RESEARCHES CONCERNING THE BEHAVIOR OF SOME PEACH TREE VARIETIES IN CONDITIONS OF THE DIDADCTIC STATION TIMISOARA

CERCETĂRI PRIVIND COMPORTAREA UNOR SOIURI DE PIERSIC ÎN CONDIȚIILE STAȚIUNII DIDACTICE TIMIȘOARA

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Abstract. *The peach tree is the most important species by its fruit qualities and biological features of trees, being considered the IIIrd fruit culture as economical importance and culture perspectives in our country. In Romania, the peach tree occupies the 6th place after the apple tree, plum tree, sweet cherry tree, apricot tree and peat tree. If during 1970-1989 this species was very cultivated, after 1990 the peach tree culture known a progressive decline. The nectarine culture amplified from 1970, thanks to the collaboration between dr. Vasile Cociu and prof. Leon Hough from the University Reurgers, New Jersey, U.S.A. researchers who made up the genetic bases of some nectarine varieties. The ample studies concerning the nectarine cultures were made by dr. Monica Murvai, dr. Antonia Ivascu, prof. Draganescu E. and others. In Timisoara, the studies concerning peach and nectarine culture was beginning in 1982-1990 period, was continuous after that and in present here is established the national collection of peach and nectarine who content 259 varieties and hybrids on the globe.*

MATERIAL AND METHOD

In this paper we have observed the behavior of some peach varieties in conditions of the Didactic Station Timisoara, concerning their productivity, the anterior studies showing up the fact that in this conditions the productions obtained are smaller, on one side because of the climatic accidents and on the other side because of the bad technology culture used in our country.

The biological material contains 12 peach varieties: Sunhaven, Springold, Jerseyland, Redglobe, Harvester, Redhaven, Shasta, Gloria, Southland, Elberta, Cresthaven and Harmony. The research goals were observing the fruit bending degree and the obtained productions during the years 2006 and 2007. The peach trees were planted in the spring of 2001 at a distance of 4 x 3 meters, obtaining 833 trees/hectare densities. The peach trees were grafted on a mirobolam, the top tree system being a “free palmet” and the type of soil is cambic cernosiom. The culture technology was the common one.

The working method was of stationary type in two steps:

<!--[if !supportLists]--><!--[endif]-->first step: on field, base on observing the fruit bending degree, counting the fruits and weighting them;

<!--[if !supportLists]--><!--[endif]-->second step: in the laboratory, based on calculating and interpretation the collected data.

In the first step we did the following observations: marking 3 trees for each variety, counting the fruits that remained on the tree after the physiological and premature falling of these, collecting the fruit samples in order to weight them, determination of the mean weight and estimating the production. The second step consisted in calculating the obtained data, the experiment being a monofactorial one and the interpretation of the data was made by the analysis variance method.

RESULTS AND DISCUSSIONS

The fruit binding degree was established after counting and calculating the fruits that were left on the tree after the physiological and premature falls, considering the fact that there were not done any chemical or mechanical procedures for the fruit rate-setting process and in that period there were not registered any climatic accidents that could have compromised the fruit production. The results obtained concerning this indicator are presented in tables 1 and 2.

Table 1

Fruit binding degree for the peach varieties in 2006

No.	Variety	No. of bind fruits after pollination - fecundation	No. of fruits after the physiological and premature falls	% of binding
1	Sunhaven	400	135	33,75
2	Springold	170	148	87,05
3	Jerseyland	138	117	84,78
4	Redglobe	368	232	63,04
5	Harvester	234	156	66,67
6	Redhaven	284	175	61,61
7	Shasta	188	174	92,55
8	Gloria	164	122	74,39
9	Southland	311	130	41,80
10	Elberta	108	90	83,33
11	Cresthaven	192	165	85,93
12	Harmony	178	105	58,98

In 2006, the highest fruit binding degree was observed for Shasta, then Springold, Cresthaven, Jerseyland and Elberta to which this parameter over passed 80%. The lowest fruit binding degree was registered for Sunhaven and Southland varieties, which was under 40%. The highest fruit binding degree in 2007 was observed for Gloria and Shasta varieties, which were the only ones that over passed 80%, while the lowest fruit binding degree was observed for Elberta and Harmony varieties which had values around 40%. Comparing the two studied years, we can observe that in 2007 the fruit binding degree was lower than the ones in 2006, so that there was no constancy between the varieties concerning this parameter, as an exception being considered Shasta variety, which had a high fruit binding degree in both years.

Table 2

Fruit binding degree for the peach varieties in 2007

No.	Variety	No. of bind fruits after pollination - fecundation	No. of fruits after the physiological and premature falls	% of binding
1	Sunhaven	207	164	79,22
2	Springold	230	154	66,95
3	Jerseyland	215	150	69,76
4	Redglobe	310	235	75,80
5	Harvester	273	180	65,93
6	Redhaven	240	177	73,75

7	Shasta	230	195	84,78
8	Gloria	125	118	94,40
9	Southland	216	152	70,37
10	Elberta	265	108	40,75
11	Cresthaven	207	164	79,22
12	Harmony	292	126	43,15

The fruit production obtained in the two studied years is presented in tables 3 and 4.

Table 3

Peach production per tree in 2006

No.	Variety	Medium production kg/tree	Relative value %	Difference to the witness	Significance
1	Sunhaven	13,1	86,81	-1,99	-
2	Springold	12,57	83,28	-2,52	0
3	Jerseyland	12,94	87,77	-2,15	-
4	Redglobe	13,89	92,07	-1,20	-
5	Harvester	15,65	103,71	0,56	-
6	Redhaven	16,79	111,27	1,7	-
7	Shasta	9,84	65,23	-5,25	000
8	Gloria	13,01	86,24	-2,08	-
9	Southland	18,5	122,60	3,41	XX
10	Elberta	15,05	100	0	Mt
11	Cresthaven	13,19	87,45	-1,89	-
12	Harmony	10,28	68,12	-4,81	000

DL5%=2,35 DL1%=3,20 DL0,1%=4,31

Table 4

Peach production per tree in 2007

No.	Variety	Medium production kg/tree	Relative value %	Difference to the witness	Significance
1	Sunhaven	18,83	98,57	-2,73	00
2	Springold	14,84	77,67	-4,27	000
3	Jerseyland	16,95	88,71	-2,16	00
4	Redglobe	17,85	93,44	-1,35	-
5	Harvester	18,78	98,29	-0,32	-
6	Redhaven	18,53	97,26	-0,53	-
7	Shasta	12,72	66,56	-6,39	000
8	Gloria	11,56	60,50	-7,55	000
9	Southland	20,34	106,45	1,23	-
10	Elberta	19,10	100	0	Mt
11	Cresthaven	14,76	77,25	-4,34	000
12	Harmony	13,78	72,21	-5,31	000

DL5%=1,64 DL1%=2,24 DL0,1%=3,01

In 2006, the highest production per tree was obtained for Southland variety of 18.5 kg, variety which had distinct significant positive difference to the witness. The lowest peach production per tree was obtained for Shasta (9.84 kg) and Harmony (10.28

kg) varieties, both of them having very significant negative differences to the witness. At the same time, Springold variety had a significant negative difference to the witness. The other varieties had values relative close to the witness that is why there were no differences to the witness.

In 2007, the highest peach production was obtained for Southland variety of 20.34 kg, production close to the one of the witness Elberta of 19.10 kg, which is why there were no significances to the witness. An interesting fact is that the other studied varieties had productions smaller than the one of the witness, which is why there were no significances (close values) or the obtained significances were very significant or distinct significant negative. The lowest peach production per tree was obtained for the varieties Gloria (11.56 kg), Shasta (12.72 kg) and Harmony (13.78 kg) varieties.

CONCLUSIONS

Because of the climatic conditions of the studied years, we can say that the peach varieties had a good behavior concerning their fruit binding degree and by this assuring a good potential production.

We can remark that in 2007 the peach productions per tree were higher comparing them to those in 2006, though the fruit binding degree of the varieties in 2006 assured otherwise.

Among the varieties we can observe constancy concerning the peach production for Southland variety, which had good productions in both years. At the same time, high productions and close to the witness were obtained for the varieties Harvester and Redhaven. On the other side, there are the varieties Shasta and Harmony, which had in both years the lowest productions among the studied varieties.

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