

## EFFECT OF PLANT SPACING AND PICKING FREQUENCY OF FRUITS ON SEED YIELD OF EGGPLANT

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### ABSTRACT

Two field experiments were conducted during 2000 and 2001 seasons in Kaha Farm of Horticultural Research Institute, Kaluebia Governorate to study the effect of plant spacing i.e. 30, 45 and 60 cm between plants and frequency of picking fruits i.e. without picking, picking one, two and three times at 10 day intervals on the vegetative growth characters, leaf area and chlorophyll content in leaves, fresh fruits yield and its components, seed yield and its components as well as germination test of seeds.

The obtained results showed that as follow:

- (1)Vegetative growth characters were significantly increased with increasing plant spacing except the plant height was increased with decreasing the plant spacing, while the picking frequency or the interactions between plant spacing and picking frequency did not reflect any effect on vegetative growth.
- (2)Leaf area and chlorophyll content were increased with increasing plant spacing while the picking frequency or the interaction between plant spacing and picking frequency did not effect on these characters.
- (3)Fresh fruit yield and its components i.e. number of fruit/plant, average fruit weight, fruit yield/plant and fruit yield/Fed were significantly affected by plant spacing or picking frequency as well as the interaction between them. The best treatments was the plant spacing (30 cm) with picking frequency three times.
- (4)Seed yield and its components i.e. number of fruits/plant, fruit weight, seed yield/plant as well as seed yield/Fed and seed index were significantly affected by plant spacing or picking frequency as well as the interaction between them. The best treatments was the plant spacing (30 cm) with picking frequency one time.
- (5)Germination percentage and rate, were significantly increased with increasing plant spacing. However, these characters did not affected by picking frequency or the interaction between plant spacing and picking frequency.

### INTRODUCTION

Eggplant (*Solanum melongena*, L) is a popular vegetable crop in Egypt and it is considered as one of the major summer vegetables crops. Many studies had been published on plant spacing and picking frequency. EL-Shamma (1980 and 1990); Aliyu and Yusuf (1991); Mishriky and Alphonse (1994); Mot (1996) and Shahein and Shaker (1998) all working on pepper they found that plant height, branches and leaves number per plant significantly increased with increasing plant density. Concerning the leaf area and chlorophyll content, EL-Affi and Darweesh (1990) on bean showed that plant spacing had effect on chlorophyll content (a,b, and total). In respect to the marketable fruit yield EL-Shamma (1980 and 1990), Aliyu and yusuf (1991), Savic and Llic (1992), Mishriky and Alphonse (1994), Mot (1996) and Shahein and Shaker (1998) all working on pepper they indicated that increasing distance between pepper plants enhanced all of fruit yield, number of fruits and average fruit weight per plant while decreased the total yield. Regarding the seed yield, EL-Shamma (1980), Dharmatti and Kulkarni

(1988), EL-Shamma (1990) and Shahein and Shaker (1998) on pepper, they found that intra-row spacing significantly influenced seed yield/Fed and 1000 seed weight. Also, germination percentage and rate were affected by plant spacing. (Dharmatic and Kulkarni, 1988) on pepper.

Concerning the effect of picking frequency on vegetative growth characters, EL-Shamma (1980 and 1990) Aliyu and Yusuf (1991), Mishriky and Alphonse 1994, Mot (1996) and Shahein and Shaker (1998) all working on pepper they indicated that increasing picking frequency did not revealed any significant effect on vegetative growth characters. Regarding the marketable fruit yield, EL-Shamma (1980) on pepper, Omar *et al* (1981) on Okra, Abd EL-Maksoud *et al* (1983) on eggplant, EL-Shamma (1990) on pepper and Hewedy *et al* (1996) on eggplant, they cleared that picking frequency significantly increased number of fruit per plant as well as fresh fruit yield. As for, seed yield Hewedy *et al* (1996) on eggplant showed that seed yield was stimulated by picking frequency of fruits once or twice and decreased by picking frequency of fruits three times compared with those of without picking (control). On the other hand, EL-Shamma (1980 and 1990) and Shahein and Shaker (1998) on pepper cleared that increasing picking frequency caused reduction in seed yield per fruit or per Feddan. Hewedy *et al* (1996) on eggplant found that germination percentage and rate did not affected by picking frequency.

Therefore, this work has been designed to study the effect of plant spacing, picking frequency of fruits and their interaction on vegetative growth characters, as well as leaf area-and chlorophyll content; fresh fruit yield and its components, seed yield and its components, as well as germination percentage and rate of eggplant.

## **MATERIALS AND METHODS**

Two field experiments were carried out during the summer growing seasons of (2000) and (2001) at Kaha Farm of Horticulture Research Institute in Kalubia Governorate to study the effect of plant spacing and picking frequency on eggplant plant growth, leaf area and chlorophyll content; fruit and seed yield and their quality as well as seed germination. Seeds of eggplant (Black Beauty cv.) were sown in the seed bed on 2 and 5<sup>th</sup> of February in both seasons. The seedlings were transplanted on 5 and 4<sup>th</sup> of April in both seasons respectively. The soil texture is clay loam with pH 7.8. Split plot design with four replicates was used. The main plots consisted of three plant spacing treatment i.e. 30, 45 and 60 cm between plants and sub-plots were assigned for picking frequency treatments i.e. P0 = without picking, P1 = one picking, P2 = two pickings and P3 = three pickings. The fruit picking every 10 days. Each sub-plot consisted of 4 rows, 5 meters long and 70 cm width. One row used to determined the vegetative growth characters, while, the three rows were used to estimate the fresh fruit yield and its components as well as seed yield and its components. The area of sub-plot was 14 m<sup>2</sup>. The fresh fruits were picked at marketable stage after 70

day from transplanting and the remaining fruit were left until yellow color stage and the seed extracted normally, since washed with water then dried.

**The following data were recorded:**

**(A) Vegetative growth characters:**

- 1- Plant height (cm).
- 2- Number of branches.
- 3- Number of leaves.
- 4- Fresh weight of plant (gm).
- 5- Dry weight of plant (gm).
- 6- Leaf area (cm<sup>2</sup>) and Chlorophyll contents (mg/100g f.w).

**(B) Fresh fruit yield and its components:**

- 1- Number of fruit per plant.
- 2- Average fruit weight (gm).
- 3- Fruit yield per plant (gm).
- 4- Fruit yield per feddan (Ton).

**(C) Seed yield and its components:**

- 1- Number of fruit per plant.
- 2- Average fruit weight (gm).
- 3- Seed weight per fruit (gm).
- 4- Seed yield per plant (gm).
- 5- Seed yield per feddan (Kg).
- 6- Seed index (weight of 1000 seed) (gm).

**(D) Germination tests:**

- 1- Germination percentage (%).
- 2- Germination rate (day).

According to ISTA Rules for seed testing (1976) statistical analysis of data was done according to Snedecor and Cochran (1971).

## **RESULTS AND DISCUSSION**

### **A- Vegetative growth characters :**

#### **1- Effect of plant spacing (S).**

Data in Table (1) cleared that all vegetative growth characters under study i.e. number of branches, number of leaves, fresh weight per plant and dry weight per plant were significantly increased with increasing the plant density except the plant height was decreased with increasing the plant spacing in both season of study. The plant spacing 60 cm between plants gave the higher values than other ones for number of branches and leaves per plant, fresh weight per plant as well as dry weight per plant. While the plant spacing i.e. 30 cm. gave the higher values than other ones, for plant height. These finding in agreement with those of EL-Shamma (1980 and 1990); Aliyu and Yusuf (1991); Mishriky and Alphonse (1994), Mot (1996) and Shahein and Shaker (1998) on pepper. Increasing plant height due to high competition among individual plant for solar energy and nutrients the surrounding media-large area occupied by plants grown at lower plant stand could be possibly have encourage plant growth development that supplied plants with nutrient (EL-Affi and Darweesh 1990).

Table (1): Vegetative growth of eggplant as affected by plant spacing, frequency of fruits picking and their interaction during seasons of (2000) and (2001).

Seasons		2000					2001				
Characters		Plant height (cm)	No. of branches / plant	No. of leaves/ plant	Fresh weight/ plant (gm)	Dry weight/ plant (gm)	Plant height (cm)	No. of branches / plant	No. of leaves/ plant	Fresh weight/ plant (gm)	Dry weight/ plant (gm)
Spacing	Picking (cm)										
30		69.1	5.6	25.6	201.1	25.4	68.1	5.2	24.6	211.1	24.7
45		66.0	7.8	30.2	311.2	31.3	65.5	6.6	29.2	331.4	30.6
60		63.4	9.7	37.2	350.8	36.5	62.4	9.1	36.5	361.4	35.6
L.S.D at 5%		0.12	0.13	0.15	2.8	0.51	0.11	0.15	0.13	3.0	0.44
	P0	66.3	7.7	30.9	286.9	31.0	65.3	6.8	30.1	300.6	30.3
	P1	66.1	7.7	30.9	287.8	31.1	65.3	6.9	30.1	301.3	30.3
	P2	66.1	7.7	31.0	287.9	31.1	65.4	6.9	30.1	301.5	30.3
	P3	66.2	7.7	31.0	288.0	31.1	65.5	7.0	30.2	301.7	30.4
L.S.D at 5%		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
30	P0	69.3	5.5	25.5	200.5	25.3	68.0	5.0	24.6	210.3	24.8
	P1	69.0	5.6	25.6	201.0	25.5	68.0	5.1	24.6	211.2	24.8
	P2	69.0	5.6	25.6	201.3	25.5	68.1	5.2	24.7	211.2	24.4
	P3	69.1	5.6	25.6	201.4	25.5	68.3	5.3	24.7	211.5	24.8
45	P0	66.1	7.7	30.3	310.3	31.2	65.5	6.5	29.1	330.1	30.5
	P1	66.0	7.8	30.1	311.4	31.3	65.5	6.5	29.2	331.2	30.6
	P2	66.0	7.8	30.2	311.4	31.3	65.6	6.6	29.2	332.2	30.7
	P3	63.0	7.5	30.3	311.5	31.4	65.7	6.6	29.3	332.2	30.7
60	P0	63.5	9.8	37.1	350.1	36.5	62.3	9.0	36.5	361.5	35.6
	P1	63.4	9.7	37.2	351.0	36.5	62.4	9.1	36.4	361.6	35.6
	P2	63.4	9.7	37.2	351.2	36.6	62.5	9.1	36.5	361.2	35.6
	P3	63.5	9.7	37.2	351.1	36.6	62.5	9.3	36.8	361.5	35.7
L.S.D at 5%		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

## **2- Effect of picking frequency (P).**

Obtained results from data in Table (1) revealed that increasing picking frequency did not revealed any significant effect on vegetative growth characters in both seasons of study. These results concided with those of EL-Shamma (1986 and 1990); Aliyu and Yusuf (1991); Mishriky and Alphonse (1994); Mot (1996) and Shahein and Shaker (1998) on pepper.

### **3- Effect of the interactions between (SXP) :**

It is cleared that from the same data in Table (1) the interaction between plant spacing and picking frequency had no any significant effect on vegetative growth characters during the two seasons of a study Shahein and Shaker (1998) on pepper.

## **B- Leaf area and chlorophyll contents :**

### **1- Effect of plant spacing (S).**

It is revealed that from data in Table (2), leaf area and chlorophyll contents (a, b and total) were significantly increased with increasing the plant spacing between plants in both seasons of study. The highest values were obtained from ample spacing. On the other hand, EL-Afifi and Darweesh (1990) on bean showed that plant spacing had no effect on chlorophyll contents (a, b and total).

### **2- Effect of picking frequency (P).**

The same data in Table (2) illustrated that both of leaf area and chlorophyll contents (a, b and total) did not affected by picking frequency in both season of study.

### **3- Effect of the interaction between (SXP).**

The data in Table (2) about leaf area and chlorophyll contents (a, b and total) revealed that these characters did not affected by the interaction between plant spacing and picking frequency in both seasons of study.

## **C- Marketable fruit yield and its components :**

### **1- Effect of plant spacing (S).**

Data in Table (3) showed that number of fruits per plant, average fruit weight and fruit yield per plant were significantly increased with increasing plant spacing. It is noticed that the highest values were achieved from the wide spacing in both seasons of study. While, the fresh fruit yield per Feddan was significantly increased with narrow spacing in both seasons of study. It could be due to the increasing the number of plants at narrow spacing or plant density population (EL-Afifi and Darweesh (1990) on bean. Such finding in agreements with those, EL-Shamma (1980 and 1990); Aliyu and Yusuf (1991), Savic and Liic (1992), Mishriky and Alphonse (1994), Mot (1996) and Shahein and Shaker (1998) on pepper. Such results could be due to high competition among plants for nutrients available in the soil.

### **2- Effect of picking frequency (P).**

Obtained results from the same data in Table (3) illustrated that number of fruits per plant, average fruit weight, fruit yield per plant and fruit yield per Feddan were significantly increased with increasing the number of picking. The highest values were obtained from plants picked three times comparing

with one and twice picking, in spite of leaving the rest fruit for seed production. Such results are in agreement with those reported by EL-Shamma (1980) on pepper, Omar *et al* (1981) on Okra, Abd EL-Maksoud *et al* (1983) on eggplant, EL-Shamma (1990) on pepper and Hewedy *et al* (1996) on eggplant.

### **3- Effect of the interaction between (SXP).**

Data in Table (3) show that number of fruit per plant, average fruit weight, fruit yield per plant and fresh fruit yield per feddan were significantly affected by interaction between plant spacing and picking frequency. It is noticed that the highest values of marketable fruit yield were obtained from the interaction between narrow spacing (30) and picking fruits three times when comparing the other interactions. These results are in agreement with those of Baca (1964); Szepes (1974), Tanaka *et al* (1974), EL-Shamma (1980 and 1990), Aliyu and Yusuf (1991), Savic and Llic (1992), Mishriky and Alphonse (1994) and Mot (1996).

## **D- Seed yield and its components :**

### **1- Effect of plant spacing (S).**

Obtained results in Table (4) cleared that number of fruits per plant, average fruit weight, seed yield per plant as well as seed index were significantly increased with increasing the plant spacing. The highest values were obtained from plants sowing at (60 cm). While seed yield per Feddan was increasing with decreasing the plant spacing. The greatest values were achieved by the plant spacing at (30 cm) when comparing with other ones in both seasons of study. However, the plant spacing had no effect on seed weight per fruit in both seasons of study. Such finding coincided with EL-Shamma (1980), Dharmatti, and Kulkarni (1988) EL-Shamma (1990) and Shahein and Shaker (1998) all working on seed yield of pepper.

### **2- Effect of picking frequency (P) .**

Data in Table (4) revealed that number of fruit per plant, average fruit weight, seed weight per fruit, seed yield per plant, seed yield per Feddan as well as seed index were significantly increased when plants harvested or picked once at seed stage comparing with control (without picking), or picked twice and picked three times in both seasons of study. Hewedy *et al* (1996) on eggplant show that seed yield was stimulated by picking frequency of fruits once or twice and decreased by picking frequency of fruit three times compared with those of without picking. EL-Shamma (1980 and 1990) and Shahein and Shaker (1998) on peper cleared that increasing picking frequency caused reduction in seed yield per fruit or per Feddan .

### **3- Effect of the interaction between (SXP).**

It is revealed that from data in Table (4) the interaction between plant spacing at 30 cm and picking fruits one time gave the best results for number of fruit per plant, average fruit weight, seed weight per fruit, seed yield per plant, seed yield per Faddan as well as seed index comparing with all other interactions and control (without picking) in both seasons of study.

Table (2): Leaf area and chlorophyll contents of eggplant leaves as affected by plant spacing, frequency of fruits picking and their interaction during seasons of (2000) and (2001).

Seasons		2000				2001			
Characters		Leaf area (cm <sup>2</sup> )	Chlorophyll contents (mg/100 gm f.w.)			Leaf area (cm <sup>2</sup> )	Chlorophyll content (mg/100 gm f.w.)		
Spacing(cm)	Picking		a	b	Total		a	b	Total
30		120.7	0.42	0.26	0.68	119.8	0.41	0.24	0.65
45		130.6	0.56	0.32	0.88	130.0	0.54	0.29	0.83
60		139.7	0.65	0.43	1.08	137.5	0.64	0.41	1.05
L.S.D at 5%		1.10	0.02	0.03	0.03	1.13	0.03	0.04	0.03
	P0	130.2	0.53	0.32	0.85	128.8	0.52	0.30	0.82
	P1	130.3	0.54	0.33	0.87	128.9	0.52	0.31	0.83
	P2	130.4	0.55	0.34	0.89	129.1	0.54	0.32	0.86
	P3	130.5	0.57	0.36	0.93	129.4	0.56	0.33	0.89
L.S.D. at 5%		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
30	P0	120.6	0.41	0.25	0.66	119.5	0.40	0.23	0.63
	P1	120.6	0.42	0.26	0.68	119.6	0.41	0.24	0.65
	P2	120.8	0.43	0.26	0.69	119.8	0.42	0.25	0.67
	P3	120.9	0.44	0.28	0.72	120.3	0.43	0.26	0.69
45	P0	130.5	0.55	0.30	0.85	129.8	0.53	0.28	0.81
	P1	130.6	0.56	0.31	0.87	129.9	0.53	0.29	0.82
	P2	130.7	0.57	0.33	0.90	130.1	0.55	0.30	0.85
	P3	130.9	0.59	0.35	0.94	130.3	0.58	0.31	0.89
60	P0	139.6	0.64	0.41	1.05	137.3	0.63	0.40	1.03
	P1	139.7	0.64	0.43	1.07	137.4	0.63	0.41	1.04
	P2	139.7	0.66	0.45	1.11	137.5	0.66	0.42	1.08
	P3	139.9	0.68	0.46	1.14	137.8	0.67	0.44	1.11
L.S.D. at 5%		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

Table (3): Fresh fruits yield of eggplant at marketable stage as affected by plant spacing, frequency of fruits picking and their interaction during seasons of (2000) and (2001).

Seasons		2000				2001			
Characters		No. of fruits/plant	Average fruit weight (gm)	Fruit yield/plant (gm)	Fruit yield/Fed (Ton)	No. of fruits/plant	Average fruit weight (gm)	Fruit yield/plant (gm)	Fruit yield/Fed (Ton)
Spacing (cm)	Picking								
30		0.84	300.2	252.7	4.409	0.80	295.5	239.1	4.154
45		1.05	314.4	331.5	3.959	1.01	310.2	315.8	3.772
60		1.21	329.4	399.1	3.466	1.17	326.0	383.0	3.327
L.S.D at 5%		0.01	2.42	2.66	0.05	0.02	2.40	1.62	0.04
	P0	--	--	--	--	--	--	--	--
	P1	0.95	305.4	291.9	3.494	0.90	300.8	272.6	3.247
	P2	1.02	315.2	325.6	3.902	1.00	311.6	313.6	3.756
	P3	1.13	323.3	366.8	4.438	1.09	319.3	351.7	4.249
L.S.D. at 5%		0.01	1.33	3.21	0.06	0.01	1.33	2.55	0.06
	P0	--	--	--	--	--	--	--	--
30	P1	0.75	290.1	217.5	3.779	0.69	285.2	196.7	3.416
	P2	0.83	300.3	249.2	4.329	0.81	296.3	240.0	4.169
	P3	0.95	310.2	294.6	5.119	0.92	305.2	280.7	4.877
	P0	--	--	--	--	--	--	--	--
45	P1	0.99	306.0	302.9	3.617	0.95	300.1	285.1	3.405
	P2	1.03	315.1	324.5	3.876	1.00	311.2	311.2	3.717
	P3	1.14	322.2	367.3	4.386	1.10	319.3	351.2	4.195
	P0	--	--	--	--	--	--	--	--
60	P1	1.11	320.3	355.5	3.088	1.06	317.2	336.2	2.920
	P2	1.22	330.4	403.1	3.501	1.19	327.4	389.6	3.384
	P3	1.30	337.5	438.7	3.811	1.27	333.4	423.4	3.677
L.S.D. at 5%		0.03	1.51	2.44	0.06	0.02	1.45	1.56	0.01



Table (4): Seed yield of eggplant at harvest stage as affected by plant spacing, frequency of fruits picking and their interaction during seasons of (2000) and (2001).

Seasons		2000						2001					
Characters		No. of fruits/ plant	Average Fruit weight (gm)	Seed weight/ Fruit (gm)	Seed yield/ Plant (gm)	Seed yield /Fed (Kg)	Seed index w.(1000 seed) (gm)	No. of fruits/ plant	Average fruit weight (gm)	Seed weight/ Fruit (gm)	Seed yield/ Plant (gm)	Seed yield/ Fed (Kg)	Seed index w.(1000 seed) (gm)
Spacing	Picking												
30		1.66	319.7	8.1	13.87	236.1	3.87	1.54	309.4	7.1	11.18	194.2	3.76
45		1.78	454.9	8.3	14.96	178.7	4.24	1.69	445.4	7.4	12.72	151.9	4.13
60		1.90	469.5	8.8	16.57	143.9	4.40	1.81	458.9	7.7	14.30	124.1	4.31
L.S.D at 5%		0.02	1.5	N.S.	0.02	1.2	0.03	0.01	1.6	N.S.	0.03	1.1	0.05
	P0	1.93	447.9	8.5	16.61	203.1	4.31	1.83	437.9	7.6	14.01	170.0	4.18
	P1	2.03	424.4	9.3	19.07	236.3	4.45	1.94	415.0	8.3	16.27	202.1	4.35
	P2	1.80	401.9	8.4	15.19	185.2	4.07	1.69	390.5	7.5	12.70	156.1	3.99
	P3	1.36	384.7	7.1	9.67	120.3	3.87	1.28	375.2	6.2	7.95	98.8	3.74
L.S.D at 5%		0.03	2.1	0.01	0.03	2.8	0.04	0.04	1.9	0.01	0.05	2.6	0.02
30	P0	1.85	355.1	7.6	14.06	244.2	3.90	1.75	344.1	6.5	11.37	197.6	3.71
	P1	1.90	333.2	9.3	17.67	306.9	4.25	1.81	323.2	8.4	15.20	264.1	4.15
	P2	1.70	300.3	8.1	14.87	239.2	3.80	1.52	290.3	7.2	10.94	190.1	3.75
	P3	1.20	290.5	7.4	8.88	154.2	3.55	1.11	281.3	6.5	7.21	125.3	3.44
45	P0	1.95	488.1	8.6	16.77	200.2	4.33	1.84	478.3	7.7	14.16	169.2	4.22
	P1	2.00	460.2	9.0	18.00	214.9	4.60	1.91	451.5	8.1	15.47	184.7	4.51
	P2	1.80	441.2	8.5	15.30	182.7	4.11	1.72	430.4	7.6	13.07	156.1	4.00
	P3	1.40	430.3	7.0	9.80	117.0	3.95	1.32	421.5	6.2	8.18	97.7	3.81
60	P0	2.00	500.5	9.5	19.00	165.0	4.70	1.92	491.5	8.6	16.51	143.4	4.63
	P1	2.20	480.0	9.8	21.56	187.2	4.50	2.11	470.3	8.6	18.14	157.6	4.41
	P2	1.90	464.2	8.8	15.40	133.7	4.31	1.83	450.9	7.7	14.09	122.3	4.22
	P3	1.50	433.5	6.9	10.35	89.8	4.11	1.41	422.9	6.0	8.46	73.4	3.99
L.S.D at 5%		0.01	1.6	0.01	0.02	1.5	0.02	0.03	1.4	0.01	0.04	2.0	0.03

**E- Germination tests :****1- Effect of plant spacing (S).**

Results recorded on seed germination percentage and rate are presented in Table (5). Such data show that germination percentage and rate were significantly increased with increasing plant density. The highest value was obtained from plants sown at 60 cm between plants in both seasons of study. Similar results were reported by Dharmatti and Kulkarni (1988) on pepper.

**2- Effect of picking frequency (P).**

The Results in Table (5) cleared that picking frequency had no effect on germination percentage and rate of eggplant seed in both seasons of study. Similar results were reported by Hewedy *et al* (1996) on eggplant.

**3- Effect of the interaction between (SXP).**

The same data in Table (5) illustrated that all interaction between plant spacing and picking frequency had insignificant effect on germination percentage and rate in both seasons of study.

**Table (5) : Germination test of eggplant seeds as affected by plant spacing, frequency of fruits picking and their interaction during seasons of (2000) and (2001).**

Seasons		2000	2001
Characters		Germination %	Germination rate (day)
Spacing (cm)	Picking		
30		93.6	4.5
45		96.6	5.6
60		99.7	6.8
L.S.D at 5%		0.5	0.2
	P0	96.6	5.6
	P1	96.6	5.6
	P2	96.6	5.7
	P3	96.7	5.7
L.S.D at 5%		N.S.	N.S.
30	P0	93.5	4.5
	P1	93.6	4.6
	P2	93.6	4.6
	P3	93.6	4.6
45	P0	96.6	5.6
	P1	96.7	5.6
	P2	96.6	5.7
	P3	96.7	5.7
60	P0	99.7	6.8
	P1	99.7	6.8
	P2	99.7	6.9
	P3	99.8	6.9
L.S.D at 5%		N.S.	N.S.

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## تأثير مسافات الزراعة وتكرار جمع الثمار على المحصول البذري للبادنجان عامر سليمان سليمان عامر شعبة بحوث الخضار - معهد بحوث البساتين - مركز البحوث الزراعية

أقيمت تجربتان حقليتان خلال موسمى الزراعة ٢٠٠٠ و ٢٠٠١ بمزرعة الخضار بقها - محافظة القليوبية بهدف دراسة تأثير مسافات الزراعة بين النباتات وهي ثلاثة مسافات (٣٠، ٤٥، ٦٠سم) وكذلك تأثير تكرار جمع الثمار وهي أربع معاملات [ ترك الثمار بدون جمع - جمع الثمار مره واحدة - جمع الثمار مرتين - جمع الثمار ثلاث مرات ] بفارق ١٠ أيام بين الجمعة والأخرى على النمو الخضري ومساحة الورقة ومحتوى الكلورفيل بالأوراق وكذلك محصول الثمار الصالحة للتسويق ومكوناته والمحصول البذري ومكوناته بالإضافة إلى نسبة ومعدل إنبات البذور .  
وقد دلت النتائج على الأتى :

### أ- النمو الخضري :

- ١- كلما زادت مسافة الزراعة بين النباتات أدى ذلك إلى زيادة كل من عدد أفرع النبات وعدد أوراق النبات والوزن الطازج والجاف للنبات في حين أدت المسافات الضيقة إلى زيادة طول النبات .
  - ٢- لم يكن لكل من معاملات تكرار جمع الثمار أو التفاعل بين مسافات الزراعة وتكرار جمع الثمار أى تأثير على النمو الخضري ومكوناته .
  - ٣- كلما زادت مسافة الزراعة بين النباتات زادت مساحة الورقة وكذلك محتوى الكلورفيل بها ولم تتأثر هاتين الصفتين بتكرار جمع الثمار أو التفاعل بينهما وبين مسافة الزراعة .
- ### ب- المحصول الثمرى الصالح للتسويق :

- ١- كلما زادت المسافة بين النباتات زاد عدد ثمار النبات ومتوسط وزن الثمرة والمحصول الثمرى للنبات في حين زاد المحصول الثمرى للقدان كلما قلت المسافة بين النباتات .
  - ٢- كلما زادت عدد مرات الجمع زادت القراءات السابقة أيضا وكانت أعلى القيم عندما تم جمع الثمار ثلاث مرات .
  - ٣- أدى التفاعل بين مسافات الزراعة وعدد مرات جمع الثمار إلى زيادة المحصول الثمرى ومكوناته وكانت أحسن المعاملات (مسافة الزراعة ٣٠سم - جمع الثمار ثلاث مرات) .
- ### ج- المحصول البذري ومكوناته :

- ١- زاد كل من عدد الثمار للنبات و وزن الثمرة والمحصول البذري للنبات وكذلك وزن ١٠٠٠ بذرة كلما زادت مسافة الزراعة في حين لم يكن لمسافة الزراعة أى تأثير على المحصول البذري للثمره بينما زاد المحصول البذري للقدان كلما قلت مسافة الزراعة بين النباتات .
- ٢- أدى جمع الثمار مره واحده إلى زيادة عدد ثمار النبات ومتوسط وزن الثمره والمحصول البذري للثمره والمحصول البذري للنبات وأيضا المحصول البذري للقدان ثم قل كلما زاد عدد مرات الجمع .
- ٣- أدى التفاعل بين مسافة الزراعة ٣٠سم وجمع الثمار مره واحده إلى زيادة كل من عدد الثمار للنبات و وزن الثمرة و المحصول البذري للثمره و المحصول البذري للنبات ومحصول القدان ثم قل تدريجيا بزيادة المسافة وعدد مرات الجمع .

### د- الإنبات :

زادت نسبة ومعدل الإنبات كلما زادت مسافة الزراعة بين النباتات في حين لم تتأثر هاتين الصفتين بكل من عدد مرات الجمع وكذلك التفاعل بين مسافة الزراعة وعدد مرات الجمع .