

## PEACH CULTIVATION IN THE ROMANIAN WESTERN PLAIN

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### **Abstract**

*In the last 20-25 years, in Romania a series of peach cultivators and new selections from abroad or created in the country can contribute largely to diversify the fruit production of these species.*

*The study of their capacity to adapt to the conditions in different areas and the fruit organoleptical and technological properties allows to recommend in the year 2000 many fruit growers: 20-25 standard peach cultivators (for fresh consumption), 13 nectarine peach cultivators, 21 peach cultivators especially for food industry (Clingstone) and 13 peach cultivators (7 peach and 5 nectarine) all of them representing an exceptionally beautiful aspect.*

*These series of recommended cultivators provide a period of consumption and industrial processing of more than 100 days (15 June – 30 September) and satisfies the requirements of trade and consumers*

**Key words:** genetic breeding, ecological adaptation, standard peach, nectarine, Clingstone, dwarf peach, pinto peach

### **INTRODUCTION**

The quantity of peaches on a peach tree and on a certain area is the key element in appreciating types of peaches, types which finally express the economic efficiency of a type, being the result of an interaction between a mixture of internal factors of the plant and the external factors of the environment and from this point of view, each plantation is a unity in which both internal and external factors can be found in a specific interaction.

The predisposition to ripe is a complex genetic feature which manifests according to the type of peach tree and is influenced by the power of the graft, by the vigor of the tree and by the way the shrub of the tree is dealt with.

The features present a great and special practical importance being a main criterion in choosing types of peach trees for nowadays' orchards.

In the areas around the city of Oradea, many new types of peach trees have been introduced, which offered a constant source of production until 1995; a search was requested regarding the production factors of those types of peach trees which are sure and warranted to produce fruit constantly.

From the estimative data as well as from the biostatistical data of each type of peach tree which has been studied, it comes out that all the 10

types of peach trees are fit for the 0,8 – 0,12 F.V. report – a report indicated by more authors (V. Lenina, Elena Voica, V. Cociu 1981).

Table 1

Medium production of fruits realized between 1991–1995

Nr. crt	Type of peach tree	Kg/ tree	t/ha	%	Difference of kg / tree	Significance Kg-tree	Color of the pulp
1	Redhaven	31.2	9.76	100.0	Reference tree	-	Yellow
2	Veteran	36.0	11.49	116.1	5.03	XXX	Yellow
3	Elberta	42.5	13.34	135.5	11.03	+XX	Yellow
4	Jerseyland	44.2	13.87	14.0	11.30	+XX	Yellow
5	Madeleine Pouyet	44.3	13.91	142.4	13.00	+XX	White
6	Collins	55.1	17.30	177.4	23.90	++X	Yellow
7	Springcrest	59.2	17.40	190.0	28.00	++X	Yellow
8	Cardinal	49.1	15.47	168.0	17.90	++X	Yellow
9	Springlod	62.1	19.49	200.0	31.10	XXX	Yellow
10	Jerseyglo	69.6	21.85	22.4	38.40	XXX	Yellow

If we analyze the varieties of the biostatic parameters it comes out that the types mentioned not only offer constant production but they can be kept on in production.

The Redhaven peach tree has the lowest production and it was taken as a guiding mark, all the other types are distinctively significant, a fact which means that the values of production are assured in the future, too. The biggest productions have been seen at newly introduced types of peach trees like: Collins, Springcrest, Springgold, Jerseyglo, which assure between 55,1kg. and 69,6 kg. of fruit on each peach tree. All over the world, the process of peach maturation lasts 95 – 100 days. Having in view the ecological conditions from Oradea we can grow different types of peach trees, the maturation of their fruits lasting 90 – 100 days.

Table 2

Presenting the maturation of the types of peaches studied between 1991–1995

Month	Type of peach tree	Month	Type of peach tree
VI	Madeleine Pouyet	VII	Jerseyland
	Springgold		Redhaven
	Springcrest	VIII	Elberta
VII	Collins	IX	Veteran
	Cardinal		Jerseyglo

In the above table, one can observe that all the period when there are supposed to be peaches is covered.

### **Commercial aspect of the fruit**

As it is well known, especially when trading fruits and especially when exporting these fruits, in what peaches are concerned well colored, big and middle-sized fruits are required. The fruits should be uniform in what the ripe degree, the size and the intensity of color are concerned. Even for processing, fruits should be uniform in size and intensely colored.

From the data obtained we can observe that all the types of peach trees studied fulfill the quality conditions required in the fruit trade. There are 8 types of peach trees which give fruits which overpass 120 gramms Springold, Collins, Cardinal, Jerseyland, Redhaven, Elberta, Veteran and Jerseyglo, all having a yellow pulp and they are first quality and even extra quality fruits( see table 3.)

Table 3

**The fruit size of different peach varieties**

<b>Big and very big fruits (over 180 g)</b>	<b>Middle-sized fruits (120-180 g)</b>	<b>Middle-sized and small fruits (under 120 g)</b>
Elberta	Springold	Maddeine Pouyet
Jerseyland	Collins	Springcrest
	Cardinal	
	Redhaven	
	Veteran	
	Jerseyglo	

Having in view the size of the fruits, the homogenous parts typical for the types of fruits which overpass 120 grams are the object of direct consumption; and the majority types of the peaches studied fulfill this requirement. Usually, small sized and under middle sized fruits belong to early and extra early types of peach trees (Madeleine Pouyet and Springcrest).

Our survey results have confirmed the fact that big and very big – sized fruits belong to late and extremely late types of peach trees (Elberta). Because this type of peach trees maintain the fruit longer , this leads - under a rational and correct agricultural technique - to their growth in size.

All the middle-sized and big-sized types of peaches have yellow pulp, they are nice and intensely colored and this is the reason why they are wanted in commerce. Some of these, Jerseyland, Cardinal, Redhaven, Springold, Veteran, Elberta have a special, live, intensely shining color. Except for the Madeleine Pouyet, all the other types of peach trees assure, under applied agricultural techniques, over 50 % of extra and first quality fruits from the whole production.

**Taste features of the types of peaches**

The 10 types of peach trees got good and very good appreciation in what the quality of their fruits is concerned. After the research done it has come out that the majority of the types of peach trees belong to first quality and extra quality trees. Usually early types of peach trees have peaches with a low amount of sugar.

*Table 4*

**The quality of the fruits in different peach varieties**

<b>Extra quality (over 35 points)</b>	<b>1st quality (31 -35 points)</b>	<b>2nd quality (20- 30 points)</b>
Elberta	Springgold	Madeleine Pouyet
<b>Redhaven</b>	Collins	
Cardinal	Veteran	
Jerseyland	Jerseyglo	
	Springcrest	

It is to be remarked that none of the studied types got inferior points, meaning under 20 points; these 20 points are the limit under which fruits are considered mediocre from an organoleptic point of view.

Analyzing the total amount of sugar (in dried substance) and acidity we can observe a difference between the studied types of peaches.

In table 5 we can observe that 30% of the types of peaches contain a low amount of sugar, under 9%(under 9 grams of sugar in 100 cube centimeters of juice); the rest of the types of peaches contain between 9% and 10% amount of sugar and over 10%. Early types of peaches generally contain a low amount of sugar.

*Table 5*

**The sugar contain in different peach varieties**

<b>High amount (over 10%)</b>	<b>Average amount (9-10%)</b>	<b>Low amount (under 9 % )</b>
Elberta	Redhaven	Madeleine Pouyet
Jerseyglo	Jerseyland	Cardinal
Veteran	Springcrest	Springgold
Collins		

As one can observe from table 5 and table 6 half the types of peach trees which begin to ripe in the second half of August contain higher amount of sugar and acidity and this fact fulfills the taste and alimentary features of the studied types of peach trees.

Table 6

Acidity in malic acid in 100 g of juice-over 9 %	Acidity in malic acid in 100 g of juice-over 7-8 %	Acidity in malic acid in 100 g of juice-over 6 –7 %
Redhaven	Cardinal	Jerseyglo
Elberta	Springold	Madeleine Pouyet
Veteran	Collins	Springcrest
Jerseyland		

### **Keeping the peach tree fresh**

After being picked up, the studied types of peaches offer different possibilities in what their long term valuation is concerned. Almost 60% of the studied types can be kept over 20 days at temperatures of 1-3 °C and this fact offers the possibility to transport the peaches at long distances, to value them more and it also leads to prolonged consumption.

The best types of peaches which can be kept in refrigerators are the yellow pulp types and those whose maturation appears late. On the contrary, early white pulp types of peaches – among which we can mention Madeleine Pouyet - can only be kept in refrigerators (for approximately one week). The higher the quantity of sugar and acidity, the best the fruits can be kept in refrigerators (Elberta, Redhaven, Jerseyglo, etc.).

Table7

Long period (over 15 days)	Average period (8 - 10 days)	Short period (up to 8 days)
Elberta	Springcrest	Madeleine Pouyet
Redhaven	Jerseyland	
Jerseyglo	Collins	
Veteran	Cardinal	
	Springold	

Analyzing the mechanic structure of the fruits we can observe that the stones are bigger at early types of peaches and smaller at late types of peaches. According to the skin and stone – the quantity of pulp in a fruit follows the same rule, so the quantity of pulp is bigger at late types of peaches and lower at early types of peaches. The percent of first quality and extra quality fruits categorizes the types of peaches studied in 3 categories: group1 with extra and first quality fruits – over 65% (6 types of peach trees), Collins (72%), Redhaven (78%), Veteran (80%), Elberta (80%), Jerseyglo (80%) and Jerseyland (82%). Other categories of peach trees give second and third quality peaches having values between 45% and 56%.

Table 8

## The mechanic analysis of the studied fruits

Type	Age of the tree	Whole fruit %	Skin %'	Stones %	Pulp %	Extra and 1st quality
Madeleine Pouyet	8	100.00	5.80	7.30	86.90	45
Springold	8	100.00	5.70	7.20	96.10	46
Springcrest	8	100.00	5.60	6.90	87.50	52
Collins	8	100.00	5.10	6.60	88.30	56
Cardinal	8	100.00	5.70	6.70	87.60	72
Jerseyland	8	100.00	5.80	6.80	87.40	82
Redhaven	8	100.00	4.72	6.83	88.45	78
Jerseyglo	8	100.00	4.80	6.60	87.60	80
Elberta	8	100.00	5.64	6.10	88.26	80
Veteran	8	100.00	5.10	6.20	88.70	80

From the table no.9. we can observe that 9 types of peaches from a total of 10 analyzed are first quality peaches and only 1 type, Madeleine Pouyet, is of second quality.

The quality of fruits has been established according to the general mark:

- 1<sup>st</sup> quality – 46 – 60 points
- 2<sup>nd</sup> quality – 31 – 45 points
- 3<sup>rd</sup> quality – 13 – 30 points

Table 9

## Marks obtained by tasted fruits

Types										
	Madelein	Springold	Springcrest	Cardinal	Collins	Jerseyland	Redhaven	Jerseyglo	Elberta	Veteran
Exterior Aspect										
Shape of the fruit(1-2)	2	2	2	2	2	2	2	2	3	2
Size of the fruit (1-5)	3	4	4	5	4	4	5	4	5	5
Pubescence (1-3)	2	3	2	3	3	3	2	2	2	3
Color of the skin (1-5)	5	5	5	5	5	5	5	5	5	5
Adherence to the pulp (1-3)	2	2	2	1	2	2	2	2	2	2
Features of the pulp										
Consistency (1-5)	4	4	5	5	4	5	5	5	5	5
Juiciness (1-3)	3	3	3	3	3	3	3	3	3	3
Color (1-5)	4	5	5	5	5	5	5	5	5	5
Taste (1-15)	14	14	15	15	15	15	15	15	15	15
Flavor (1-3)	3	3	3	3	3	3	3	3	3	3
Size of stone (1-3)	3	3	3	3	2	3	2	2	3	3
General Mark	45	47	51	50	48	50	49	46	51	51
Quality	II	I	I	I	I	I	I	I	I	I

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