

APPROACH TO NEW PEACH CULTIVARS BY THE AID OF HORTICULTURAL STUDIES ON MIT-GHAMR PEACH CHOSEN STRAINS

Eliwa, G.I.

Horticulture Res. Institute, Agriculture Research Centre, Giza , Egypt

ABSTRACT

The present study was carried out during 1999, 2000 seasons to chose the trees which representing eight strains i.e., Sultani (Early, Medium, and Late maturity), Shamy, Hegazy, Mawy, Fark and Neely of Mit-Ghamr peach depending on some fruit characteristics. The chosen strains were evaluated in 2001 and 2002 seasons under Dakahlia governorate conditions. Obtained results indicated that the selected strains have attractive fruits especially for Shamy strain which have white skin and flesh color and Hegazy one which have orange skin and flesh color. Also, all selected strains have cling-stone fruits except Fark which their fruits were free-stone. The study defined accurately the time of flower and vegetative bud burst, full bloom, petal fall, fruit set, pit-hardening stages as well as fruit maturity for each selected strain. The flower buds were concentrated on the terminal third of the shoot as in Late Sultani and Neely strains. Whatever, the other strains their flower buds were concentrated along the one-year-old shoots. It was noticed that all selected strains borne flowers in rose color except Shamy strain which their flowers are white in color. The floral bud % was significantly higher than vegetative bud % in all selected strains except Late Sultani and Neely strains which the opposite results during the two seasons of study. Furthermore, Neely and Fark strains recorded the highest values of dormant bud % in comparison with the other strains in the two seasons under study. The high values of fruit set % were recorded with Neely strain (93.10 and 88.32%) during 2001 and 2002 seasons, respectively. Meanwhile, the lowest value (70.00%) was recorded with Mawy strain in the first season of study. Fruit dropping % which occurred during stage I of fruit growth was higher than fruit drop occurred during stage II or stage III of fruit growth for all tested strains .

Concerning tree yield (kg.), Neely and Shamy strains gave the highest significant values (55.60, 60.85 and 53.80, 60.50 kg/tree) respectively, followed by Hegazy strain (50 and 54.65 kg/ tree).The least yield was obtained from Fark strain (46.45 and 44.30 kg/tree) in the 2001 and 2002 seasons, respectively. The chosen strains differed greatly in their physical and chemical fruit characteristics.

INTRODUCTION

Mit-Ghamr local peach (*Prunus persica*, L.) is the principal cultivar grown under Dakahlia governorate for a long time ago. Its fruits characterize with special taste and aroma, compared with other peach cultivars, and appear in the markets yearly from late-June to mid-September, the period when the fruits of most early and mid-season peach cultivars disappear. The total area of this cultivar was decreased during the last two decades, from 3000 to 1008 feddans produced about 10071.9 ton, (the last statistics of Ministry of Agriculture, 2003). Trees of this cultivar were sexually propagated.

Corresponding author, Tel.: +20101294589

E-mail address: geliwa2002@yahoo.com. Com.

So, different strains were produced. Such strains are greatly differed in growth habits, maturity date, yield and fruit characteristics within the same orchard. They were nominated between growers with local names i.e., Sultani (Early, Medium, Late maturity), Shamy, Mawy, Hegazy, Fark and Kelaby or Neely. Information about floral bud bearing and burst, flowering and growth stages of their fruits are lack. Previous studies on flower bud development of "Mit-Ghamr" peach trees indicated that there were four different stages of flower bud development, beginning of flowering, complete flowering, petal fall and fruit set (Mansour and Shaltout, 1986). Mehanna *et al.*, (1982), working on evaluation of selected trees from local peach trees (Mit-Ghamr) , they mentioned that only six trees of variable picking dates are recommended and considered promising. Each of them might be considered as cultivar initial and could be used for further investigations. Mansour, *et. al.*, (1999), have been selected some strains of "Mit-Ghamr" peach trees and evaluated them horticulturally and genetically. Hassan *et.al.*, (2002), they established their biochemical genetic fingerprint.. The present study was a trial in this direction. It was made to indicate the behavior of eight common strains of Mit-Ghamr peach from the beginning of flowering to fruit set stage; mentioning timing of fruit maturity, picking period and fruit characteristics, in attempt to overcome the problems which face those strains and promote their productivity and quality.

MATERIALS AND METHODS

During 1999 and 2000 seasons, a wide survey was made in a privet orchards in Aga Center, Dakahlia Governorate, to chose the trees which representing different strains of this local variety "Mit-Ghamr" (*Prunus persica*, L.).The common name of these strains are Sultani (early, medium, late maturity), Shamy, Mawy, Hegazy, Fark and Kelaby or Neely. These names are familiar with growers .The chosen trees was depended on index of some basic fruit characters (Table 1), tree vigour and apparently diseases free.

Six trees represented each strain were chosen to study their behavior under Dakahlia conditions during 2001 and 2002 seasons. Trees were about 15 year-old for all studied strains, seedlings, spaced at 5 x 5 meters apart, grown in loamy soil subjected to flood irrigation, trained to an open-vase system and received the ordinary practices used in this region as recommended by the Ministry of Agriculture.

Ten dormant shoots (one-year-old) on each selected tree of each strain were chosen during the winter pruning, lifted without topping and tagged in both experimental seasons. Each shoot was divided into three equal sections (basal, middle and terminal) to fellow the developing of flower and vegetative buds. The percentage of floral, vegetative and dormant buds (as a percentage of the total number buds) were calculated. The position of flower buds on the shoot was recorded. The dates of floral bud burst, vegetative bud burst, full bloom, petal fall, fruit set and maturity as well as number of days from full bloom till fruit maturity were recorded for each strain. Mean fruit

diameter was measured weekly interval till maturity to determine fruit growth stages, stage I (from petal full till the beginning pit-hardening), stage II (from the beginning to end of pit-hardening), stage III (from the end of pit-hardening to maturity). Also, fruit set % (after two weeks from full bloom) and fruit dropping percentages were recorded during fruit growth stages in the two seasons of study.

At maturity, 20 fruits were taken from each tree to measure fruit weight(g), volume (cm³), diameter (cm), length (cm), flesh firmness by using a hand Effgi-penetrometer supplemented with probe of 8.0 mm diameter and the results were expressed as Kg/cm², flesh weight(gm) and thickness(cm), seed weight(gm) and diameter(cm), total soluble solids(TSS) % and titratable acidity % (as malic acid) in fruit juice. Total anthocyanin in fruit skin was determined spectrophotometrically at 520 nm (Hsia *et al.*, 1965) and data was expressed as optical density values.

The obtained data were statistically analyzed as a factorial experiment in a randomized complete block design. Means were separated by *F*-test and the least significant difference (LSD) test at the 5% level using the statistical package SAS, release 5, 1996 (USA).

RESULTS AND DISCUSSION

The index of some basic fruit characters of the Mit-Ghamr peach chosen strains are recorded in Table (1) and illustrated in plate(1).Fruit shape was round for all selected strains except Fark one which it was ovule.

Table 1: Index of some basic fruit characters of eight Mit-Ghamr peach chosen strains (in 1999 – 2000 seasons).

Strain	Fruit shape	Skin color	Flesh color	Color round seed	Seed color	Lobe	Stone case
Early S*	Round	Red with yellow color	creamy	Deep red	Red	clear	Cling
Medium S.	Round	Light green with red	White	Red	Red	Clear	Cling
Late S.	Round	Light green with red	Creamy	Red	Red	clear	Cling
Shamy	Round	Whitish	White	White	White	Trace	Cling
Hegazy	Round	Orange with red color	Orange	Deep pink	Pink	Clear	Cling
Mawy	Round	Light green with red	Creamy	Light red	Red	Clear	Cling
Fark	Ovule	Light green with red	White	Light red	Red	Clear	Free
Neely	Round	Light green with red	White	Red	Red	Trace	cling

S=sultani.

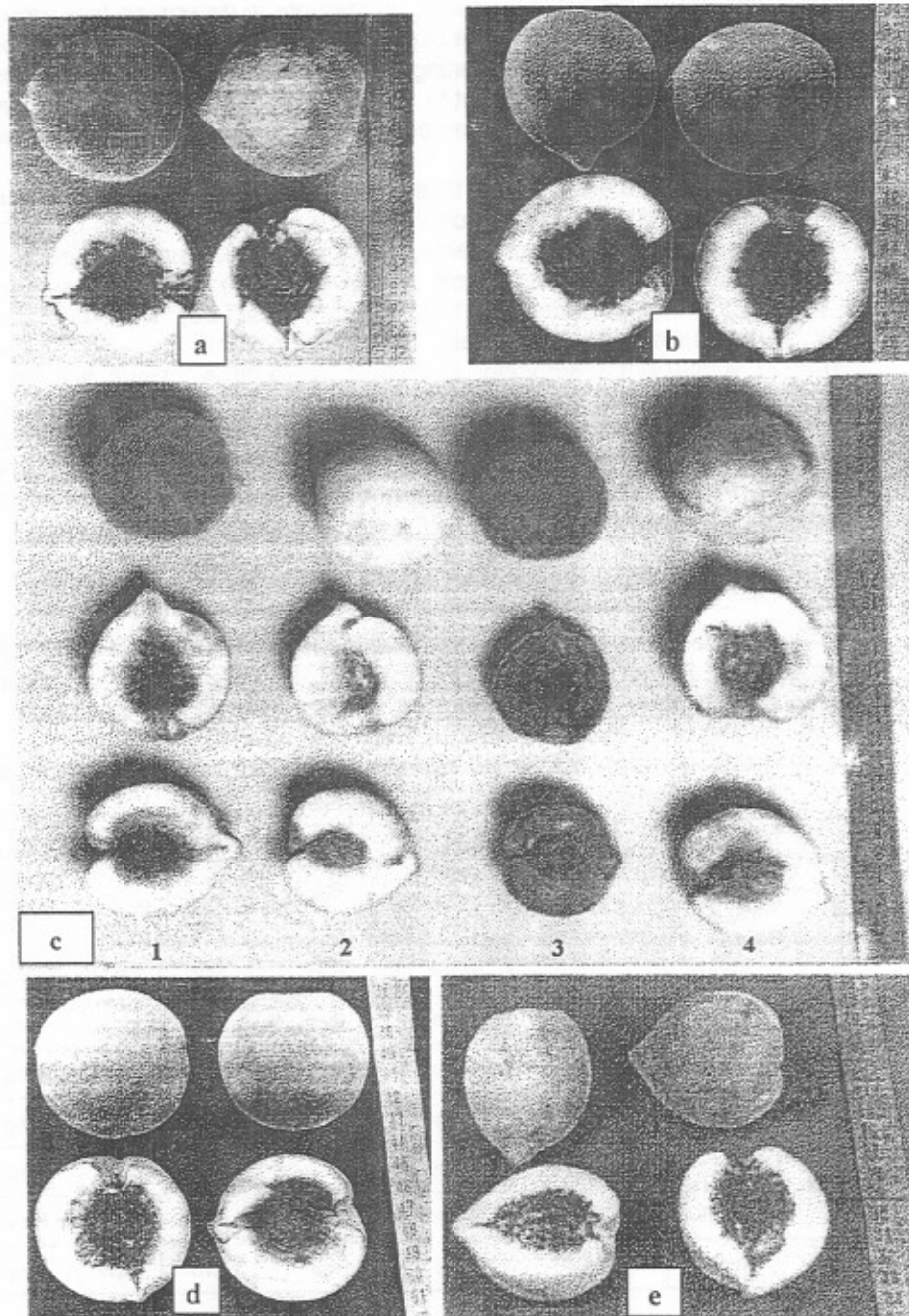


Plate1: Photographs showing fruits of Mit-Ghamer peach studied strains, Early Sultani (a); Late Sultani (b); Medium Sultani (c1); Shamy (c2); Hegazy (c3); Mawy (c4); Neely (d) and Fark (e)

Concerning skin fruit color, four types were appeared; Blush red color as in Sultani (Early, Medium, Late maturity), Fark and Neely strains, White color as in Shamy strain, Orange with red color as in Hegazy strain, and, Light green with red color as in Mawy strain (plate,1). Furthermore, fruit flesh color, could be divided to three types; Creamy as in early and Late Sultani and Mawy strains; White as in Medium Sultani, Shamy, Fark and Neely strains, and Orange as in Hegazy strain. According to color round seed and seed color, it was cleared that most of the tested strains had red color except Shamy strain of white color and Hegazy strain of pink color. For lobe, it was cleared in Early and Medium Sultani, Hegazy, Mawy and Fark strains, but it was as a trace in Late Sultani, Shamy, and Nily strains. Regarding to stone case, It was cling in all selected strains except Fark one which its fruits are free-stone.

1-Vegetative and Flowering growth

1-a- Dates of floral and vegetative bud burst, full bloom, petal fall and fruit set

It is obvious from Table (2), that floral and vegetative bud burst dates were varied among tested strains and from season to another under study. The beginning of floral bud burst date in both seasons of study was from 17/1 to 22/1 for early Sultani, Hegazy, Mawy and Fark, whereas it was later with Neely strain (30/1 – 7/2) during the both seasons of study. AS for beginning of vegetative bud burst date, it was for the first group of strains from 23/1 to 30/1 and for Neely one from 7/2 to 15/2. These data clearly indicated that Floral buds burst date was at least one week earlier than vegetative buds. This was true for all the tested strains. The observed variations in that respect among the tested strains could be attributed to their different genotypes which resulted in sexually propagation of them. Concerning, the effect of seasons is mainly due to the changes in the climatic factors specially the temperature. The data in Table (2) also indicated that full bloom, petal fall and fruit set dates were early for most the chosen Strains (12/2 - 17/2 , 17/2 - 22/2, and 26/2 - 6/3), and lately for Neely one (25/2 – 1/3, 5/3 – 8/3 and 15/3 – 20/3) in 2001 and 2002 seasons respectively. This findings are a harmony with that reported by Stino *et al.*,1982, Mansour and Shaltout, 1986, Mohamed, 1995, and Mansour *et al.*, 1999.

Table 2: Dates of floral and vegetative bud burst, full bloom, petal fall and fruit set for eight Mit-Ghamr peach strains recorded during 2001 and 2002 seasons.

Strain	Beginning of floral bud burst		Beginning of vegetative bud burst		Full bloom		Petal fall		Fruit set	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Early S.	17/1	20/1	25/1	26/1	12/2	17/2	17/2	22/2	26/2	5/3
Medium S.	20/1	25/1	27/1	1/2	12/2	17/2	17/2	25/2	28/2	5/3
Late S.	25/1	28/1	1/2	5/2	19/2	23/2	22/2	28/2	3/3	10/3
Shamy	20/1	25/1	25/1	1/2	12/2	16/2	17/2	24/2	28/2	5/3
Hegazy	17/1	20/1	23/1	30/1	12/2	16/2	17/2	25/2	26/2	5/3
Mawy	17/1	22/1	25/1	30/1	13/2	16/2	17/2	25/2	26/2	6/3
Fark	17/1	22/1	1/2	30/1	12/2	16/2	17/2	25/2	28/2	6/3
Neely	30/1	7/2	7/2	15/2	25/2	1/3	5/3	8/3	15/3	20/3

S=sultani.

The above results would be a good value in determine the exact date for dormant pruning .

1-b- Position of flower bud on the shoot

All studied strains borne their flowers on one- year-old shoot . There were two types of borne flower buds, the flower buds are borne along the shoot as in most of selected strains (plate, 2a), or they are concentrated on the terminal third of the shoot as in Late Sultani and Neely strains (plate, 2b). That could be of high value for management of winter pruning.



Plate2: Photographs showing two types of floral buds position on one-year-old shoots of Mit-Ghamr peach studied strains. Floral buds are borne along the shoot (a) ; and floral buds are concentrated on the terminal third of the shoot (b).

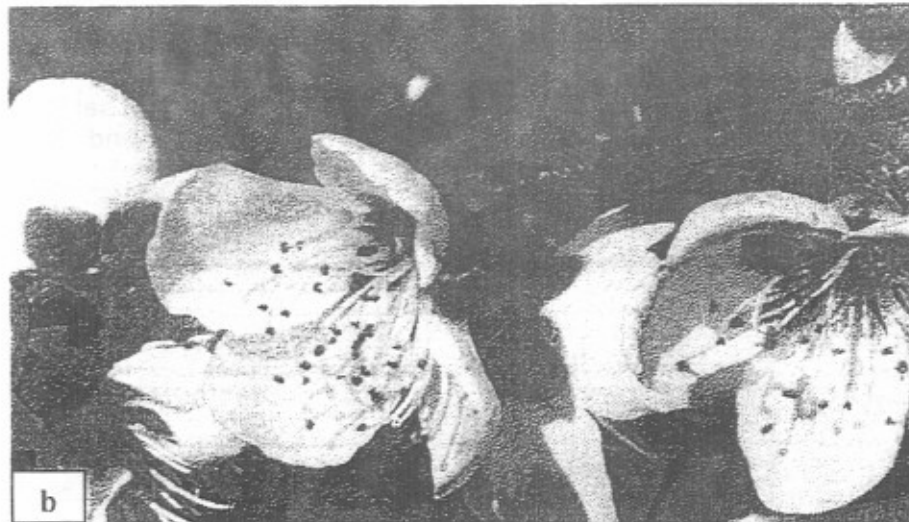


Plate3: Photographs showing two types of flower color of Mit- Ghamr peach tested strains, flowers Rose in color (a) and flowers White in color (b).

1-c- Flower color

Concerning flower color, it was noticed that all tested strains borne flowers rose in color (Plate, 3a) except Shamy one which borne flowers white in color (Plate, 3b). This characterized flower color would be of a good value for peach breeders as a marker in their breeding programmes.

1-d- Vegetative, floral and dormant bud percentages

As regarding to vegetative , floral and dormant bud percentages on one-year-old shoot, it is clear from Table (3), significant differences among the tested strains and between the seasons. The floral buds % was significantly

higher than vegetative buds % in all tested strains except for Late Sultani and Neely ones, during the two seasons of study. Furthermore, Neely and Fark strains recorded the highest values of dormant buds % in the two seasons. These results would be of a great value for pruning practices to remain the suitable number of bearing shoots which in turn maximize crop value by optimizing fruit size, color, shape, and quality.

2-Fruiting

2-a-Percentage of fruit set

It is clear from Table (3) that fruit set % was significantly differed between the shosen strains. The high values of fruit set % were recorded with Neely strain (93.10 and 88.32%) during the two tested seasons respectively. Meanwhile, the lowest value (70.00%) was recorded with Mawy strain in the first season of study. The obtained results are in agreement with those reported by Visai *et al.*, 1985; Weinbaum and Erez, 1983. They mentioned that fruit set % of peach are ranged from 36 – 85% for cling stone, and 40 – 95% for free stone cvs. The number of fruit set per tree depends on the number of flowers per unit length of wood, the amount of fruiting wood, climatic conditions during pollination / fertilization (Byers and Marini, 1994).

Table 3: Vegetative bud%, floral bud%, dormant bud% and fruit set % of Mit-Ghamr peach chosen strains (during 2001 and 2002 seasons)

Strain	V.B. %		F.B. %		D. B. %		Fruit set %	
	2001	2002	2001	2002	2001	2002	2001	2002
Early S.	27.17c	26.67ef	41.80a	36.85b	31.01e	36.48b	87.18b	84.41b
Medium S.	26.23c	30.48d	34.30cd	35.71bc	39.47c	33.81c	75.67d	71.17e
Late S.	34.20a	36.62ab	30.20e	33.80cd	35.60d	29.58d	77.32d	73.15e
Shamy	36.59a	38.46a	35.83bc	36.15b	27.58f	25.39e	81.00c	75.00d
Hegazy	32.10b	35.00bc	42.38a	41.67a	25.52f	23.62e	72.43e	79.85c
Mawy	32.22b	33.92c	36.25b	37.50b	31.53e	28.58d	70.00e	78.63c
Fark	23.44d	28.57de	33.01d	33.33d	43.55b	37.97b	77.28d	75.00d
Neely	23.37d	26.08f	20.62f	24.49e	56.01a	49.43a	93.10a	88.32a
L.S.D. at 5%	2.61	2.36	1.75	2.08	3.29	2.27	1.65	2.96

S=sultani. V.B.: Vegetative bud * F.B.: Floral bud * D.B. : Dormant bud

2-b- Fruit dropping%

Data presented in Table (4) show clearly that fruit dropping % which occurred during stage I of fruit growth was higher than that occurred during stage II or stage III of fruit growth for all selected strains under the study during the two seasons. Furthermore, the total fruit drop% of Medium Sultani strain was almostly higher than the other studied ones (80.62 and 80.35%) in the two seasons, respectively. While, the lowest values of total fruit dropping were recorded with Fark strain (62.94 and 63.42%). The highest percentage of fruit drop in the early stage of fruit growth could be attributed to the weather conditions during the pollination and fertilizations period which may cause 50 to 80 percent of the flowers remain unfertilized, and a large number of fruit abscising within 50 days after full bloom (Byers *et al.*, 2003).

Inhibition of growth and Abscission of young fruit may result from strong competitive influences from other fruits, shoots, roots, xylem, phloem, and other cellular growth within the tree (Costa *et al.*,1983; Byers and Lyons,1984; Byers *et al.*, 1985; DelValle *et al.*,1985). These results would be important to determine the exact time for fruit thinning of Mit-Ghamr peach chosen strains to maximize crop value by optimizing fruit size, color, shape, and quality.

Table 4: Fruit dropping % of Mit-Ghamr peach chosen strains during different stages of fruit growth in 2001 and 2002 seasons

Strain	Fruit dropping %							
	Stage I		Stage II		Stage III		Total drop %	
	2001	2002	2001	2002	2001	2002	2001	2002
Early S.	63.95ab	65.25ab	11.43cd	10.54d	1.50d	2.44cd	76.88bc	78.23b
Medium S.	62.52c	60.45c	14.29ab	15.30ab	3.81a	4.60ab	80.62a	80.35ab
Late S.	51.74d	53.60d	12.22cd	13.24ab	3.00b	2.86c	66.96d	69.70d
Shamy	50.15d	52.65d	13.33abc	11.90cd	2.29c	3.50bc	65.77de	68.05d
Hegazy	60.83c	63.15b	16.11a	15.43a	2.00c	2.86c	78.94ab	82.44a
Mawy	65.71a	66.50a	10.00de	12.52cd	1.23d	1.50de	76.94abc	80.52ab
Fark	49.99d	51.96d	12.30bcd	10.44d	0.65e	1.02e	62.94e	63.42e
Neely	63.33abc	60.16c	8.50e	13.70ab	3.33b	4.90a	75.16c	74.76c
L.S.D. at 5%	2.96	2.68	2.83	2.85	0.46	1.24	3.40	2.97

S=sultani

2-c- Fruit growth and development

It's clear from Fig. (1), that all selected strains under the study their fruits follow a double sigmoid curve in growth. The young fruit goes through a period of rapid growth referred to as stage I. This growth is mostly a result of cell division which lasted to 23 of April for Early Sultani strain, The first of May for Medium Sultani, Shamy, Hegazi, Mawy and Fark strains, and 8 of May for Late Sultani and Neely strains as the mean of 2001 and 2002 growing seasons.

The time of pit hardening also marks the approximate beginning of stage II. Fruit size increases very slowly, even though several internal changes are occurring, while the pit hardens, the embryo is growing rapidly. This period's length varied considerably among the selected strains, it was lasted to 15 of June for most selected strains except for Neely strain which was lasted to First of July as the mean of two seasons of study.

The final period of fruit growth, stage III, is primarily a function of cell expansion, not cell division. The rate of growth in both size and weight increases up to harvest time which started on 25 of June and 5 of July for Early Sultani , 10 and 20 of July for Medium Sultani, Shamy, Hegazy, Mawy and Fark strains, while it was at 2 and 10 of August for Late Sultani strain and was 25 of August and 5 of September for Neely strain in 2001 and 2002 seasons, respectively as in Table (5).

2-d- Fruit maturity and yield

Data presented in Table (5) show clearly that number of days from full bloom till fruit maturity was varied greatly between the Mit- Ghamr peach selected strains. It was 127 to 129 day in early sultani strain,154 to 156 in

Late Sultani strain, and was 138 to 145 day in Medium Sultani, Shamy, Hegazy, Mawy, and Fark strains. While it goes higher with Neely strain(171 to 178 day) in the two seasons of study.

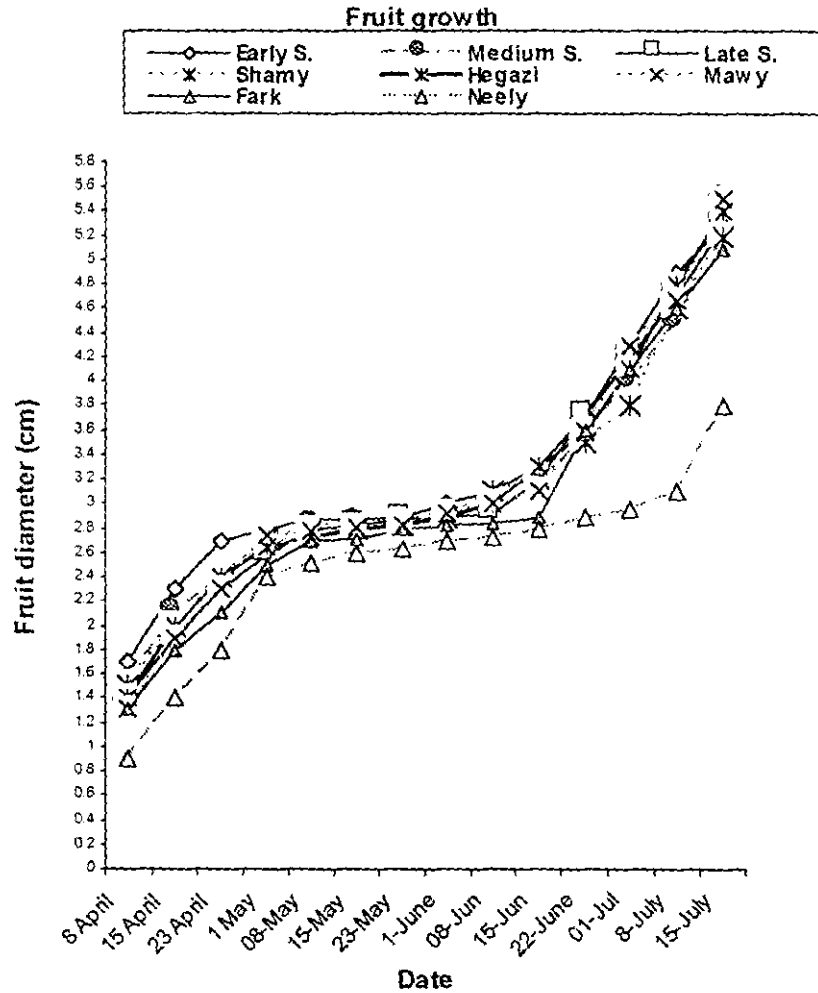


Figure 1: Fruit growth as increasing in fruit diameter(cm) of Mit-Ghamr peach chosen strains (as mean of 2001 and 2002 growing seasons).

Concerning the yield as kg. per tree, the same Table cleared that Neely and Shamy strains significant yielded the highest values (55.60, 60.85 and 53.80, 60.50), followed by Hegazy strain (50 and 54.65) in 2001 and

2002 seasons, respectively. The least yield was obtained with Fark strain (46.45 and 44.30) in the two seasons, respectively.

Table 5: Fruit maturity, harvest period and yield per tree of studied Mit-Ghamr peach Strains in 2001 and 2002 seasons.

Strain	Days from full bloom till maturity		Harvest period		Yield Kg/tree	
	2001	2002	2001	2002	2001	2002
Early S.	127	129	25/6-15/7	5/7 – 25/7	50.25cd	45.00de
Medium S.	140	144	10/7 – 5/8	20/7-10/8	52.30bc	46.50de
Late S.	154	156	2/8 – 25/8	10/8-27/8	51.40cd	47.50d
Shamy	142	145	13/7 – 2/8	20/7 – 5/8	53.80ab	60.50a
Hegazy	139	140	10/7 – 2/8	15/7 – 9/8	50.00d	54.65b
Mawy	138	145	10/7 – 5/8	20/7-10/8	47.50e	50.80c
Fark	139	145	10/7 – 2/8	20/7 – 5/8	46.45e	44.30e
Neely	171	178	25/8-15/9	5/9 – 20/9	55.60a	60.85a
L.S.D. at 5%	--	--	--	--	2.28	2.90

S=sultani.

3- Fruit characteristics

3-a- Physical characteristics

The obtained results in Table (6) show the physical fruit characteristics of the tested strains. It is evident that no specific trend was clear with the different measured characteristics of the tested strains. Since, Mawy strain significantly recorded the high values of fruit weight (109.30 and 120.60 gm), while the lowest values were recorded with Fark strain (87.80 and 85.22 gm) in 2001 and 2002 seasons, respectively. As for fruit volume it was the highest with Neely strain (112.80 and 118.0 cm³) in the two seasons, respectively.

Concerning fruit length and diameter, Early Sultani and Mawy strains recorded the high significant values of fruit length in the both seasons, but fruit diameter was the highest with Mawy strain. As regarding to flesh thickness and weight, Fark strain significantly recorded the lowest values in these respect, while the other strains were superior specially in flesh thickness.

As for seed weight and diameter, the data in Table (6) show that Neely strain was superior in these characteristics comparison with other strains.

3-b- Chemical characteristics

The concerned data in Table (7) demonstrated that TSS %, acidity %, firmness (kg/cm²) and skin anthocyanin content for the studied strains were differed from season to another and between the strains. Hegazy strain fruits recorded significantly the highest value of TSS % followed by Early Sultani. Furthermore, Neely strain recorded high significantly values of acidity %, but it was the lowest with Early Sultani one in the both seasons of study. Also, fruit firmness (kg/cm²) was significant differed among the chosen strains, it was highest with Neely strain fruits (6.40 and 7.20 kg/cm²) and was lowest with Fark strain (0.60 and 0.75 kg/cm²) in the two seasons, respectively.

Table 6: Physical fruit characteristics of studied Mit-Ghamr peach strains in 2001 and 2002 seasons.

Strain	Fruit weight (gm)		Fruit volume (cm ³)		Fruit length (cm)		Fruit diameter (cm)		Flesh thickness (cm)		Flesh weight (gm)		Seed weight (gm)		Seed diameter (cm)	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Early S.	93.50c	98.40c	97.30c	101.67c	6.10a	6.18a	5.87ab	5.90b	2.14a	2.10a	86.50d	91.60cd	7.00cd	7.20de	1.60e	1.70f
Medium S.	102.5b	101.14c	107.50b	106.25b	6.00a	5.92bc	5.95ab	5.92b	2.03ab	2.10a	94.65b	92.74c	7.85cb	8.40bc	1.90ab	1.94bc
Late S.	95.47c	93.60de	94.07c	91.00e	5.80ab	5.62d	5.70c	5.50c	1.90de	2.00ab	88.77cd	87.01ef	6.70de	6.80ef	1.90ab	2.00b
Shamy	97.60c	92.00e	98.40c	93.33e	5.90ab	5.73cd	5.60c	5.47c	1.92cd	2.10a	91.50bc	86.12f	6.10e	6.00f	1.77d	1.72ef
Hegazy	95.30c	97.17cd	99.60c	100.00cd	6.00a	6.05ab	5.94ab	5.98ab	2.07ab	2.00ab	87.90cd	89.60de	7.40cd	7.60cd	1.80cd	1.86cd
Mawy	109.30a	120.60a	96.55c	98.00d	6.10a	6.16a	6.00a	6.06a	2.09a	2.00ab	100.70a	112.08a	8.60b	8.58b	1.82cd	1.80de
Fark	87.80d	85.22f	88.70e	86.11f	5.60ab	5.52d	5.60c	5.54c	1.83e	1.90b	80.40e	77.40g	7.40cd	7.80bc	1.94ab	2.00b
Neely	102.40 b	109.80b	112.80a	118.0a	5.85ab	5.70cd	5.94ab	6.06a	1.97bc	2.10a	90.90bc	98.00b	11.50a	11.40a	2.00a	2.10a
L.S.D. at 5%	4.04	4.62	3.81	3.55	0.31	0.22	0.29	0.08	0.12	0.14	4.02	2.72	1.02	0.95	0.12	0.09

S=sultani

Table 7: Chemical fruit characteristics of Mit Ghamr peach studied strains (during 2001 and 2002 seasons).

Strain	TSS %		Acidity %		Firmness Kg/cm ²		Anthocyanin (Optical density)	
	2001	2002	2001	2002	2001	2002	2001	2002
Early S.	11.40b	12.00a	0.82e	1.04e	4.50b	5.00b	0.20a	0.22a
Medium S.	10.40d	11.00b	0.97d	1.12d	3.90c	4.20c	0.16b	0.15b
Late S.	09.40e	10.50d	0.89de	1.12d	4.50b	5.20b	0.13c	0.12cd
Shamy	10.60d	10.80bc	0.90de	0.97f	3.75c	3.25e	0.01f	0.01g
Hegazy	12.20a	12.00a	1.34c	1.12d	4.00bc	3.75d	0.09d	0.08e
Mawy	11.20bc	10.60cd	1.57b	1.49b	2.00d	1.50f	0.05e	0.05f
Fark	08.40f	10.00e	1.34c	1.19c	0.60e	0.75g	0.14bc	0.14bc
Neely	11.10c	10.20e	1.87a	1.94a	6.40a	7.20a	0.10d	0.11d
L.S.D. at 5%	0.29	0.25	0.11	0.03	0.50	0.22	0.02	0.03

S=sultani.

Concerning anthocyanin content in fruit skin, it was greatly differed from one strain to another. Since, it was high with Early Sultani followed by medium Sultani and Fark strains, while it was the lowest in Shamy fruit skin in the both seasons. Such very low anthocyanin content in Shamy fruits skin is of a great economic value, since it makes these fruits highly convenient for peach canning process. Variation in fruit properties of seedling trees were previously reported for some different fruit trees cultivars such as apricot (El-Banna and Guirguis, 1993) and Loquat (Selim *et al.*, 1975). Hesse (1975) reported that no one individual will express in high degree all the quantitative traits that characterized and improved cultivar.

Regarding the obtained results in the present study, it may be better to suggest replacing the local peach cultivar "Mit-Ghamr" by the name "Montakhab Mit-Ghamr". Since, certain superior strains of different horticultural characteristics could be segregated from it.

The accurate definition of major characteristics for each of the tested strains such as time of vegetative and floral buds burst, full blooming, fruit set, pit hardening and fruit maturity stages along with certain fruit physical and chemical characteristics effective on improving trees yield and fruit quality such as convenient time and type of pruning and fruit thinning make it is available to upgrade some of the tested strains to be peach cvs. Initials with special emphasis to Shamy and Hegazy strains. Trees of such superior strains produced among strains under study the highest yield/tree along with the most attractive fruits. Since, fruits of the first strain are characterized with white skin and flesh and those of the later one with orange skin and flesh (plate 1). The investigator also suggest to nominate the new cvs. By their local common names. The present results needed to be supported with certain genetically studies to indicate the degree of diversity in genotypes of the tested strains.

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الوصول لأصناف خوخ جديدة بمساعدة دراسات بستانية على سلالات مختارة من خوخ ميت غمر جلال اسماعيل عليوة معهد بحوث اليبساتين - مركز البحوث الزراعية - جيزة - مصر

خلال موسمي ١٩٩٩ و ٢٠٠٠ تم إختيار الأشجار الممثلة لسلالات "خوخ ميت غمر المحلي" وهي السلطاني المبكر النضج، السلطاني المتوسط النضج، السلطاني المتأخر النضج، الشامي، الحجازي، الماوي، الفرك، النيلى والمنتشر زراعتها تحت ظروف محافظة الدقهلية على أساس بعض الصفات الثمرية، وفي موسمي ٢٠٠١ و ٢٠٠٢ تم تقييم هذه السلالات بستانيا بداية من تفتح البراعم حتى النضج وجمع الثمار. وقد أوضحت النتائج المتحصل عليها ما يلي :-

- ١- وجود سلالات مختلفة لخوخ ميت غمر ذات ثمار جذابة مثل السلالة الشامي والتي تميزت ثمارها بقشرة ولب ابيض اللون، والسلالة الحجازي والتي تميزت ثمارها بقشرة ولب برتقالي اللون، كما كانت الثمار ملتصقة النواة في كل السلالات المنتخبة ما عدا السلالة الفرك التي تميزت بسهولة انفصال النواة عن اللب عند النضج.
- ٢- من خلال هذه الدراسة تم تحديد كل مرحلة من المراحل المختلفة لنمو وتطور البراعم الزهرية بداية من تفتح البرعم، الأزهار الكامل، تساقط البتلات ثم العقد، مع تتبع مراحل نمو الثمرة حتى النضج وذلك لكل سلالة على حدة.
- ٣- أن كل السلالات المنتخبة تحمل براعمها الزهرية على أفرع عمر سنة وان توزيع البراعم الزهرية تركز على امتداد هذه الأفرع في معظم السلالات المنتخبة ما عدا السلالات السلطاني المتأخر والنيلى حيث تركزت البراعم الزهرية في الثلث الطرفي من الفرع. كما تميزت أزهار هذه السلالات باللون الوردي فيما عدا السلالة الشامي والتي تميزت أزهارها باللون الأبيض.
- ٤- كما أوضحت هذه الدراسة ان نسبة البراعم الزهرية كانت أعلى من نسبة البراعم الخضرية على الأفرع الحاملة في سلالات، في حين كان العكس صحيح مع سلالات السلطاني المتأخر والنيلى، علاوة على ذلك فان سلالات النيلى والفرك سجلتا أعلى نسبة للبراعم الساكنة بالمقارنة بباقي السلالات المنتخبة وذلك خلال موسمي الدراسة من الدراسة.
- ٥- سجلت السلالة النيلى أعلى نسبة من الثمار العاقدة (٩٣.١٠، ٨٨.٣٢%) خلال موسمي الدراسة على التوالي، في حين كانت أقل نسبة (٧٠%) مع السلالة الماوي في موسم الدراسة ٢٠٠١.
- ٦- أظهرت هذه الدراسة أن أعلى نسبة تساقط للثمار حدثت خلال المرحلة الأولى من نمو الثمرة مع كل السلالات المنتخبة.
- ٧- سجلت السلالة النيلى والشامي أعلى قيم معنوية من المحصول (٥٥٦٠، ٦٠٨٥، ٥٣٨٠، ٦٠٥٠ كجم / شجرة)، وتلي ذلك السلالة الحجازي (٥٠، ٥٤.٦٥ كجم / شجرة)، في حين أقل محصول سجل مع السلالة الفرك (٤٦.٤٥، ٤٤.٣٠ كجم / شجرة) خلال موسمي الدراسة على التوالي، كما اختلفت السلالات المنتخبة كثيرا في الصفات الطبيعية والكيميائية للثمار.

وتعتبر هذه الدراسة من الأهمية بمكان للنبهوض بمثل هذه السلالات من خلال تحديد ميعاد وطريقة التقليم المناسبة لكل سلالة، كذلك عدد الوحدات الحاملة للثمار، ميعاد خف الثمار ومعاملات رفع الجودة لها.