

# THE SWEET CHERRY TREE CULTIVAR ‘VAN’ AND ITS DESCENDANTS

## SOIUL DE CIREȘ „VAN” ȘI DESCENDENȚII LUI

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**Abstract:** This paper presents the value of ‘Van’ as cultivar used as maternal or paternal genitor in the breeding works at SCDP Iași. As result of these works, 14 of 24 new sweet cherry cultivars obtained at SCDP Iași have as genitor the cultivar ‘Van’. In 34 years of existence of The Research and Development Station for Fruit Growing Iași, the breeders had as main objective the replacement of the inferior cultivars, with new, superior cultivars, created in the station or introduced from the worldwide assortment. The new sweet cherry cultivars got remarked through very early ripening time (Cetățuia), early (Cătălina), self-fertility (Maria), low vigor (Golia and Tereza), high productivity and quality of fruits (Golia, Bucium, Iașirom, Ștefan, Ludovic, Lucia, Iosif), late ripening time (Margo) and resistance to stress factors (Oana, Radu).

**Key words:** sweet cherry tree, hybrid combinations, cultivar, genitor, fruit.

**Rezumat:** Această lucrare prezintă valoarea soiului ‘Van’ utilizat ca genitor matern sau patern în lucrările de ameliorare la SCDP Iași. Ca rezultat al acestor lucrări, din cele 24 soiuri noi de cireș obținute la SCDP Iași, 14 au ca genitor soiul ‘Van’. În cei 34 ani de existență a Stațiunii de Cercetare – Dezvoltare pentru Pomicultură Iași, amelioratorii au avut ca principală preocupare înlocuirea soiurilor inferioare, cu soiuri noi, superioare, create în stațiune sau introduse din sortimentul mondial. Soiurile noi de cireș s-au remarcat prin extratimpurietate (Cetățuia), timpurietate (Cătălina), autofertilitate (Maria), vigoare scăzută (Golia și Tereza), productivitate și calitate deosebită a fructelor (Golia, Bucium, Iașirom, Ștefan, Ludovic, Lucia, Iosif), tardivitate (Margo) și rezistență la factorii de stres (Oana, Radu).

**Cuvinte cheie:** cireș, combinații hibride, soi, genitor, fruct.

## INTRODUCTION

‘Van’ is a Canadian cultivar, obtained through free pollination of the ‘Empress Eugenia’ in 1936 (Dale, 1990; Grădinariu, 2002).

It acquired a large distribution, being multiplied in substantial proportions in all the countries with sharing in the sweet cherry tree culture, proving a large ecological plasticity (Budan and Grădinariu, 2000).

In Iași, based on national program, the improvement of the sweet cherry tree cultivars with clearly defined objectives has grown in the same time with the

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Research-Development for Fruit Growing Station Iași, in 1977, being started by the breeders' dr. eng. Ioachim Bodi and dr. eng. Ludovic Petre.

The followed aims for creating new sweet cherry tree cultivars have in mind the continuing improvement of the assortment in the Iași area, with precocious, self- fertile, resistant at *Coccomyces sp.* and *Monilinia sp.*, of reduced vigour, with quality fruits, resistant at fruits cracking, with different time of maturation and consumption and for industrial processing, with productive fruit growing trees, resistant at drought and frozen (Cociu et al., 1999; Petre, 2002).

In 34 years of existence of SCDP Iași, the breeders had as main objective the replacement of the inferior cultivars, with new superior ones, created in the station or introduced from the worldwide assortment (Budan et. al., 1997; Petre and Corneanu, 2007).

This paper work present the value of the 'Van' cultivar used as mother or father genitor in the breeding works at SCDP Iași. As a result of these works, 14 of 24 new sweet cherry tree cultivars obtained at SCDP Iași, have as genitor the 'Van' cultivar.

## MATERIAL AND METHOD

The research method was the simple intraspecific hybridization, starting with 1980.

The obtained material resulted from the hybridization of the genitors 'Van', 'Stella', 'Boambe de Cotnari', 'Ebony', 'Muncheberger Fruhe' and 'Lapins'. After the selection process, the hybrid elites were studied in micro cultures and comparative cultures.

The trees are grafted on mahaleb as rootstock and planted at a distance of 5x4 m. There were planted 10 trees from every cultivar. The applied agro technical works were those specific to sweet cherry tree culture and the trees were taken as free fan shaped crown, without any support system.

There have been made observations, concerning the trees vigour, their precocity, the main fructification phases, the self-fertility, the behaviour to the limitative factors of the production (frozen, drought and the specific diseases of the sweet cherry tree), the fruits production, the quality of the fresh fruits for consumption and industrial processing as compote, jam or cherries liqueurs.

## RESULTS AND DISCUSSIONS

The 'Van' cultivar was firstly used in 1980, being even today one of the most used cultivar in the breeding works for sweet cherry tree at SCDP Iași (table 1).

Starting with 1991, there were obtained the first 14 cultivars of sweet cherry tree that have as mother or father genitor the cultivar 'Van' (tab. 1).

The cultivar 'Van' is very valuable in sweet cherry tree amelioration because it has average vigour, good productivity, good quality of fruits, it is precocious with a very good ecological plasticity. These features are transmited in descendance, as a result of combinations with other genitors.

*Table 1*

**The use of ‘Van’ cultivar in the amelioration program of the sweet cherry tree at  
SCDP Iași in 1980-2011**

Between the years:	Nr. of combinations in which the cultivar ‘Van’ is genitor:			Flowers after pollination -nr-	Harvested fruits -nr-	Obtained hybrid seeds -nr-
	♀	♂	Total			
1980-1990	32	22	54	58904	12508	10321
1991-2000	15	21	36	47903	6762	4605
2001-2011	4	13	17	15990	4120	3126

From the combinations from 1983-1988, having as genitor the cultivar ‘Van’, there have been selected 14 hybrid elites, being approved as cultivars in 1999-2011: ‘Cetățuia’, ‘Cătălina’, ‘Golia’, ‘Maria’, ‘Bucium’, ‘Ștefan’, ‘Tereza’, ‘Iașirom’, ‘Radu’, ‘Oana’, ‘Lucia’, ‘Ludovic’, ‘Margo’ and ‘Iosif’ (tab. 2).

*Table 2*

**New cultivars obtained by use as genitor the cultivar ‘Van’**

Cultivar	Year of hybridization	Genitors		Year of approval	Year of patent
		♀	♂		
Cetățuia	1984	Van	B.de Cotnari	1999	2008
Maria	1984	Van	Stella	1999	2009
Golia	1984	Van	B. de Cotnari	2001	2008
Cătălina	1984	Van	B. de Cotnari	2001	2008
Bucium	1984	Van	B. de Cotnari	2006	2009
Iașirom	1984	Van	B. de Cotnari	2006	2009
Ștefan	1984	Van	B. de Cotnari	2006	2009
Tereza	1983	Van	Ebony	2006	2009
Oana	1984	Van	B. de Cotnari	2007	-
Radu	1984	Van	B. de Cotnari	2007	-
Lucia	1984	Van	Muncheberger Fruhe	2007	-
Ludovic	1984	Van	B. de Cotnari	2010	-
Margo	1987	Free pollination for the cultivar ‘Van’	-	2010	-
Iosif	1988	Van	Lapins	2011	-

The cultivar ‘Cetățuia’ was the first approved cultivar, in 1999 and patented in 2008, as a result of hybridisations, from 1984, between ‘Van’ and ‘Boambe de Cotnari’ (tab. 2).

In the same combination and of the same year of hybridisation, there have been approved in 2001 cultivars ‘Golia’ and ‘Cătălina’, in 2006 cultivars ‘Bucium’ and ‘Ștefan’, in 2007 cultivars ‘Oana’ and ‘Radu’ and in 2010, the

cultivar 'Ludovic' (tab. 2). These cultivars, although from the same combination of genitors, are very different between them.

The cultivar 'Cetățuia' is very early, with an average weight for the fruit of 5,9 g and with a dark red colour (tab. 3). The similarity with the cultivar 'Van' consists only in the middle vigour of trees, length and thickness of the peduncle and the difference consists in the very earliness of the cultivar (fruit ripening in the 3<sup>rd</sup> decade of May).

The cultivar 'Golia' has the same period of ripeness and size of the fruit, but it is distinguished by the dark red colour of the fruit and the low vigour of trees. 'Cătălina' is similar by precocity, resistance to diseases and frost but it is distinguished by fruit's shape and earliness ripening time (tab. 3).

The cultivars 'Bucium', 'Iașirom', 'Ștefan', 'Oana', 'Radu' and 'Ludovic' are similar at the trees vigour, firm flesh and the period of maturation, but they are distinguished by the colour, shape and the weight of the fruit. 'Oana' and 'Radu' are distinguished by the superior resistance at cracking, colour and shape of fruits.

The cultivar 'Maria', approved in 1999, patented subsequently with the name 'Romaria' in 2009 has as genitors the species 'Van' and 'Stella'. It is very similar as appearance with the cultivar 'Van', having the shining red fruit and the short and thick stalk, but it is distinguished by the fruit shape the cultivar is self-fertile (tab. 3).

The cultivar 'Ludovic', approved in 2010 is similar with the cultivar 'Van' at the average vigour of trees, the firm flesh and the period of maturation and the difference consists in the size and the shape of the fruits (it is much bigger than 'Van'), its colour and the resistance at fruit cracking.

The cultivar 'Margo' was approved in 2010 and obtained by free pollination of the cultivar 'Van'. It is similar with the cultivar 'Van' by its precocity to fruit-bearing, firm flesh and the not adhering of the kernel to the flesh of the fruit and the difference consists in the size and the fruit shape, its colour and the period of maturation ('Margo' is with late ripening time cultivar) (tab. 3).

The cultivars 'Lucia' and 'Iosif' are similar to 'Van' by the trees average vigour and the firm flesh. The difference consists in the shape and the fruit's colour, and the cultivar 'Iosif' has a very good fruit weight (tab. 3).

Table 3

The characterization of the new sweet cherry cultivars, descendant from the cultivar 'Van'

Cultivar	Tree vigour	Ripening time	Fruit shape	Fruit weight (g)	Fruit colour	Comparisons with the cultivar 'Van'	
						Similarities	Differences
Cetățuia	medium	very early	flattened kidney	5,9	dark red to black	Tree vigour, length and thickness of peduncle	Smaller fruit, very early
Maria	medium	medium	elongated heart-shaped	7,4-8,3	shining red	Ripening time, resistance at fruit's cracking and colour, stalk length	Cultivar's self-fertility, fruit's shape
Golia	small	medium	elongated heart-shaped	7,5-8	dark red	Ripening time, fruit size	Small vigour, fruit's shape
Cătălina	medium	early	elongated heart-shaped	7,4-8,4	dark red	Precocity, resistance to diseases and frost	Early cultivar, fruit's shape
Bucium	medium	medium	flattened heart-shaped	8-8,5	dark red	Vigour, flesh firmness, not adhering stone to flesh	Fruit's shape and size
Iașirom	medium	medium	flattened heart-shaped	7,7-8,1	dark red	Medium vigour, flesh firmness, ripening time	Fruit's shape, resistant at specific diseases for sweet cherry tree
Ștefan	medium	medium	flattened heart-shaped	7,7-8	dark red	Vigour, fruit thickness, ripening time	Fruit's shape, stalk's length and thickness
Tereza	small	medium	flattened heart-shaped	7,5-7,8	dark red	Fruit resistance at cracking, ripening time	Small vigour of tree, fruit's shape
Oana	medium	medium	round flattened	7,6	dark red	Vigour, not adhering stone to flesh, resistance to frost and drought	Fruit's shape and colour
Radu	medium	medium	kidney	6,6	dark red	Precocity, resistance to frost, drought, age of ripening	Fruit's shape, resistance at cracking
Lucia	medium	medium	elongated heart-shaped	8,0	dark red	Vigour, resistance at fruits cracking	Fruit's shape and colour
Ludovic	medium	medium	kidney	11,4	dark red	Vigour, flesh firmness, age of ripening	Fruit's shape and size, fruit's resistance at cracking
Margo	medium	late	heart-shaped	8,9-9,5	whitish yellow	Precocity, flesh firmness, not adhering pips to flesh	Ripening time, fruit's size, colour and shape
Iosif	medium	medium	heart-shaped flattened	9-9,3	dark red	Vigour, flesh firmness	Fruit's size, colour and shape

## CONCLUSIONS

1. The cultivar 'Van' was efficiently used in sweet cherry tree breeding works and it can be appreciated as a very good genitor for productivity and for fruit quality.

2. From the combinations from 1983-1988 with the cultivar 'Van' as genitor, there have been selected 14 sweet cherry tree hybrid elites, which have been approved as cultivars in 1999-2011: 'Cetățuia', 'Maria', 'Golia', 'Cătălina', 'Bucium', 'Iașirom', 'Ștefan', 'Tereza', 'Oana', 'Radu', 'Lucia', 'Ludovic', 'Margo' and 'Iosif'.

3. The new sweet cherry tree cultivars got remarked through very earliness ('Cetățuia'), earliness ('Cătălina'), self-fertility ('Maria'), low trees vigour ('Golia' and 'Tereza'), productivity and excellent fruits quality ('Golia', 'Bucium', 'Iașirom', 'Ștefan', 'Ludovic', 'Lucia', 'Iosif'), late ripening time ('Margo') and resistance at stress factors ('Oana', 'Radu').

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