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YIELD AND ITS COMPONENTS IN FABA BEAN GENOTYPES AS INFLUENCED BY CULTIVATION METHOD IN RECLAIMED SOIL

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ABSTRACT

Two field experiments were carried out at the Experimental Farm, Faculty of Agriculture, Sohag University, Egypt during 2005/2006 and 2006/2007 seasons to evaluate yield and its components of four faba bean genotypes (Giza-4, 1154-526-99, 1420-940-99 and 1581-545-2002.) as influenced by different cultivation methods (sowing seeds 20 cm apart on one side of ridges and 20 or 25 or 30 cm apart on the two sides of ridges). Statistical analysis of the data revealed a significant interaction between faba bean genotype and cultivation method. Highest seed yield per feddan was obtained from Giza 1581-545-2002 Giza and 1420-940-99 when grown on the two sides of the ridges at 30 cm hill spacing. However, line 1154-526-99 produced its highest seed yield/feddan when planted on the two sides of the ridges at 20 or 25 cm hill spacing. Unlike these lines, Giza-4 gave no appreciable changes in seed yield/feddan at any of the studied cultivation methods. Out of the investigated lines, line 1581-545-2002 sown on the two sides of ridges at 30 cm hill spacing yielded the highest amount (kg) of seeds /feddan. It can be concluded that cultivation method is a genotype dependant and it may enhance seed yield of only some faba bean genotype.

INTRODUCTION

Faba bean (*Vicia faba* L.) is one of the most important legume crops as a source of cheap available protein for human and animal consumption in Egypt and many other developed countries. Several investigators pointed to many factors towards enhancement of faba bean production and quality. One of the most important factors is the genotype and cultivation method, especially in new reclaimed soil. Nigem, *et al* (1988) and Togun and Daniel (2000) showed that faba bean cultivars differed significantly in their yields and its components. Similar results were reported in Egypt by several researchers (Amer, 1986; El-Shazly and Nassr, 1989; Khalil *et al* 2004; Nassib and Hussein, 1984; and Salih and Khalafalla, 1982). Increasing faba bean seed yield is one of the main research purposes and it can be attained through the adjustment of the crop management for given genotypes. Cultivation methods is one of the important factors which affected crop growth and yield by its impact on the efficiency of plant absorbing nutrients and utilizing the environmental factors. Many authors studied the effect of cultivation methods on growth, yield and its component of faba bean [(Christensen, 1974; Comarovschi, 1974; Bonari, and Macchia, 1975; Bianchi, 1979; Rebillard and Lefievre, 1980; Salih, 1985; wtringi, *et al.*, (1986); Caballero, 1987; Haddad and Thalji, 1988; McEwen and Moffitt, 1988; Adisarwanto and Knight, 1997; Al-Rifaee, 1999; Tawaha and Turk, 2001; Turk and Tawaha, 2002 and Thalji, 2006)]. The present work aimed to investigate the response of four faba bean genotypes to cultivation methods in reclaimed soil under Sohag conditions.

MATERIALS AND METHODS

Two field experiments were carried out at the Experimental Farm, Faculty of Agriculture, Sohag University during the growing seasons of 2005/2006 and 2006/2007. The soil is reclaimed with top layer (25 cm) of clay-loam.

Table 1: Soil characterization at the experimental site.

Sampling depth	EC (1:5) dsm^{-1}	pH (H_2O) (1:2.5)	O.M %	$CaCo_3$ %	Clay %	Silt %	Sand %
0 – 25	0.21	7.35	2.51	11.27	29.70	23.12	47.18
25 – 45	0.15	7.73	0.09	52.15	3.19	6.00	90.81
45 – 65	0.19	7.90	0.40	55.49	2.90	7.18	89.92
65 – 80	0.20	7.85	0.31	22.50	2.60	7.22	90.18

Four genotypes of faba bean obtained from Agriculture Research Center, Giza, Egypt were used (Giza-4, 1154-526-99, 1420-940-99 and 1581-545-2002). Four cultivation methods were studied as follows: 1) sowing seeds 20 cm apart on one side of ridge, 2) sowing seeds 20 cm apart on the two sides of ridge, 3) sowing seeds 25 cm apart on the two sides of ridges and 4) sowing seeds 30 cm apart on the two sides of ridge.

The experiment was conducted in split-plot design with four replications. The different genotypes were arranged in the main plot and cultivation methods were assigned to sub plots. Each experimental plot was 10.5 m^2 (five ridges 60 cm wide cm. and 3.5 m long. Sowing (two seeds per hill) was on 5 and 7 October in the first and second season, respectively. Recommended culture procedures for commercial production of faba bean were applied. At the harvest time, ten guarded plants were taken at random from the inner ridges and data of plant height (cm), number of branches, number of pods / plant, number of seeds / pod (5 pods / plot), weight of seeds / plant (gm), weight of 100 seeds (gm) and weight of seed yield (Kg/fed.) were recorded. In addition, shellout percentage was calculated as: a weigh of dry seeds divided by weigh of dry pods and multiplied by 100. All obtained data were statistically analyzed and the new Duncan's multiple range tests were used to compare means according to Snedecor (1980)

RESULTS AND DISCUSSION

Plant height (cm.):

Data presented in Table 2 clearly show that plant height was significantly affected by genotypes in both seasons. Line 1154-526-99

had the tallest plants (108.50 and 111.83 cm.) while, the shortest plants (101.83 and 105.25 cm.) were obtained from cultivar Giza 4 in the first and second season, respectively. Similar results were reported by Khalil, *et al.*, (2004) who also found that faba bean cultivars differed in their plant height.

Concerning cultivation methods, data revealed that cultivation methods significantly affected plant height in both seasons (Table 2).

Table 2: Plant height of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	100.7 ef	103.7d	102.0 de	101.0 ef	101.83 B
1154-526-99	106.7 e	112.3 a	109.3 b	105.7 c	108.50 A
1420-940-99	101.0 ef	113.3 a	106.0 c	112.3 a	108.17 A
1581-545-2002	109.0 b	109.7 b	99.0 f	113.0 a	107.67 A
Mean	104.34 C	109.75 A	104.08 C	108.00 B	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	102.67 fg	111.00bc	103.67ef	103.67 ef	105.25 C
1154-526-99	109.00cd	113.00ab	110.33bc	115.00 a	111.83 A
1420-940-99	100.33 fg	116.33 a	106.67de	113.00ab	109.00 B
1581-545-2002	110.00bcd	116.00 a	99.33 g	110.33bc	109.00 B
Mean	105.50 C	114.08 A	105.00 C	110.50 B	

However, the highest values of this trait (109.75 and 114.08 cm.) were produced by sowing faba bean seeds 20cm apart on the two side of ridge. These findings were consistent in both seasons. On the other hand, sowing on one side of the ridges or sowing on both two sides of ridges with increasing the plant spacing more than 20 cm. between hills significantly decreased plant height in both seasons. These results could be attributed to that narrow spacing resulted in the reduction of light intensity which encouraged IAA synthesis. The

increase in IAA concentration in stem tissues caused cell enlargement and hence plant height. These results are in harmony with those reported by Caballero, (1987) and Al-Rifaee, (1999).

Regarding the interaction between the two studied factors, data in Table (2) show that the interactions significantly affected this character in both seasons. Line 1420-940-99 sown 20 cm apart on two side of ridges achieved the highest values while the lowest values recorded for line 1581-545-2002 sown on the two side of ridges at 25 cm hill spacing.

Number of branches / plant:

Data illustrated in Table 3 obviously show that faba bean genotypes significantly affected the number of branches per plant in both seasons. Cultivar Giza-4 gave the highest values for this character in the first season. However, in the second season, no significant differences among the four studied genotypes except line 1420-940-99, were detected. Same general trend were found by Togan and Daniel (2000).

Table 3: Number of branches/plant of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	5.00 a	4.00 ef	4.60 bc	4.53 bcd	4.53 A
1154-526-99	4.60 bc	3.80 fg	4.40 bcd	4.47 bcd	4.32 B
1420-940-99	4.67 b	3.67 g	4.20 de	4.40 bcd	4.23 B
1581-545-2002	4.60 bc	4.27 cde	4.33 bcd	4.27 cde	4.37 B
Mean	4.71 A	3.93 C	4.38 B	4.42 AB	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	4.60 bc	3.93 f	4.47 bcd	4.60 bc	4.40 A
1154-526-99	5.07 a	3.87 fg	4.53 bc	4.40 cd	4.47 A
1420-940-99	4.00 ef	3.60 g	4.13 def	4.40 cd	4.03 B
1581-545-2002	4.80 ab	4.33 cde	4.13 def	4.33 cde	4.40 A
Mean	4.62 A	3.93 C	4.32 B	4.43 AB	

Cultivation methods significantly affected this character in the two studied seasons. The highest number of branches per plant (4.71 and 4.62) was recorded by sowing faba bean seeds 20 cm apart on one side of ridges in the first and second season, respectively. On the other hand, the lowest values for this trait (3.93 and 3.93) were resulted in sowing seeds 20cm apart on the two side of ridge in the first and second season, respectively. These results were consistent in both seasons. The present results are in agreement with those found by Haddad and Thalji, (1988) and Tawaha and Tourk, (2001).

With respect to the interaction between the two studied factors, data in Table 3 show that the interactions significantly affected this trait in both seasons. The highest number of branches per plant was achieved by sowing 20 cm apart on one side of ridges for cultivar Giza-4 and line 1154-526-99 in the first and second season, respectively. The lowest value was recorded for line 1420-940-99 sown on the two side of ridge at 20 cm hill spacing. These results may be due to the competition between plants for available radiant energy, water and limited nutrient in reclaimed soil.

Number of Pods / Plant:

Data presented in Table 4 reveal that the number of pods/plant was significantly affected by different genotypes in the two seasons. The highest number of pods per plant was achieved by line 1581-545-2002 compared to the lowest values which were resulted from cultivar Giza-4 in both seasons. These results are in general agreement with those reported by Togun and Daniel (2000) and Khalil, *et al.* (2004).

Cultivation methods significantly affected number of pods per plant in both seasons. The highest values were recorded by sowing faba bean seeds 30 cm apart on the two side of ridges followed by sowing seeds 20 cm on the one side of ridges in both seasons. These results could be explained in the light of the positional effect that can reduce competition between plants for available environmental growth factors especially in reclaimed soil. These results are in line with those found by Stringi, *et al.*, (1986) and Al-Rifaee, (1999).

Regarding to the interaction between the two studied factors, data in Table (4) show that the interactions significantly affected this character in both seasons. Line 1581-545-2002 and sown 20 cm apart

on one side of ridges gave the highest number of pods per plant in both seasons. This suggests a differential response of genotypes to cultivation density.

Table 4: Number of pods/plant of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	26.17 ef	26.87 def	23.60 f	32.97 abc	27.40 C
1154-526-99	31.60 a-d	27.00 def	34.87 a	29.60 b-e	30.77 B
1420-940-99	27.80 def	27.27 def	26.40 def	28.33 c-f	27.45 C
1581-545-2002	36.13 a	29.67 b-e	35.10 a	34.07 ab	33.74 A
Mean	30.43 A	27.70 B	29.99 A	31.29 A	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	31.70 d	26.00 h	26.30 gh	28.40 e	28.10 D
1154-526-99	31.00 d	27.60 ef	30.93 d	35.30 bc	31.21 B
1420-940-99	30.67 d	27.23 fg	27.40 efg	35.13 c	30.11 C
1581-545-2002	36.87 a	27.60 ef	31.20 d	36.33 ab	33.00 A
Mean	32.56 B	27.11 D	28.96 C	33.79 A	

Number of Seeds / Pod:

Data illustrated in Table 5 indicate that genotypes had a significant effect on number of seeds/pod trait in the two studied seasons. However, the highest values for this trait were obtained from Line 1581-545-2002 followed by Line 1154-526-99 , and the lowest number of seeds per pod was produced by cultivar Giza-4 in both seasons. These results are in agreement with those found by Nigem, *et al.* (1988) and El-Shazly and Nassar (1989).

Regarding, the effect of cultivation method data showed that cultivation methods significantly affected this character in both seasons. Sowing on one side of ridges yielded the highest number of seeds per pod (3.57 and 3.62) in the first and second season,

respectively. These results are in harmony with those mentioned by Turk and Tawaha, (2002) and Thalji, (2006).

Combination between the two studied factors, indicated that the interactions significantly affect this character in the two studied seasons. The highest values were recorded by line 1581-545-2002 when sown on one side of ridge at 20 cm hill spacing. These results held well in both seasons (Table 5).

Table 5: Number of seeds/pod of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	3.40 bcd	3.13 e	3.20 de	3.27 cde	3.25 C
1154-526-99	3.60 ab	3.40 bcd	3.40 bcd	3.40 bcd	3.45 B
1420-940-99	3.53 ab	3.27 cde	3.40 bcd	3.40 bcd	3.40 B
1581-545-2002	3.73 a	3.47 bc	3.60 ab	3.60 ab	3.60 A
Mean	3.57 A	3.32 B	3.40 AB	3.42 AB	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	3.60 ab	3.33 c	3.40 bc	3.40 bc	3.43 B
1154-526-99	3.60 ab	3.47 abc	3.53 abc	3.43 abc	3.53 AB
1420-940-99	3.60 ab	3.40 bc	3.40 bc	3.47 abc	3.47 AB
1581-545-2002	3.67 a	3.47 abc	3.53 abc	3.53 abc	3.55 A
Mean	3.62 A	3.42 B	3.47 B	3.48 AB	

Weight of 100 seeds (gm):

Data in Table 6 show that weight of 100 seeds (gm) was significantly effected by faba been genotype, in both seasons. The highest values for this character (42.62 and 42.91 gm) were recorded by Line 1581-545-2002, while the lowest values was resulted in cultivar Giza-4 in the two studied seasons. These results are in accordance with those found by Amer, (1986) and Khalil, *et al.*, (2004).

Data also indicated that weight of 100 seeds (gm) was affected by cultivation methods in both seasons, but the differences were pronounced statistically in the second season only. Moreover, the heaviest weight was achieved by sowing on two side of ridges at 25 or 30 cm hill spacing, as compared to the lowest values produced by sowing on one side of ridges and 20 cm hill spacing. These results held good in the two experimental seasons. These results could be explained in the light of the increasing induced in number of seeds per pod previously discussed due to sowing on one side of ridges and 20 cm hill spacing, which surely reflect on and reduced weight of 100 seeds (gm). These results are on line with those obtained by Biomchi, (1979); Salih, (1985) and Al-Rifaee, (1999).

Table 6: Weight of 100 seeds (gm) of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	74.44 ef	72.18 f	77.74 cde	78.66 cd	75.74 C
1154-526-99	78.14 cde	80.26 cd	79.94 cd	81.40 bc	79.94 B
1420-940-99	76.50 de	80.40 cd	79.40 cd	80.86 c	79.30 B
1581-545-2002	85.46 a	85.20 ab	85.06 ab	85.26 ab	85.24 A
Mean	78.64 A	79.50 A	80.54 A	81.56 A	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	73.04 ef	72.62 f	77.78 cde	79.10 bcd	75.64 C
1154-526-99	75.76 cde	80.78 bc	81.66 b	81.1 b	79.84 B
1420-940-99	76.78 de	79.62 bcd	80.30 bc	79.68 bcd	79.10 B
1581-545-2002	86.22 a	86.34 a	85.18 a	85.54 a	85.82 A
Mean	77.96 C	79.84 B	81.22 A	81.38 A	

The interaction between the two studied factors affected weight of 100 seed g significantly in both seasons (Table 6). The interactions between line 1581-545-2002 and all cultivation methods showed the highest values for all possible interactions in both seasons.

Weight of seeds / Plant:

Results in Table 7 indicate that faba bean genotypes was significantly affected weight of seeds /plant in both seasons. The highest values resulted from Line 1581-545-2002 exceeded the lowest one (cultivar Giza-4) by 10.3 and 9.2% in the first and second season, respectively. These results are in line with those found by Khalil, *et al.* (2004).

Table 7: Weight of seeds/plant (g) of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	63.90bcd	53.34 e	57.36 de	68.20 ab	60.70 C
1154-526-99	69.23 ab	55.94 de	67.82abc	69.29 ab	65.57 AB
1420-940-99	63.61bcd	55.93 de	59.63cde	68.56 ab	61.93 BC
1581-545-2002	63.34bcd	63.65bcd	70.29 ab	73.32 a	67.65 A
Mean	65.02 B	57.22 C	63.77 B	69.84 A	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	66.03 d	53.58 i	58.36 g	69.80 c	61.94 D
1154-526-99	73.72 a	56.81 gh	66.16 d	70.89 bc	66.90 B
1420-940-99	74.86 a	56.24 h	61.23 f	70.43 bc	65.69 C
1581-545-2002	61.57 f	64.07 e	71.82 b	75.25 a	68.18 A
Mean	69.05 B	57.68 D	64.39 C	71.59 A	

Table 7 also reveals that weight of seeds per plant was significantly affected by cultivation methods in both seasons. The highest values were produced by sowing on two sides of ridges at 30 cm hill spacing in both seasons. These results can be attributed the

increments induced in number of pods per plant achieved by the cultivation method. These results are in agreements with those reported by Turk and Tawaha, (2002) and Thalji. (2006).

The combination between the two studied factors (Table 7) indicated that the interactions significantly affected this character in both seasons. Line 1581-545-2002 sown on two sides of ridges at 30 cm hill spacing yielded the highest amount of seeds/plant in both seasons.

Seed yield (kg/fed.):

Results in Table 8 show that seed yield was significantly affected by faba bean genotype. The highest values were resulted in Line 1581-545-2002 which surpassed the lowest one (cultivar Giza-4) by 35.6 and 40.4% in the first and second season, respectively. The increments induced in component characters such as number of pods per plant; number of seeds per pod and weight of seeds per plant previously discussed as well as shellout percentage which will be discussed later caused this increasing in weight of seed yield (kg/fed.) in both seasons. These finding are in general agreement with those reported by Khalil, *et al.*, (2004).

Cultivation methods significantly affected this character in both seasons (Table 8). The highest seed yield recorded by sowing on two side of ridge at 30 cm hill spacing, exceeded the lowest one produced by sowing on one side of ridges at 20 cm hill spacing by 5.7 and 6.1% in the first and second seasons, respectively. These results are in line with those obtained by Al-Rifaee, (1999) and Thalji, (2006).

The combinations between the two studied factors significantly affected this character in both seasons. On the other words, the heaviest weight of the seeds kg per feddan (838.67 and 842.67 kg/fed.) were obtained by Line 1581-545-2002 when sown on two side of ridges at 30 cm hill spacing followed by the combination between the same line and sowing on one side of ridges at 20 cm hill spacing in both seasons.

Table 8: Weight of seed yield (kg/fed.) of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	467.75 hi	474.17ghi	491.34gh	444.21 i	469.37D
1154-526-99	525.56 ef	605.55 d	602.64 d	460.01 hi	548.44 B
1420-940-99	442.13 i	501.05 fg	531.62 e	610.95 d	521.44 C
1581-545-2002	784.83 b	663.39 c	666.62 e	838.67 a	728.38 A
Mean	555.07 C	561.04BC	573.06AB	588.46 A	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	443.73 hi	391.76 i	494.14e-h	448.48 hi	444.53 C
1154-526-99	527.56 ef	632.20 cd	597.04 d	464.01gh	555.20 B
1420-940-99	466.41fgh	513.52efg	537.76 e	614.94cd	533.16 B
1581-545-2002	786.93 a	694.28 b	659.93 bc	842.67 a	745.93 A
Mean	556.13 B	557.94 B	572.22 B	592.53 A	

Shellout Percentage:

Results in Table 9 clearly show that faba bean genotypes differed significantly in both seasons. Line 1581-545-2002 gave the highest shellout percentage as compared to the lowest values for this character was obtained from cultivar Giza-4. The increasing weight of seeds due to the same line was generally positively lined with this trait. Same general trend were found by Khalil *et al.* 2004.

Cultivation methods significantly affected this character in both seasons (Table 9). The highest values were obtained from sowing on two sides of rides at 30 cm hill spacing as compared to the lowest values produced by sowing on one side of ridges at 20 cm hill spacing. These results held good in the two seasons. Haddad and Thalji, (1988) and Thalji (2006) came to the same general conclusion.

The combination between the two studied factors significantly affected shellout percentage in both seasons. Line 1581-545-2002 sown on two sides of ridges at 30cm hill spacing gave the highest

shellout percentage in both seasons. The same combination yielded the highest values for seed yield (kg/fed.) in both seasons which reflects positive association with this character.

Table 9: Shellout % of four faba bean genotypes as influenced by cultivation method in 2005-2006 and 2006-2007 seasons.

Genotypes	2005 - 2006 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	61.06 f	63.14 f	64.00 f	72.59 cd	65.20 C
1154-526-99	70.33 de	68.58 e	75.68 c	76.28 c	72.72 B
1420-940-99	71.30 de	70.82 de	73.58 cd	74.13 cd	72.46 B
1581-545-2002	83.62 b	85.78 b	76.44 c	91.21 a	84.26 A
Mean	71.58 B	72.08 B	72.43 B	78.55 A	
Genotypes	2006 - 2007 season				
	One side 20 cm distance	Two side 20 cm distance	Two side 25 cm distance	Two side 30 cm distance	Mean
Giza-4	67.26 f	63.06 g	64.23 g	72.75 de	66.83 C
1154-526-99	63.49 g	66.82 f	75.84 c	76.45 c	70.65 B
1420-940-99	62.69 g	70.41 e	74.78 cd	72.82 de	70.18 B
1581-545-2002	67.92 f	85.84 b	76.53 c	92.65 a	80.74 A
Mean	65.34 D	71.53 C	72.85 B	78.67 A	

CONCLUSION

Under the conditions of this experiment, it is clear that cultivation method of faba bean was genotype dependant as shown by the significant interaction between these two factors. Highest seed yield per feddan was obtained from 1581-545-2002 and 1420-940-99 when grown on the two sides of the ridges at 30 cm hill spacing. However, line 1154-526-99 produced the highest seed yield/feddan when planted on the two sides of the ridges at 20 or 25 cm hill spacing. However, Giza-4 gave no appreciable changes in seed yield/feddan at any of the studied cultivation methods. Out of the examined lines, line 1581-545-2002 sown on the two sides of ridges at 30 cm hill spacing yielded the highest amount (kg) of seeds /feddan. It can be, concluded that cultivation method may enhance seed yield of only some faba bean genotype.

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المحصول البذرى ومكوناته لبعض التراكيب الوراثية للفول البلدى وتأثرها بطرق الزراعه فى الأراضى المستصلحة

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أجريت هذه الدراسة فى المزرعة البحثية لكلية الزراعة - جامعة سوهاج- مصر، خلال موسمى الزراعه ٢٠٠٥/٢٠٠٦ ، ٢٠٠٦/٢٠٠٧ م وذلك لدراسة المحصول ومكوناتة لخمس طرز وراثيه من الفول البلدى هى الصنف جيزه ٤ ، السلاله ١١٥٤- ٥٢٦ - ٩٩ ، السلالة ١٤٢٠- ٩٤٠- ٩٩ ، السلالة ١٥٨١- ٥٤٥- ٢٠٠٢ . ومدى تأثرها بطرق الزراعة المختلفة (الزراعة على ريشه واحدة على مسافة ٢٠ سم بين الجور، الزراعة على ريشتين على مسافة ٢٠ سم بين الجور، الزراعة على ريشتين على مسافة ٢٥ سم بين الجور ، الزراعة على ريشتين على مسافة ٣٠ سم بين الجور).

وقد دل التحليل الأحصائى للنتائج على:

١- وجود تفاعل معنوى بين طرز الفول وطرق الزراعة المختلفة.

٢- اعطت السلاله ١٥٨١- ٥٤٥- ٢٠٠٢، ١٤٢٠- ٩٤٠- ٩٩ أعلى محصول بذرى للفدان عندما زرعت على الريشتين وعلى مسافة ٣٠سم بين الجور.

٣- فى حين أعطت السلالة ١١٥٤- ٥٢٦- ٩٩ أعلى محصول بذرى للفدان عندما زرعت على الريشتين وعلى مسافة ٢٠، ٢٥سم بين الجور .

٤- الصنف جيزة ٤ لم يعطى أى تغير ملموس فى المحصول البذرى للفدان فى أى من طرق الزراعة المستخدمة.

نستنتج من هذة الدراسة ان السلالة ١٥٨١- ٥٤٥- ٢٠٠٢ المزروعة على الريشتين وعلى مسافة ٣٠سم بين الجور أعطت أعلى محصول بذرى (كجم /فدان). ويمكن أن نستخلص ان طريقة الزراعة المعتمدة على التركيب الوراثى ربما تؤدى الى تعظيم المحصول البذرى لبعض التراكيب الوراثية فى الفول البلدى.