

## **DETERMINAREA POTENȚIALULUI CALITATIV ALE UNOR SOIURI DE NECTARIN DE LA S.C.D.P. CONSTANTA**

### **DETERMINING THE QUALITATIVE POTENTIAL OF SOME NECTARINE TREE CULTIVARS FROM R.S.F.G. CONSTANTA** Arial 12, Bold, alignment left

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#### **Abstract** Arial 10, Bold, alignment left

The quality of the fruit is an ensemble of specific traits and characteristics which, together with other criteria, influences the choice and the promotion of the assortment, depending on the demand on the market. The growth of nectarine consumption depends on the commercial value, quality and the production costs of these fruit. The research took place over a period of four years at the Research Station for Fruit Growing Constanta, in an experimental plot, planted in the spring of 2002. Four nectarine tree cultivars were studied, three of which are Romanian cultivars, created and homologated at R.S.F.G. Constanta ('Cora', 'Delta' and 'Romamer 2'), the other cultivar of American origin ('Crimsongold'). Phenological observations were performed concerning: a) vegetative phenophases - swelling of the vegetative buds, beginning of the shoots growth, end of the shoots growth; b) fructification phenophases – beginning of swelling, beginning of flowering, end of flowering, intensity of flowering, hardening of stone, beginning of ripening, harvesting maturity. Arial 10, Bold, alignment justified, indent first 1 cm,

**Cuvinte cheie:** calitatea fructelor, substanță uscată, aciditate

**Keywords:** fruit quality, dry matter, acidity Arial 10, justified

#### **1. Introduction** Arial 10, Bold, alignment left

The quality of fruit is the main element which determines the consumers' acceptance of a new cultivar. Among the components responsible for quality, the element with the strongest impact is the colour of the fruit (Tourjee, 1998), whose role is to visually attract the buyer and at the same time to provide information to fruit producers concerning the maturity of the fruit (Brovelly et al., 1998).

Within the context of the new market demand (Fideghelli, 2002), in which the horticultural production is reorienting itself from quantity towards quality, the Research Station for Fruit-Growing Constanta has tried, over the past several years, to adopt a modern approach in the creation of new cultivars. Anticipating the ripening of the nectarines is an essential factor regarding profitability, especially for the extra-early and early varieties.

#### **2. Material and methods** Arial 10, Bold, alignment left

The research took place at the Research Station for Fruit-Growing (RSFG) Constanta, commune Valu lui Traian, between 2008 and 2011 and the biological material comprised four cultivars: 'Cora', 'Delta', 'Romamer 2' and 'Crimsongold'. These were planted in an experimental plot in 2002, having the best canopy shapes and the best planting distances (Tatura 6 m/2 m, Vertical cordon 4 m/1.5 m, Veronese vase 4 m/3 m, improved vase 4 m/3.5 m).

The phenological observations as well as the physical and chemical analyses of the fruit were performed in the experimental plot (which was established in 2002), when the trees were in full fruiting period (year VI from planting).

#### **3. Results and discussions** Arial 10, Bold, alignment left

At the nectarine tree, in the studied years 2008-2011, the beginning of the blossoming occurred between the 05.03-30.03 for the 'Cora' and 'Delta' cultivars, when the active temperature sum (of over 6.5°C) was of approximately 121-156°C and between 7.03-1.04 for the 'Romamer 2' and 'Crimsongold' cultivars (Table 1), when the active thermal sum was of approximately 121-162°C, 2008 being the earliest for all studied cultivars.

##### **3.1. The dynamic of the main fructification stages**

The beginning of the vegetation is marked by the swelling of the buds, a phenomenon which can be observed after the first days with an average temperature being higher than the biological threshold.

The swelling of the buds represents the beginning of a new stage, whose essential moments for the flowering buds are the flowering and the fruit setting whereas for the vegetative buds, the essential moment is the growing of the shoots. We must bear in mind the fact that during the flowering period, the average temperature ranged between 3.5 and 12°C, without destructive effects upon the flowers.

The evolution of phenophases differs from one cultivar to another and within the same cultivar, it differs according to the meteorological conditions of each year.

### **3.2. Biochemical characteristics of the fruit**

The main components of fruit: the percentage of dry matter and the acidity provide fruit with a pleasant, balanced and much flavoured taste. These qualities concerning the taste of the fruit are reinforced by the very attractive commercial aspect, provided by the uniform colour of the fruit (intense red) on their almost entire surface.

### **3.4. Physical characteristics of the fruit**

The results of the correlation between the weight (mass) of a fruit (g) and the average weight (mass) of a stone (%g/g) in the studied years 2008-2011 has revealed that this correlation is weak and negligible and it has displayed no significance whatsoever for the majority of the studied cultivars, this being a positive fact for the cultivars, because it means that the growth of the fruit does not depend on the growth of the stone. The core percentage of the mass of the fruit in 'Cora' cultivar is of 8.7% in all studied years, the pulp representing 91.3%.

The stone percentage of the mass of the fruit in 'Delta' cultivar is of 9.5% in all studied years, the pulp representing 90.5%.

## **4. Conclusions**

For nectarine trees, in the period 2008-2011, the swelling of the vegetative buds occurred between 5.03 and 30.03 for the 'Cora' and 'Delta' cultivars and between 7.03 and 1.04 for the 'Romamer 2' and 'Crimsongold' cultivars, 2008 being the earliest year for all the studied cultivars.

The beginning of shoots growth occurred in the majority of years in the months April-May (2008-2011), with differences from one year to another.

For nectarine in the 2008-2011 period, the swelling of the flowering buds occurred between 18.03 and 4.04 (16 days) and for its triggering the required active temperature sum was of 167-285°C.

All the studied cultivars were highly abundant in flowers, receiving the grade 5 in all studied years.

The duration of the flowering (average of the four analysed years 2008-2011) expressed in number of days varied between 6 days ('Crimsongold' cultivar, 2011) and 24 days ('Delta' and 'Romamer 2' cultivars, 2010).

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**Tables and figures** Arial 10, Bold, alignment left

Table 1. The dynamics of the main vegetative phenophases in the period 2008-2011 Arial 10, Align. Left, Indent: Hanging 1 cm

No.	Cultivar	Year	Beginning of the swelling		Beginning of shoots growth		Ending of shoots growth	
			Date (Duncan's test)	∑ active temperature (°C)	Date (Duncan's test)	∑ active temperature (°C)	Date (Duncan's test)	∑ active temperature (>6.5°C)
1	Cora	2008	05.mar	121	05.apr	309	08.aug	2,966
2		2009	10.mar	156	05.mai	557	23.aug	3,125
3		2010	15.mar	106	05.mai	640	23.aug	3,107
4		2011	30.mar	138	14.mai	581	11.aug	3,135
	<b>Average</b>		<b>15.mar(a)</b>	<b>131</b>	<b>29.apr(a)</b>	<b>522</b>	<b>16.aug(a)</b>	<b>3,083</b>
5	Delta	2008	05.mar	121	05.apr	309	08.aug	2,966
6		2009	10.mar	156	05.mai	557	23.aug	3,125
7		2010	15.mar	109	05.mai	640	23.aug	3,107
8		2011	30.mar	138	14.mai	581	11.aug	3,135
	<b>Average</b>		<b>15.mar(a)</b>	<b>131</b>	<b>29.apr(a)</b>	<b>522</b>	<b>16.aug(a)</b>	<b>3,083</b>
9	Romamer 2	2008	08.mar	130	07.apr	328	08.aug	2,966
10		2009	12.mar	162	09.mai	616	27.aug	3,209
11		2010	17.mar	109	06.mai	698	27.aug	3,203
12		2011	01.apr	156	16.mai	617	15.aug	3,23
	<b>Average</b>		<b>17.mar(a)</b>	<b>142</b>	<b>02.mai(a)</b>	<b>565</b>	<b>19.aug(a)</b>	<b>3,152</b>
13	Crimsongold	2008	07.mar	121	05.apr	309	08.aug	2,966
14		2009	08.mar	139	07.apr	586	25.aug	3,167
15		2010	15.mar	109	07.mai	669	25.aug	3,154
16		2011	01.apr	156	16.mai	617	18.aug	3,303
	<b>Average</b>		<b>15.mar(a)</b>	<b>131</b>	<b>23.apr(a)</b>	<b>545</b>	<b>19.aug(a)</b>	<b>3,147</b>

\* Duncan's multiple range test (P≤0.05)

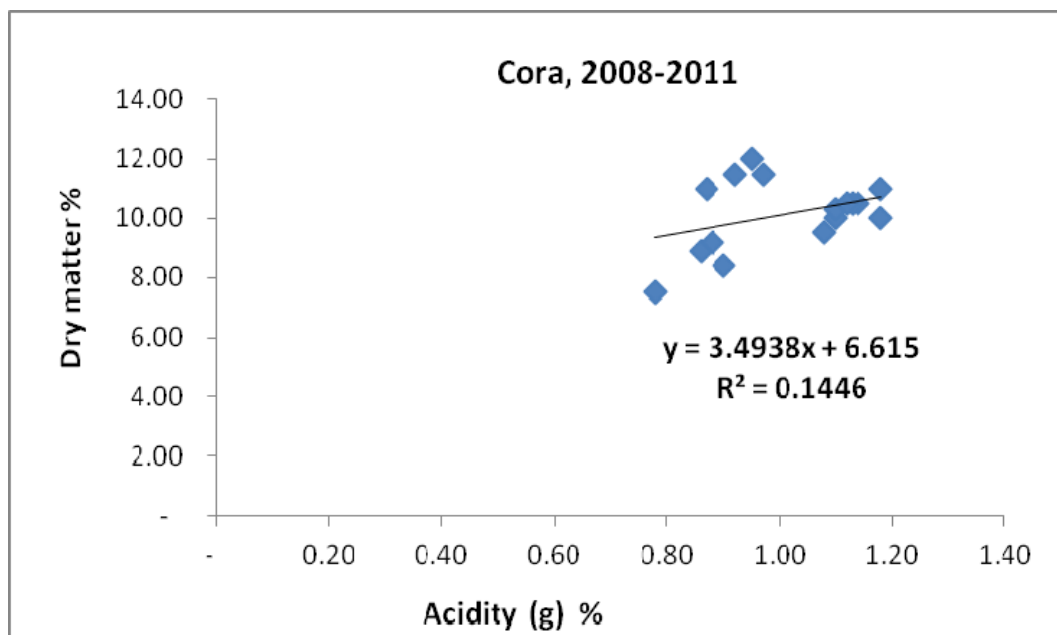


Fig. 1. The correlation and regression equation between dry matter (%) and acidity (g%), 'Cora' cultivar (Valu lui Traian, 2008-2011). Arial 10, align. Left, Indent: Hanging 1 cm