Basyouny *et al.*, (2004) found that pod yield and 100-seed weight were significantly increased when adding N up to 45 kg N/fad.

Concerning P application Badawi and El-Moursy (1997) under sandy soil condition (Noubaria district) reported that increasing phosphorous levels up to 31.0 or 45.0 kg P_2O_5/fad. significantly increased No. of pods/ plant, 100-seed weight, shelling and oil% and pod, seed as well as oil yields/fad. 0f peanut in both seasons.

Regarding K fertilizer application. El-far and Ramadan (2000) observed that application of 36 kg K_2O/fad. significantly increased each of pods weight/ plant, 100-seed weight, shelling% and pods yield/ fad. Ahmed and Zeidan (2001) showed apositive response in all characters of peanut to K fertilizer. Darwish *et al.*, (2002) noticed that adding 48 kg K_2O/fad. significantly increased seed yield/ fad. Ali and Mowafy

(2003) found that K fertilizer significantly increased each of number of pods/plant, weight of pods and seeds/plant, 100-seed weight, pod and seed yields/ fad.. El-Sayed, Asmaa (2003) found that adding 50kg K_2O / fad. significantly increased each of number of pods/plant, pod and seed weight/plant,100-seed weight, yields /fad.and seed oil% compared with other K treatments applied. Abd-Alla, Maha (2004) obtained that increasing K fertilizer from 24 to 48 and 72 kg K_2O /fad. tended to increase number of pods/plant, weight of pods/plant, dry weight of plant, number of seeds/plant 100-seed weight, pod, seed and biological yields/fad.in the two seasons. The aim of this investigation is to study the influence of hill spacing(planting density), nitrogen fertilizer levels and pohsphorous potassium treatments on yield and yield attributes and quality of peanut Giza - 6 cultivar.

MATERIALS AND METHODS

Two field experiments were carried out in the Experimental Farm, El-Khattara region, Faculty of Agriculture, Zagazig University, Sharkia Governorate, Egypt during two summer successive seasons (2002 and 2003). The experiment aimed to study the effect of two planting densities and N, PK fertilizer levels on yield and yield attributes as well as quality of peanut Giza - 6 cultivar.

The experimental soil was sandy in texture, it have 7.9 pH value ; 0.48 organic matter and 10.3, 2.89 and 88 ppm available N, P and K, respectively (averaged over the two seasons for the upper 30 cm of soil depth). Each experiment included 16 treatments which were the combination of two hill spacing i.e. 25 cm between hills (67200 plant/fad.) and 15 cm between hills (112000 plant/fad), two levels of nitrogen fertilization (20 and 40kg N/ fad.) and four levels of PK as follows i.e.: 15.5 kg P_2O_5 +24 kg K_2O/fad. , 15.5 kg P_2O_5 +48 kg K_2O/fad. , 31.0 kg P_2O_5 +24 kg K_2O/fad.and 31.0 kg P_2O_5 +48 kg K_2O/fad.

A split-split plot design with three replicates was followed, planting densities were assigned to the main plots, whereas nitrogen fertilizer levels and the combination between P and K were allocated in the sub plots and sub-sub plots, respectively. The area of plot was 9.0m² (3.0m. in length and 3.0m. in width) included 6 rows, 50 cm apart of Giza-6 cultivars three seeds treated with fungicide

(Vitafax) were sown on May 9th and 18th in the 1st and 2nd seasons, respectively, then thinned to two plants/hill after two weeks from sowing. Soil were inoculated directly after sowing by specific *Rhizobium* strains. the preceeding crop was wheat and barley in the 1st and 2nd seasons, respectively. Nitrogen in form of ammonium sulfate (20.5% N) were supplied in three equal doses at sowing, 20 and 35 days after sowing. Phosphorous fertilizer was applied during soil preparation and after 20 days from sowing in the form of calcium super phosphate(15.5 %P2O5). Potassium sulphate (48% K_2O) was added in three equal doses (at sowing, 20 and 35 days from planting). In addition, gypsum was applied at the beginning of flowering stage at a rate of 750 kg/fad. Normal cultural practices of peanut were applied properly as recommended for the region.

At harvest (after 120 days from planting) sample of ten guarded plants were taken randomly from each plot to measure: Number of pods/plant., pods weight / plant (gm), seed weight/plant (gm) and 100-seed weight (gm). In addition $3m^2$ were harvested from the middle of experimental plots and the following characters were recorded after pod drying. Pod yield(kg/fad.),seed yield (kg /fad.), seed oil percentage and seed oil yield (kg/fad.). Dried mature seeds were ground into very fine powder to determine oil %(using Soxhelt apparatous and diethyle ether according to A.O.A.C.(1980).

Statistical analysis of each experiment was performed as the methods outlined by Steel and Torrie (1980). Multiple range test at 5% level of significance was used to diffrentiate between means with the help of L.S.D. In the interaction Tables. capital and small letters were used for the comparison between rows and columns means, respectively.

RESULTS AND DISCUSSION

Data in Tables 1 and 2 show the effect of hill spacing (planting density), nitrogen fertilizer levels and PK fertilization treatments on yield, yield attributes and quality of peanut Giza - 6 cultivar.

Yield Attributes : Number of pods/ plant, number of seeds/pod pod and seed yield/plant and 100-seed weight of peanut during the two seasons and the combined data is presented in Table 1 the difference between hill spacing were significant (for number of pods/

Table 1: Number of pods/plant, No.of seeds/pod , pod yield /plant (gm), seed yield /plant (gm) and 100- seed weight (gm) of peanut as influenced by hill spacing, nitrogen and phosphorous potassium fertilization during two growing seasons (2002 and 2003) and the combined data.

Main effects and interactions	No. of pods/plant			No. of seeds/pod			Pod yield /plant (gm)			Seed yield /plant (gm)			100- seed weight (gm)		
	2002	2003	Comb.	2002	2003	Comb.	2002	2003	Comb.	2002	2003	Comb.	2002	2003	Comb.
Hill spacing (D):															
25cm (67200 plant/fad.)	31.55 a	25.97	28.76 a	1.36	1.11	1.24 a	24.79 a	29.04 a	26.91 a	12.64 a	13.26	12.97	60.66	62.3 a	61.46 a
15cm (11200 plant/fad)	27.45 b	24.84	26.15 b	1.31	1.07	1.20 b	21.94 b	25.31 b	23.63 b	10.27 b	11.27	11.06	57.39	59.3 b	58.37 b
F test	**	NS	*	NS	NS	*	**	*	**	**	NS	NS	NS	*	*
L.S.D $_{05}$	1.52	--------	1.72	------	-----	0.03	0.42	2.67	1.54	0.75	--------	-------	-------	2.35	2.91
Nitrogen fertilization (N)															
20 kg N/fad.	26.48 b	24.73	25.60 b	1.23 b	1.04 b	1.13 b	21.05 b	25.19 b	23.12 b	9.92 b	11.18 b	10.61 b	56.41 b	59.50 b	57.97 b
40 kg N/fad.	32.53 b	26.08	29.31 a	1.45 a	1.15 a	1.30 a	25.67 a	29.16 a	27.42 a	12.99 a	13.35 b	13.42 a	61.65 a	62.10 a	61.85 a
F test	**	NS	**	**	*	**	**	**	**	**	**	**	*	*	**
PK fertilization															
15.5 P_2O_5+24 K_2O kg/fad.	29.53	24.23 b	26.88	1.34	1.13 ab	1.24	24.12 a	27.33 a	25.72 a	10.88 c	12.14	12.12 ab	58.90	60.10	59.50
15.5 P_2O_5+48 K_2O kg/fad.	29.27	25.30 ab	27.28	1.32	1.03 b	1.18	22.07 b	27.51 a	24.79 b	12.22 a	11.84	11.57 b	57.90	60.50	59.30
31.0 P_2O_5+24 K_2O kg/fad.	29.87	25.81 ab	27.84	1.36	1.05 ab	1.20	22.75 b	25.81 b	24.28 b	11.29 bc	12.31	11.85 b	60.20	60.70	60.50
31.0 P_2O_5+48 K_2O kg/fad.	29.35	26.29 a	27.82	1.33	1.16 a	1.25	24.52 a	28.04 a	26.28 a	11.44 b	12.78	12.51 a	59.10	61.80	60.40
F test	NS	*	NS	NS	*	NS	**	**	**	**	NS	*	NS	NS	NS
L.S.D $_{05}$	------	1.87	-----	------	0.10	------	1.13	1.23	0.65	0.50	-------	0.60	-------	--------	------
Interactions:															
DxN	**	NS	NS	NS	NS	NS	NS	*	*	*	NS	*	NS	NS	NS
DxPK	NS	NS	NS	NS	NS	NS	NS	NS	NS	**	NS	NS	NS	NS	NS
NxPK	**	**	**	**	NS	**	**	**	**	**	**	**	**	*	**

NS, * and **: indicate not significant, significant and highly significant at 0.05 and 0.01 level, respectively

plant, number of seeds/pod pod yield /plant, hundred seed weight (gm) in favour of wide spacing and insignificant (for seed yield /plant Whereas narrow space (15 cm between hills) tended to produce less number of pods/plant (26.15, pod yield/plant (23.63 gm), seed yield /plant (11.06 gm) and 100-seed weight (58.37 gm) In this respect data obtained by, El-Seesy and Ashoub (1994) and El-Sayed Asmaa (2003) Basha (1994) and El-Far and Ramadan (2000) were coinciding with this results Meanwhile, raising nitrogen fertilizer level from 20 to 40 kg N/fad, significantly increased number of pods/ plant and number of seeds/pod, pod, seed yield /plant as well as 100-seed weight of peanut during the two seasons and the combined data is presented in Table 1. Concerning the combined data the increase percent was 14.49% , 15.04%. 18.59%, 26.48% and 6.69%, respectively. These results were similar with those obtained by El-Kady *et al.*, (1998) and Basyouny *et al.*, (2004). Highest pod and seed yield were obtained by adding 15.5 kg P_2O_5 + 24.0 kg K_2O or 31.0 kg P_2O_5 + 48.0 kg K_2O i.e.25.72 or 26.28 gm and 12.12 or 12,51 gm, respectively. Whereas, the lowest values from that traits were given when 15.5 kg P_2O_5 +48.0 kg or 31.0 kg P_2O_5 +24.0 kg K_2O were applied during the two seasons and the combined data. Although,there was no significant effect on the number of pods/plant,number of seeds/pod and 100-seed weight by adding PK at a rate of 31.0 kg P_2O_5 +48.0 kg K_2O /fad. As a main factor. Yet this trend was changed by the aforementioned treatment when interacted with 40 kg N/fad. interaction in favour of number of pods/plant and number of seeds/pod Table 1-a contrariwise, the lowest values (21.05 pod/plant) was obtained by adding 20 kg N/fad. 15.5 kg P_2O_5 +24 kg K_2O.

Data presented in Table1-a indicate that adding 40 kg N/fad. Played a very important role in changing the low pattern of the main factor of phosphorus and potassium concerning the yield of peanut and its attributes. Adding 40.0 kg N/fad in the field of peanut fertilized with 15.5 kg P_2O_5 +48 kg K_2O/fad. Enhanced pod and seed yield as well as 100-seed weight. Contrariwise the lowest values was about 19.14 gm of pod yield plant by adding 20 kg N/fad. 31.0 kg P_2O_5 +24 kg K_2O and 7.87 gm of seed yield/plant by adding 20 kg N/fad. and 15.5 kg P_2O_5 + 24

Table 1-a: Number of pods/plant, number of seeds/pod , pod yield/plant (gm) of peanut as affected No. the interaction between nitrogen fertilization(kg N/ fad.) and PK fertilization (kg P_2O_5 +K_2O/fad. (combined data)

Nitrogen fertilization /PK fertilization	15.5 P_2O_5+24 K_2O kg/fad.	15.5 P_2O_5+24 K_2O kg/fad.	15.5 P_2O_5+24 K_2O kg/fad.	15.5 P_2O_5+24 K_2O kg/fad.
		number of pods/plant		
	D	B	C	A
20 kg/fad.	21.05 b	24.77 b	22.90 b	26.94 a
	A	B	A	B
40 kg/fad.	30.14 a	26.83 a	30.28 a	26.26 a
	A	A	A	A
20 kg/fad.	1.11 b	1.09 b	1.03 b	1.18 a
	A	A	A	A
40 kg/fad.	1.27 a	1.27 a	1.30 a	1.23 a
		pod yield/plant (gm)		
	C	B	D	A
20 kg/fad.	20.41 b	21.93 b	19.14 b	24.37 b
	A	B	B	B
40 kg/fad.	27.88a	24.56a	25.16a	25.55a
		seed yield/plant (gm)		
	C	B	B	A
20 kg/fad.	7.87 b	9.58 b	8.76 b	11.4 a
	A	C	B	C
40 kg/fad.	14.4 a	11.60 a	13.23 a	11.66 a
		100-seed weight (gm)		
	C	B	B	A
20 kg/fad.	53.29 b	56.47 b	56.06 b	59.23a
	A	B	A	B
40 kg/fad.	61.54a	59.13a	62.24a	58.98a

kg K_2O. Similar trend was obtained on pod and.seed yield (gm) /plant by interaction between hill spacing and N levels (Table 1-b) confirmed the superiority of adding 40 kg N/fad. under the two hill spaces. Thus, the higher value of pod and seed yields/plant (29.34 and 12.72 gm, respectively) were achieved by adding 40 kg N/fad. under wide space of 25 cm between hills.

Table 1-b : Pod and seed yield/plant (gm) of peanut as affected by the interaction between hill spacing and nitrogen fertilizer levels (combined data)

Hill spacing /nitrogen fertilizer levels	20 kg N/ faddan	40 kg N/faddan
	pod yield/plant (gm)	
	B	A
25 cm between hills	24.49 a	29.34a
	B	A
15 cm between hills	21.76 b	25.49b
	seed yield/plant (gm)	
	B	A
25 cm between hills	11.82 a	14.12 a
	B	A
15 cm between hills	9.40 b	12.72 b

Yield and Quality : Pod yield(ton) /fad., seed yield (kg) /fad., shelling and oil % and oil yield (kg)/fad.of peanut during the two seasons and the combined data is presented in Table 2 the differences between hill spaces were highly significant for pod yield /fad., seed yield /fad. and oil yield/fad Whereas narrow space (15 cm between hills) tended to produce lowest values from that traits (1.077 ton of pod),(631.79 kg of seed yield), (317.19 kg of oil yield) compared with wide space (25 cm between hills). In this connection, El-Seesy and Ashoub (1994) and El-Sayed, Asmaa (2003) cleared that there was a reverse relationship between plant density and the aforementioned criteria Also the obtained results are in agreement with those reported by Basha (1994) and El-Far and Ramadan(2000).

Increasing the dose of nitrogen fertilizer from 20 to 40 kg /fad. exerted a significant effect on pod, seed and oil yields/fad. these results were similar for both growing seasons and combined data Table 2 Regarding combined data, increasing N levels from 20 to 40 kg N/fad. increased that traits by about 21.11%,18.56%, 1.12% and 19.85%. for pod yield /fad., seed yield /fad., oil % and oil yield / fad., respectively. These results are similar with those obtained by El-Kady *et al.*, (1998) and Basyouny *et al.*,(2004).

Table 2: Pod yield /fad. (ton), seed yield /fad. (kg), oil percentage and oil yield /fad. (kg)of peanut as influenced by hill spacing, nitrogen and phosphorous potassium fertilization during two growing seasons (2002 and 2003) and the combined data.

Main effects and interactions	Pod yield /fad. (ton)			seed yield /fad. (kg)			Oil percentage			Oil yield /fad. (kg)		
	2002	2003	Comb.	2002	2003	Comb.	2002	2003	Comb.	2002	2003	Comb.
Hill spacing (D):												
25cm(67200plant/fad.)	1.153 a	1.186 a	1.268 a	716.70 a	800.70 a	1.24 a	48.15	49.67	49.89	358.85 a	398.07 a	378.50 a
15cm (11200plant/fad)	1.137 b	1.018 b	1.077 b	647.00 b	617.30 b	1.20 b	50.21	50.13	50.17	325.07 b	309.37 b	317.19 b
F test	**	**	**	**	**	*	NS	NS	NS	*	**	**
L.S.D $_{05}$	0.063	0.066	0.050	29.00	27.04	0.03	-------	-------	------	17.58	25.5	20.19
Nitrogen fertilization(N)												
20 kg N/fad.	1.083 b	1.039 b	1.061 b	623.70 b	648.90 b	1.13 b	47.97	49.59 b	49.75 b	311.21 b	321.62 b	316.43 b
40 kg N/fad.	1.406 a	1.165 a	1.285 b	739.90 b	769.08 a	1.30 a	50.40	50.22 a	50.31 a	372.72 a	385.82 a	379.26 a
F test	**	**	**	**	**	**	NS	*	*	**	**	**
PK fertilization												
15.5 P_2O_5+24 K_2O kg/fad.	1.352 a	1.117 a	1.235 a	686.6 ab	728.2 a	1.24	46.27	49.56	49.86	344.05 ab	361.41 a	352.71 a
15.5 P_2O_5+48 K_2O kg/fad.	1.208 bc	1.103 a	1.159 bc	674.3 b	660.5 b	1.18	50.37	49.73	50.05	339.89 ab	327.83 b	334.00 b
31.0 P_2O_5+24 K_2O kg/fad.	1.259 b	1.074 b	1.165 b	698.8 a	724.2 a	1.20	50.08	50.08	50.90	350.25 a	362.45 a	356.30 a
31.0 P_2O_5+48 K_2O kg/fad.	1.157 c	1.108 a	1.132 c	667.4 c	723.2 a	1.25	50.01	50.24	50.13	333.65 b	363.19 a	348.37 a
F test	**	*	**	*	**	NS	NS	NS	NS	*	**	**
L.S.D $_{05}$	0.054	0.031	0.020	20.0	31.37	------	-------	--------	------	10.00	17.16	9.27
Interactions:												
DxN	NS	NS	NS	*	NS	NS	NS	NS	NS	**	NS	NS
DxPK	**	NS	**	NS	NS	NS	NS	*	*	NS	NS	NS
NxPK	**	**	**	**	**	**	NS	**	**	**	**	**

NS, * and **: indicate not significant, significant and highly significant at 0.05 and 0.01 level, respectively

The fertilization with PK show highly significant increase in pod yield /fad. and significant increase in seed yield/fad. and oil yield /fad. of peanut. The lowest values from that traits were given when 15.5 kg P_2O_5 +24.0 kgK_2O were applied during the two seasons and the combined data Badawi and El-Moursy (1997) under sandy soil condition El-Sayed, Asmaa (2003). Abd-Alla, Maha (2004) came to similar results.

Finally, the significant interaction effects between the studied factors on pod yield /fad., seed yield /fad., oil % and oil yield /fad..show that Table 2-a wide space of 25 cm between hills gave the highest values from pod yield with different treatments of PK. Likely

Table 2-a : Pod yield/fad. (ton), seed yield/fad.(kg), oil%, oil yield /fad. (kg) and pod yield/fad.(ton) of peanut as affected by the interaction between nitrogen fertilization (kg N/ fad.), hill spacing and PK fertilization (kg P_2O_5 +K_2O/fad. (combined data)

Nitrogen fertilization / PK fertilization	15.5 P_2O_5+24 K_2O kg/fad.	15.5 P_2O_5+24 K_2O kg/fad.	15.5 P_2O_5+24 K_2O kg/fad.	15.5 P_2O_5+24 K_2O kg/fad.
		pod yield/fad.(ton)		
	B	B	C	A
20 kg/fad.	1.184b	1.179b	1.062b	1.226a
	A	C	B	B
40 kg/fad.	1.533a	1.361a	1.395a	1.207a
	C	B	C	A
20 kg/fad.	670 b	701 b	656 b	737 b
	A	B	A	B
40 kg/fad.	883a	760a	889a	769a
		oil%		
	B	B	A	B
20 kg/fad.	49.33a	48.64b	50.77a	49.57a
	A	A	A	A
40 kg/fad.	49.92a	50.56a	49.93a	50.39a
		oil yield/fad. (kg)		
	B	B	B	A
20 kg/fad.	330.53b	341.03b	333.46b	365.63b
	A	B	A	B
40 kg/fad.	441.13a	384.46a	443.86a	387.93a
		pod yield/fad.(ton)		
	A	B	C	C
25 cm between hills	1.395a	1.270a	1.228a	1.216a
	A	B	A	B
15 cm between hills	1.111 b	1.048 b	1.102 b	1.048 b

the application of 15.5 kg P_2O_5 +24.0 kgK_2O or 15.5 kg P_2O_5 +48.0 kg K_2O appeared to produce higher values from that trait under the two hill spacings. Thus the lowest pod yield(ton) /fad. (1.048 ton) were obtained by narrow space (15 cm between hills) when adding 15.5 kg P_2O_5 +48.0 kg K_2O. On the other direction, wide space (25 cm between hills) tended to produce heaviest pod and seed yields/plant with the two N levels. Thus, the higher value of pod and seed yields/plant 29.34 and 12.72 gm, were achieved by adding 40 kg N/fad. When wide space of 25 cm between hills was used contrariwise, the lowest values from that traits (135.12, 21.76 and 9.40) were obtained by adding 20 kgN/fad. with narrow space (15 cm between hills). Too, the interaction between N levels and PK fertilization treatments (Table 2-a) confirmed the superiority of adding 40 kg N /fad. under the 4th PK treatments in this respect. On the other direction, adding 15.5 kg P_2O_5 +24.0 kg K_2O tended to produce the highest pod yield ton /fad. (1.533 ton), and seed yield kg /fad. (883.0 kg), and oil yield kg /fad (441.13.) when adding 40 kg N / fad.

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تأثير بعض العمليات الزرعية على إنتاجية الفول السوداني تحت ظروف الأراضي الرملية

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أقيمت تجربتان حقليتن خلال موسمي ٢٠٠٢ و٢٠٠٣ بالمزرعة التجريبية بكلية الزراعة- جامعة الزقازيق بمنطقة الخطارة - بمحافظة الشرقية، لدراسةتأثير الكثافة النباتية(٦٧٢٠٠ و ١١٢٠٠٠ نبات/الفدان) ومستويات السماد النيتروجيني (٢٠و ٤٠ كجم ن/الفدان) والفوسفاتي مع البوتاسى(١٥,٥ كجم فو٢ا٥ +٢٤كجم بو٢ا ، ١٥,٥ كجم فو٢ا٥ +٤٨كجم بو٢ا ، ٠, ٣ كجم فو٢ا٥ +٢٤كجم بو٢ا و ٣١,٠ كجم فو٢ا٥ +٤٨,٠كجم بو٢ا) على إنتاجية الفول السوداني صنف جيزة "٦" تحت ظروف الأراضي الرملية ويمكن تلخيص أهم النتائج التي تم التحصل عليهاعلى النحو التالي:

١-تفوقت الكثافة الأقل (٦٧٢٠٠ نبات/الفدان)في إعطاء أعلى القيم لكل من عدد القرون/النبات، عدد بذور القرن، محصول القرون والبذور للنبات، وزن المائة بذره، محصول القرون والبذور والزيت/الفدان:

٢- أدت اضافة السماد النيتروجينى حتى٤٠ كجم للفدان الى زيادة معنوية لجميع الصفات السابق ذكرها. خلال موسمى الدراسة و التحليل المشترك.

٣-أدت إضافة المعاملة ١٥,٥ كجم فو٢ا٥ +٢٤كجم بو٢ا او ٣١,٠كجم فو٢ا٥ +٢٤كجم بو٢ ا لزيادة بعض صفات المحصول ومكوناته.

٤-من خلال نتائج هذه الدراسة يمكن التوصية بزراعة الفول السوداني تحت ظروف الأراضي الرملية بمحافظة الشرقية بكثافة نباتية ٦٧٢٠٠ نبات/الفدان وبإضافة ٤٠ كجم ن/الفدان وأيضا بإضافة ١٥,٥ كجم فو٢ا٥ +٢٤كجم بو٢ا او ٣١,٠كجم فو٢ا٥ +٢٤كجم بو٢ا.