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EVALUATION OF SEVENTEEN COMMON BEAN GYNOTYPS FOR SEED PRODUCTION

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ABSTRACT

This investigation was carried out at the Experimental Station of Faculty of Agriculture, Cairo University, Giza, Egypt, during the two summer seasons of 2007 and 2008. Seventeen common bean genotypes; namely, Himo-Tebo,Tokachi Sirokintrki and Comtesse Chamberd (Gene bank, Japan) , Blue Lake (from Asgrow Co. USA), Lines 25 683, 25 684, 26 494, 65 670, 69 528 (Gene bank, Germany), Lines 1, 2, 3 and 4 (Segregations from Line 46 920, Gene bank, Germany), Lines 5, and 6 (segregations from cv.Morgan, Clause Co. France), Nebraska (commercial variety as a control) and Giza 3 (the local cultivar) were used in this study. The evaluation results indicated that Lines 69 528, 25 683 and line 4 were the tallest cultivars (indeterminate genotype), whereas Giza 3 and Blue Lake were the shortest ones. Lines 69 528, 25 683 and Blue Lake cv produced the least number of branches per plant. Lines 69 528, 25 683, 25 684, 1 and 4 showed the highest number of pods per plant. Pods of Blue-lake cv and Lines 2, 5, and 6 contained the highest number of seeds, whereas pods of Lines 65 670, 69 528, 3 and 25 683 contained the least number. Line 69 528 had the highest pod yield and seed yield per fedden. Meanwhile, the seed yield per feddan of that Line 69 528 was significantly higher than that of the control cultivar (Nebraska). Nevertheless, the seeds of Nebraska had the highest percentage of total carbohydrates. On the other hand, Comtesse Chamberd as well as Lines 1, 3, 5 and 25 684 had higher content of crude protein as compared with the control. Line 69 528 may by recommended for dry seed production under Giza Governorate conditions.

Key words: ***Bean, Phaseolus vulgaris, Pods, Carbohydrates, Protein, Dry seed.***

INTRODUCTION

Pulses play an important role in the traditional diets of most Mediterranean countries. Common bean "*Phaseolus vulgaris L.*"as dry seeds is an important vegetable crop in Egypt for local market and exportation.

Common bean stands among potential crops that can be grown in many tropical regions. It is known as a warm-season crop and is very sensitive to cold weather and frost. Common bean is a short –day crop and its growth and development are favored by mildly cool environments. Common bean can be grown in environments with 16 to 27°C temperature with about 12 hr day – length, and free from biotic and abiotic stresses (White and Laing 1989)

In Egypt common bean was cultivated in about 49639 feddan in 2007 for dry seed production with a total dry seed yield of 60794 tons with

an average of 1.22 ton/feddan according to the Central Administration for Agricultural Economics and Statistics, Ministry of Agriculture.

El- Sayed (1990) compared four common bean cultrivcars with the local cv Giza 3 and found that Tender Green cv. produced the highest yield of dry seeds. Rela and Berggold cvs. had the highest total sugar content in their pods that had the lowest amounts of crude fibers.

Hafez *et al* (1997) evaluated two common bean cultivars and found that Bronco cv. gave a more vigorous vegetative growth as compared with Giza 3 cv and produced taller pods and higher number of pods/ plant. On the other hand Giza 3 cv produced thicker and heavier pods and gave higher seed yield than Bronco cv

Mohamed (1997) found no significant differences in plant height among the studied bean cultivars, i.e., Bronco, Conteder, Giza 3, Dialana, Tema, Morgan and Giza 6, while the number of branches showed significant differences.

Ewais (2003) found significant differences among the tested cultivars (S1. Diacol and Nebraska) in plant height and number of branches per plant and protein content of the dry seed. Diacol and Nebraska cvs. produced the highest yield with a significant difference in the first season, while in the second season only Nebraska cv. was significantly higher in yield than others.

Amer (2004) evaluated six bean cultivars (Paulista, Xera, Samantha, Ferrari, Bronco, and Narina). Paulista plants were the tallest with the highest dry matter of total plant, leaves, branches and pods. Narina plants were the shortest with the lowest values of dry matter of leaves, branches and total plant.

Abd-Allah (2006) revealed that there were differences among the studied cultivars (Paulista, Somantha, Narina and Bronco) in the plant length, number branches per plant and fresh weight of plant.

Barrios-Gomez *et al* (2010) evaluated different dry bean cultivars under Central Mexico conditions and found that Celaya cv. gave the highest seed yield, followed by Monticello cv., while FM Noura, Anita and M38 produced the lowest seed yield.

The present investigation aimed to evaluate the performance of some imported dry bean genotypes regarding their seed yield and nutritive value as compared with Nebraska cv., the present commercial dry been cultivar in Egypt.

MATERIALS AND METHODS

This investigation was carried out at the Experimental Station of the Faculty of Agriculture, Cairo University, Giza Governorate, Egypt, during the two summer seasons of 2007 and 2008. Seventeer common bean genotypes; namely, Tokachi Sirokintrki, Comtesse Chamberd and Himo-

Tebo , (from gene bank, Japan), Blue Lake(from Asgrow Co, USA), Lines 25 683, 25 684, 26 494, 65 670, 69 528 (from gene bank, Germany), Lines 1, 2, 3 and 4 (segregations from Line 46 920 ,from gene bank, Germany), Lines 5 and 6 (segregations from cv . Morgan, Clause, Co. France), Nebraska a commercial variety as a control) and Giza 3 (the local cultivar) were used in this study.

Seeds of all genotypes used in this study have white color. Seeds were sown on 23rd February in the first season and on 1st March in the second season.

A randomized complete block design with three replicates was used. The plot area was 6.30 m^2 and consisted of 3 rows, each was 3 m length and 0.7 m width. Three seeds were sown per hill, spaced 10 cm on one side of the ridge. After germination, plants were thinned to two plants per hill giving a density of 107000 plants/ fed.

Measurements studied

After 70 days of the seed sowing, a random sample of nine plants was taken from each plot to measure plant length, number of branches and number and weight of dry pods per plant and the morphological characters of dry pods, which included length, thickness and average weight of pod.

After 80 days of the seed sowing, pods of all plots were harvested, where they were weighed as total dry pods per plot. Seeds were extracted from pods .Thereafter total yield of seeds, seed net percentage (seed yield / pods yield x 100) per plot and per fedden were calculated.

A sample of 100 g seeds was taken and dried for three days at 70^0 C to determine the seed nutritive value, i.e. total carbohydrates, according to the method described by A.O.A.C (1980), and crude protein, according to the method of A.O.A.C (1965).Statistical analysis was done according to (Little and Hills, 1972).

RESULTS AND DISCUSSION

Vegetative Growth characters

Plant length

There were significant differences among the studied genotypes of common bean in their plant lengths. In general, genotypes 69 528, 25 683, 25 684 and 1 were taller than Nebraska cv. (Table 1). Significant differences in plant length among different varieties of common bean were also observed by, El-Sayed (1990a), Mohamed (1997), Abd-Allah (2006) and Barrios-Gomez *et al* (2010).

Number of branches per plant

Studied genotypes showed significant differences in the number of branches/ plant (Table 1). Plants of genotypes 6 and cv. Comtesse significantly produced higher number of branches than Nebraska cv. Similarly, El-Sayed (1990a), Mohamed (1997), Abd-Allah (2006) and Barrios-Gomez *et al* (2010) recorded significant differences among bean cultivars regarding number of branches.

Table 1. Means of vegetative growth characters of some common bean genotypes in 2007and 2008 seasons.

Genotypes	2007		2008	
	Plant length (cm)	Number of branches/ plant	Plant length (cm)	Number of branches/ plant
65 670	44. 67 d	4.3 a-d	43.5 d	4.0 b-e
69 528	211.70 a	3.5 de	215.2 a	3.3 de
26 494	44.00 d	4.6 a-c	44.6 d	4.3 a-d
25 684	133.30 b	4.0 b-e	135.0 b	4.1 b-e
Tokachisiro Kintrki	89.00 c	3.0 e	81.6 c	3.3 de
Comtesse Chamberd	47.67 d	5.3 a	43.3 d	5.1 a
Himo-Tebo	44.67 d	5.0 ab	43.0 d	4.3 a-d
Blue Lake	39.67 d	3.3 de	41.2 d	3.8 c-e
25 683	132.00 b	3.3 de	137.7 b	3.7 c-e
Giza 3	37.50 d	3.6 c-e	35.3 d	3.3 de
Line 1	73.00 c	4.9 a-d	74.2 c	4.3 a-d
Line 2	41.00 d	4.7 c-e	39.4 d	4.0 b-e
Line 3	41.00 d	3.6 c-e	43.0 d	3.1 e
Line 4	136.30 b	5.0 ab	146.3 b	4.6 a-c
Line 5	44.00 d	4.6 a-c	41.6 d	4.3 a-d
Line 6	40.33 d	4.0 b-e	37.6 d	3.6 c-e
Nebraska	38.67 d	3.6 c-e	39.6 d	3.6 c-e

Means followed by the same letters are not significantly different according to Duncan's multiple rang test (*P* at 0.05 level).

Plant productivity characters

Number of pods per plant

The number of pods per plant was significantly affected by the tested genotypes of common bean, where genotypes 69 528, 256 83, 256 84, 469 20, 1 and 4 produced the highest pod number per plant (Table 2). On the contrary, genotype 3 had the lowest number of pods (14 and 15 in the first

Table 2.Means of plant productivity traits of some common bean genotypes in 2007and 2008 seasons.

Genotypes	2007		2008	
	No. of dry pods / plant	Weight of pods /plant (g)	No. of dry pods / plant	Weight of pods /plant (g)
65 670	19.0 f-h	31.20 e	25.7 de	35.98 e
69 528	36.3 a-c	83.49 a	36.3 ab	76.23 a
26 494	19.3 f-h	27.02 f	18.3 gh	23.79 f
25 684	44.3 a	57.59 b	39.7 a	55.58 b
Tokachisiro Kintrki	16.0 gh	27.20 f	19.3 f-h	28.95 f
Comtesse Chamberd	37.3 ab	44.76 c	39.0 a	42.90 cd
Himo-Tebo	24.6 d-g	41.82 cd	24.0 ef	36.00 e
Blue Lake	19.3 f-h	32.81 e	23.3 e-g	39.61 d
25 683	34.3 a-d	37.73 d	39.3 a	43.23 cd
Giza 3	23.0 e-h	25.30 g	23.3 de	35.36 g
Line 1	26.3 c-f	31.56 e	25.3 e-g	30.63 ef
Line 2	29.6 b-e	38.48 d	29.3 cd	38.09 d
Line 3	14.0 h	25.20 g	15.0 h	25.50 g
Line 4	36.1 a-c	36.10 d	31.6 bc	34.76 e
Line 5	21.6 e-h	34.56 de	21.3 e-g	31.95 ef
Line 6	19.6 e-h	25.48 g	21.0 e-g	25.20 g
Nebraska	20.6 e-h	45.92 c	23.0 e-g	50.60 c

Means followed by the same letters are not significantly different according to Duncan's multiple rang test (*P* at 0.05 level).

and second season, respectively). These results are in agreement with those obtained by El-Sayed (1990a), Hafez *et al* (1997), Abd-Allah (2006) and Barrios-Gomez *et al* (2010).

Weight of pods per plant

Weight of pods per plant was significantly affected by the tested genotypes, where genotype 69 528 produced the highest weight of pods per plant (Table 2). On the other hand, genotypes 3, 6 and Giza 3 had the lowest weight of pods per plant. These results are in agreement with those obtained by El-Sayed (1990a), Hafez *et al* (1997), Abd-Allah (2006) and Barrios-Gomez *et al* (2010).

Dry pod characters

Average pod weight

Significant differences in average pod weight were recorded among studied genotypes (Table 3). The highest average pod weight was recorded

for genotype 28 695 followed by Nebraska cv. On the other hand, the least pod weight was recorded for Giza 3 cv. followed by 25 683 genotype.

Pod thickness

Data presented in Table (3) indicated that there were significant differences among genotypes in their pod thickness.

In this regard Line 6 had thicker pods than all evaluated genotypes including Nebraska cv., while 25 683 and 25 684 genotypes had thinner pods than Nebraska in the two seasons. Similarly, El-Sayed (1990a), Abd-Allah (2006) and Barrios-Gomez *et al* (2010) recorded variation in length and thickness of pods of different common bean cultivars as compared with Nebraska cv.

Pod length

Significant differences in pod length were recorded due to genotypes (Table 3). The longest pod of common beans was obtained by genotypes 65 670, 69 528, 26 494 and 2 as compared with Nebraska cv., while Line 3 had the shortest pods.

Table 3. Means of dry pod characters of some common bean genotypes in 2007and 2008 seasons.

Genotypes	2007			2008		
	Pod thickness (cm)	Pod length (cm)	Weight of pod (g)	Pod thickness (cm)	Pod length (cm)	Weight of pod (g)
65 670	0.50 de	12.3 ab	1.3 de	0.50 c-e	11.5 b	1.4 cd
69 528	0.66 ab	13.3 a	2.3 a	0.66 a	12.9 a	2.1 a
26 494	0.56 b-d	11.4 bc	1.4 cd	0.56 a-d	11.0 b	1.3 de
25 684	0.40 e	08.3 ef	1.3 de	0.40 e	08.7 de	1.4 cd
Tokachisiro Kintrki	0.66 ab	09.6 c-e	1.7 b	0.66 a	09.7 b-d	1.5 bc
Comtesse Chamberd	0.56 b-d	08.3 ef	1.2 d-f	0.60 a-c	07.7 f	1.1 ef
Himo-Tebo	0.63 a-c	09.0 d-f	1.7 b	0.56 a-d	09.3 cd	1.5 bc
Blue Lake	0.56 b-d	09.0 d-f	1.7 b	0.56 a-d	10.3 bc	1.7 b
25 683	0.40 e	08.6 ef	1.1 ef	0.50 c-e	08.3 ef	1.3 de
Giza 3	0.46 de	09.0 c-e	1.1 ef	0.50 c-e	09.8 b	1.2 d-f
Line 1	0.46 de	08.3 ef	1.2 d-f	0.50 c-e	08.9 de	1.1 ef
Line 2	0.53 cd	12.3 ab	1.3 de	0.53 b-d	11.0 b	1.3 de
Line 3	0.50 de	07.6 f	1.6 b	0.56 a-d	07.7 c-e	1.7 b
Line 4	0.46 ef	09.6 d-f	1.0 f	0.46 de	09.0 de	1.1 ef
Line 5	0.53 cd	09.6 c-e	1.6 bc	0.56 a-d	09.7 b-d	1.5 bc
Line 6	0.70 a	10.3 cd	1.3 de	0.63 ab	10.3 bc	1.2 d-f
Nebraska	0.63 a-c	10.3 cd	2.2 a	0.63 ab	11.0 b	2.2 a

Means followed by the same letters are not significantly different according to Duncan's multiple rang test (*P* at 0.05 level).

Dry seed characters

Seed number per pod

Data presented in Table (4) showed significant differences among the tested genotypes. Pods of Blue-lake contained the highest number of seeds per pod, whereas genotypes 65 670, 69 528, 3 and 25 683 contained the lowest number. Similarly, El-Sayed (1990a) and Hafez *et al* (1997) recorded variation in the tested cultivars of common bean concerning seeds number per pod.

Weight of 100 seeds (seed index)

Weight of 100 seeds is considered a good assessment of seed size. Data presented in Table (4) indicated that there were significant differences among the tested genotypes of common bean in weight of100 seeds. Nebraska had the highest. Weight of 100 seeds followed by Tokachi Sirokintrki, Blue Lake cv., while lines 1, and 26 494 had the lowest weight of 100 seeds.

Table 4. Means of dry seed characters of some common bean genotypes in 2007and 2008 seasons.

Genotypes	2007		2008	
	Seed index (g)	Number of seeds / pod	Seed index (g)	No. of seeds / pod
65 670	25.0 d-g	3.6 c	25.0 d-f	4.3 b-d
69 528	24.3 d-g	3.6 c	24.3 c-e	3.7 de
26 494	19.3 gh	4.6 a-c	19.3 gh	4.7 b-d
25 684	22.6 e-g	3.6 c	22.0 d-g	4.0 c-e
Tokachisiro Kintrki	37.3 b	4.6 a-c	37.7 b	4.7 b-d
Comtesse Chamberd	27.6 c-e	4.6 a-c	27.0 c	5.3 ab
Himo-Tebo	26.3 d-f	4.6 a-c	24.0 c-f	4.7 b-d
Blue Lake	33.3 bc	6.0 a	34.7 b	6.3 a
25 683	22 .0 e-h	3.6 c	21.0 c-f	3.3 de
Giza 3	29 .0 cd	4.6 a-c	23.0 cd	4.7 b-e
Line 1	19.3 gh	4.6 a-c	19.0 gh	5.3 ab
Line 2	16.3 h	5.3 ab	16.3 h	5.0 bc
Line 3	24.3 d-g	3.6 c	24.0 e-g	3.7 ab
Line 4	24.6 d-g	5.0 a-c	21.3 fg	5.3 e
Line 5	20 .0 gh	5.3 ab	21.0 fg	5.3 ab
Line 6	21.6 f-h	5.3 ab	21.7 e-g	5.0 bc
Nebraska	46.6 a	4.0 ab	45.0 a	4.3 b-e

Means followed by the same letters are not significantly different according to Duncan's multiple rang test (*P* at 0.05 level).

Yield characters

Dry pod yield per feddan

Concerning yield of pods per fedden, Line 69 528 had the highest pod yield with no significant difference compared with Nebraska cv. (Table 5). On the other hand, pod yield of 69 528, 25 683, 26 494, and Line 3 were significantly lower than Nebraska cv. The highest pod yield was exhibited by Line 2 and 69 528 cvs. These results agree with those obtained by El-Sayed (1990a) , Hafez *et al* (1997), Abd-Allah (2006) and Barrios-Gomez *et al* (2010), who demonstrated significant differences among the different cultivars of common bean in their pod yield which were attributed to the genetic effects.

Seeds yield per fedden

Regarding yield of seed per fedden, genotype 69 528 was significantly higher than Nebraska in its seed yield (Table 5). On the other hand, seed yield of genotypes 69 528, 25 683, 26 494, and Line 3 were significantly lower than Nebraska cv. These results agree with those obtained by El- Sayed (1990a) and Hafez *et al* (1997) Abd-Allah (2006) and Barrios-Gomez *et al* (2010) who recorded significant differences in the seed yield of common bean cultivars.

Seed net percentage

Data presented in Table (5) showed that in the first season Lines 2, 3 and 4 as well as genotypes 25 684, 25 683 and Himo-Tabo had a higher seed net percentage than Nebraska cv. The reverse was true concerning genotypes 69 528 and 26 494. On the other hand, in the second season no genotype exceeded Nebraska cv. in the seed net percentage, whereas 69 528 genotype as well as cultivars of Comtesse Chamberd, Himo- Tebo and Giza 3 showed significantly a lower seed net percentage than Nebraska cv. The contradictory results of the two seasons may be attributed to the environmental conditions. These results agree with those obtained by El-Sayed (1990a), Hafez *et al* (1997) Abd-Allah (2006) and Barrios-Gomez *et al* (2010).

Seed nutritive characters

Total carbohydrates

Data presented in Table (6) revealed that seeds of Nebraska cv had significantly the highest percentage of total carbohydrates in seeds in two seasons, while Line 25 684 had the lowest one. Similarly, El- Sayed (1990b) and Amer (2004) found that Giza 3 and Bronco cv. had the highest total carbohydrates percentage compared with the tested cultivars.

Table 5. Means of yield characters of some common bean genotypes in 2007and 2008 seasons.

Genotypes	2007			2008		
	Pods yield (kg/fed)	Seeds yield (kg/fed)	Seed net %	Pods yield (kg/fed)	Seed yield (kg/fed)	Seed net %
65 670	785.5 e	582.9 cd	74.20 e	790.5 e	592.9 c	75.00 ab
69 528	1140.5 a	830.3 a	72.80 f	1150.6 a	860.4 a	74.77 e
26 494	782.2 e	500.4 ef	63.97 g	695.2 d	521.4 ef	75.00 ab
25 684	855.5 c	651.9 c	76.20 b	870.5 c	652.9 c	75.00 ab
Tokachisiro	724.3 e	545.7 d	75.34 cd	714.3 e	535.7 d	74.99 b
Kintrki						
Comtesse	877.8 bc	652.5 c	74.33 e	843.8 bc	632.5 c	74.95 c
Chamberd						
Himo-Tebo	783.8 e	592.5 cd	75.59 c	763.8 e	572.5 e	74.95 c
Blue Lake	866.3 c	645.6 c	74.52 de	834.3 c	625.6 c	74.98 b
25 683	778.1 e	588.4 d	75.62 c	758.1 e	568.4 d	74.97 bc
Giza 3	821.0 c	615.3 c	74.94 d	821.0 c	615.3 c	74.94 d
Line 1	890.1 b	660.9 c	74.25 c	897.1 b	672.9 c	75.00 ab
Line 2	940.3 ab	711.7 b	75.68 c	954.3 ab	715.7 b	74.99 b
Line 3	601.4 ef	466.3 fd	77.53 ab	592.4 f	444.3 f	75.00 ab
Line 4	932.9 b	725.1 bc	77.72 a	942.9 b	707.1 bc	74.99 b
Line 5	857.6 c	645.8 c	75.30 cd	847.6 c	635.8 c	75.01 a
Line 6	764.3 e	575.6 d	75.31 cd	794.3 e	595.6 d	74.98 b
Nebraska	1030.4 a	770.5 b	74.77 d	1047.3 a	785.6 b	75.01 a

Means followed by the same letters are not significantly different according to Duncan's multiple rang test (*P* at 0.05 level).

Crude protein

Data presented in Table (6) indicated that there were significant differences among studied common bean genotypes. Seeds of Comtesse Chamberd had a higher percentage of crude protein than the control, while Line 2 showed the reverse in this concern. Similar results were recorded by El- Sayed (1990b) and Hafez *et al* (1997).

Table 6. Means of seed carbohydrate and protein percentages of common bean genotypes in 2007and 2008 seasons.

Genotypes	2007		2008	
	Total carbohydrates %	Crude protein %	Total carbohydrates %	Crude protein %
65 670	55.39 h	22.92 f	55.11 h	22.35 f
69 528	57.34 g	21.30 j	57.09 g	21.23 j
26 494	61.85 b	22.57 i	59.35 b	22.61 i
25 684	53.64 i	23.60 d	53.09 I	23.59 d
Tokachisiro Kintrki	57.55 fg	22.90 f	57.37 g	22.84 f
Comtesse Chamberd	55.43 h	24.24 a	55.49 h	24.30 a
Himo-Tebo	58.41 e	22.78 g	58.55 e	22.76 g
Blue Lake	60.67 c	22.66 h	60.46 c	22.71 h
25 683	58.64 e	22.68 h	58.78 e	22.74 h
Giza 3	58.10 ef	23.30 e	58.74 f	23.22 e
Line 1	61.69 b	24.17 ab	61.63 b	24.10 b
Line 2	54.94 h	22.51 i	54.88 h	22.55 I
Line 3	53.75 i	23.60 d	53.53 I	23.59 d
Line 4	60.84 c	22.52 i	61.23 c	22.50 i
Line 5	59.37 d	23..4 c	59.61 d	23.85 c
Line 6	62.13 b	23.08 e	61.96 b	23.07 e
Nebraska	63.70 a	23.16 e	63.76 a	23.26 e

Means followed by the same letters are not significantly different according to Duncan's multiple rang test (*P* at 0.05 level).

REFERENCES

Abd-Alla,M.S.A.(2006). Physiological studies on the role of some bioregulators in growth,flowering and yield of snap bean.Ph.D.Thesis,Fac.Agric.,Benha Univ., Egypt, 128 pp.

A.O.A.C. (1965). Official methods of analyses of the Association official Agriculture Chemists "10th ed." Publisned by Association of Official Agriculture Chemists Washington,V.C.

A.O.A.C. (1980). Association of official agricultural chemists official methods of analysis, 13th ed.Washington, D.C.

Amer, A. H. (2004). Protection effect of low-temperature on some snap bean (*Phaseolus vulgaris* L) varieties green yield and some isozyme levels. Annals of Agricultural Science, Moshtohor, 42(2) 661-678.

Barrios-Gomez, E. J., C. Lopez-Castaneda, J. Kohashi-Shibata, J. A. Acosta-Gallegos, S.Miranda-Colin and N. Mayek-Perez. (2010). Seed yield and its components in Flora de Mayo bean in Central Mexico. Agrociencia (Montecillo). 44(4) 481-489.

El-Sayed, S. F., (1990a). Comparative study on some common bean cultivars I. Growth and yield components. J. Agric. Res., Tanta Univ., 16 (1) 100-109.

El-Sayed, S. F., (1990b). Comparative study on some common bean cultivars. II. Chemical composition. J .Agric. Res., Tanta Univ., 16 (3) 501-507.

Ewais, N. A. (2003). Biochemical studies on some vegetable legumes. M.Sc. Thesis,Fac. Agric., Zagazig University.Egypt.

Hafez, M. M., M. Anwer and A. A.Hewedy (1997). Green and dry seed yield and its quality of some conmen bean (*Phaseolus vulgaris* L.) cultivars as affected by some intensification methods. Menofia J. Agric. Res. 2 : 525-540 .

Littele, T.M. and F.J. Hills (1972). Statistical methods in agricultural research. Public Services Offices, CA pp.242.

Mohamed, F. M. (1997). Screening of some common bean (*Phaseolus vulgaris* L.) cultivars for production in southern Egypt and path coefficients analysis for green pod yield. Assiute. J. Agric. Sci. 28: (2) 91-106.

White,J. and D R.Laing(1989). Photoperiod response of flowering in diverse genotypes of common bean (*Phaseolus vulgaris* L.). Field Crops Res.22: 113-128.

تقييم سبعة عشر صنفا من الفاصوليا لانتاج البذرة

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قسم الخضر – كلية الزراعة– جامعة القاهرة– الجيزة

اجريت هذه الدراسة في محطة التجارب بكلية الزراعة– جامعة القاهرة– الجيزة خلال موسمي الصيف ٢٠٠٧,٢٠٠٨. تم استخدام سبعة عشرصنفا من الفاصوليا في الدراسة وهي **Himo-Tebo,Tokachi Sirokintrki and Comtesse Chamberd (Gene bank, Japan) , Blue Lake (from Asgrow Co. USA), Lines 25 683, 25 684, 26 494, 65 670, 69 528 (Gene bank, Germany), Lines 1, 2, 3 and 4 (Segregations from Line 46 920, Gene bank, Germany), Lines 5, and 6 (segregations from :v.Morgan, Clause Co. France), Nebraska (Commercial variety as control)** والصنف المحلي حيزة ٣.اظهرت نتائج التقييم ان السلالتين ٥٢٨ ٦٩, ٦٨٣ ٢٥ والسلالة ٤ كانت اطول الطرز (طرز غير محدودة النمو) بينما جيزة ٣و بلو – لايك كانت اقصر الطرز طولا. السلالتين ٥٢٨ ٦٩, ٦٨٣ ٢٥ والصنف بلو لايك كانت اقل الاصناف في عدد الافرع للنبات.السلالات ٥٢٨ ٦٩ ,٦٨٣ ٢٥.

٦٨٤ ٢٥ والسلالة ١ و ٤ اظهرت اعلي عدد للقرون بالنبات.قرون الصنف بلو-لايك والسلالات ٢ ،٥ و ٦ احتوت علي اعلي عدد من البذور بينما قرون السلالات ٦٧٠ ٦٥ ،٥٢٨ ٦٩ ،٦٨٣ ٢٥ و٣ كانت الاقل عددا للبذور بالقرن. السلالة ٥٢٨ ٦٩ كانت اعلي الطرز انتاجية للقرون والبذور للفدان. انتاجية بذور الفدان للسلالة ٥٢٨ ٦٩ كانت اعلي معنويا من الكنترول (نبراسكا) . الصنف نبراسكا كان اعلي الاصناف في النسبة المئوية للكربوهيدرات في البذرة. علي الجانب الاخر الصنف كميتسو شامبرد كان الاعلي في البروتين مقارنة بكلا من السلالات ١,٣,٥و ٦٨٤ ٢٥ والتي اظهرت نسبة بروتين في البذرة اعلي مقارنة بالكنترول.وتبعا للنتائج الحالية يمكن التوصية بزراعة السلالة ٥٢٨ ٦٩ كصنف لانتاج البذرة الجافة تحت ظروف منطقة الجيزة.