

## Evaluation of the Local Greek Sweet Cherry Cultivar ‘Vasiliadi’ Compared to the Cultivar ‘Ferrovia’

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### Abstract

Sweet cherry trees (*Prunus avium* L.) of the cultivars ‘Vasiliadi’ and ‘Ferrovia’ were grafted on wild cherry seedling rootstock (mazzard), trained as a typical vase shape and planted at distances 6x6 m apart. The evaluation was done for 5 consecutive years. Trees of ‘Vasiliadi’ are vigorous (more vigorous than ‘Ferrovia’), with an upright growth habit. The flower density of ‘Vasiliadi’ is high, similar to ‘Ferrovia’. Both cultivars have an average of three flowers per fruit bud. The flowering of the cultivars ‘Ferrovia’ and ‘Vasiliadi’ starts at April 5 and 6, respectively. The trees require cross-pollination. ‘Vasiliadi’ sweet cherry is a mid-season, high-quality sweet cherry cultivar that matures 5 days earlier than ‘Ferrovia’. Productivity and mean fruit weight of ‘Vasiliadi’ were higher than ‘Ferrovia’. The fruit of ‘Vasiliadi’ are large, symmetrical, and kidney-shaped. Fruit of ‘Vasiliadi’ are juicy, sweet when mature, and have good eating quality. Total soluble solids of ‘Vasiliadi’ were higher than ‘Ferrovia’, whereas firmness was lower. ‘Vasiliadi’ fruit are attractive with mahogany skin color and pink-red flesh.

### INTRODUCTION

The first tree of the cultivar ‘Vasiliadi’ was detected by the grower P. Vasiliadi in an orchard planted with the cultivar ‘Tragana Edessis’ in the area of Rodochori Naoussas. The original plant was propagated initially by grafting on cherry seedling. The cultivar was established in the experimental field of the Greek Pomology Institute in 1999 that is located in Naoussa (northern Greece, long. 22°12’0”E; lat. 40°29’04”N; elevation 225 m) and since then is evaluated. The scope of this research was to give information about the new sweet cherry cultivar ‘Vasiliadi’ and to compare it with the cultivar ‘Ferrovia’ that matures at the same period.

### MATERIALS AND METHODS

Trees were grafted on seedling rootstock, trained as a typical vase shape and planted at distances 6x6 m apart. Mature fruit of the two cultivars were evaluated immediately after harvest.

Productivity data reported are means of 9 trees (3 replications x 3 trees) per cultivar for 5 years, analysed as a randomized complete block design. All other fruit characteristics reported were based on a random sample of 200 fruits selected from all of the fruits collected from the experimental trees in each year. Leaf characteristics reported were based on a random sample of 100 leaves selected from each experimental tree in each year. Total soluble solids were measured with the Atago PR-1 electronic refractometer (Atago Co. Ltd., Tokyo, Japan), and firmness with an Effegi penetrometer 6 mm tip (Effegi, Milan, Italy).

The significance of the differences between means was evaluated by using Fisher’s t-test analysis of variance at  $P < 0.05$  carried out by SPSS Version 17 (SPSS Inc., Chicago, IL).

## RESULTS AND DISCUSSION

Trees of 'Vasiliadi' are vigorous (more vigorous than 'Ferrovia'), with an upright growth habit. Flower buds are conical. The leaves are large, elliptical in shape, and have double dentate margins. Blade and petiole length and width of 'Vasiliadi' were higher than 'Ferrovia' (Table 1). Leaf fall of 'Vasiliadi' and 'Ferrovia' starts at November 11 and 21, respectively (means based on 10 years data). The flower density of 'Vasiliadi' is high, similar to 'Ferrovia'. Both cultivars have an average of three flowers per fruit bud. Flowering of the cultivars 'Ferrovia' and 'Vasiliadi' starts at April 5 and 6, respectively (means based on 10 years data). The trees require cross-pollination. Known suitable pollinizers of 'Vasiliadi' include the cultivars 'Tragana Edessis', 'Ferrovia' and 'Germersdorfer' (Chatziharissis et al., 2009).

Fruit of 'Vasiliadi' mature 5 days earlier than 'Ferrovia'; May 22 and 27 respectively (means based on 10 years data). Productivity of 'Vasiliadi' was higher than 'Ferrovia', 110 and 85 kg tree<sup>-1</sup> respectively (means were based on data collected from when the trees were 5 years old to when they were 15 years of age). The fruit of 'Vasiliadi' are large, symmetrical, and kidney-shaped (Fig. 1, Table 2) (Schmidt et al., 1985). Mean fruit weight, fruit width, and thickness of 'Vasiliadi' were higher than 'Ferrovia', whereas fruit length was not different among cultivars. The kind of rootstock significantly influences the size of fruits of various cultivars. (Szot and Meland, 2001) reported that the biggest fruits of cultivar 'Van' measured on seedling rootstock, cultivar 'Ulster' on 'Colt' and cultivar 'Burlat' on 'Gisela 5'. 'Vasiliadi' fruit are attractive with mahogany skin color and pink-red flesh. The pedicel length is about 4.2 cm, similar to 'Ferrovia'. Fruit of 'Vasiliadi' are juicy, sweet when mature, and have good eating quality. Total soluble solids of 'Vasiliadi' were higher than 'Ferrovia' (Table 2). Firmness of 'Vasiliadi' was lower than 'Ferrovia'. Stone length of 'Ferrovia' was higher than 'Vasiliadi', the thickness was lower, whereas width and weight were not different among cultivars (Table 3). The S-locus genotype of 'Vasiliadi' as determined by polymerase chain reaction (PCR) is S<sub>4</sub>S<sub>9</sub> (Ganopoulos et al., 2010), whereas that of 'Ferrovia' is S<sub>3</sub>S<sub>12</sub> (Bekefi, 2006). Regarding S-locus genotype incompatibility classification in sweet cherry, 'Vasiliadi' belongs to group XXI, whereas 'Ferrovia' belongs to group XXII (Bekefi, 2006).

In conclusion, 'Vasiliadi' is a promising sweet cherry cultivar. Its ecological adaptation in all the areas in central and northern Greece where the trees were planted was very good.

### Literature Cited

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## **Tables**

Table 1. Leaf characteristics of the cultivars ‘Ferrovía’ and ‘Vasiliadi’.

Cultivar	‘Ferrovía’	‘Vasiliadi’
Length of blade (cm)	10.3 b <sup>x</sup>	15.6 a
Width of blade (cm)	5.03 b	6.99 a
Ratio of blade length/width	1/0.49	1/0.45
Length of petiole (cm)	2.95 b	3.34 a
Width of petiole (cm)	0.13 b	0.20 a
Number of nectaries per leaf	2 a	2 a

<sup>x</sup> Means followed by the same letter in the same row are not significantly different (Fisher’s F; P < 0.05).

Table 2. Fruit characteristics of the cultivars ‘Ferrovía’ and ‘Vasiliadi’.

Cultivar	‘Ferrovía’	‘Vasiliadi’
Fruit length (mm)	22.90 a <sup>x</sup>	22.50 a
Fruit width (mm)	25.40 b	26.95 a
Fruit thickness (mm)	20.30 b	21.70 a
Pedicle length (cm)	4.40 a	4.20 a
Fruit weight (g)	7.85 b	9.00 a
Fruit firmness (kg/cm <sup>2</sup> )	0.80 a	0.70 b
Total soluble solids (°Brix)	15.70 b	17.30 a

<sup>x</sup> Means followed by the same letter in the same row are not significantly different (Fisher’s F; P < 0.05).

Table 3. Stone characteristics of the cultivars ‘Ferrovía’ and ‘Vasiliadi’.

Cultivar	‘Ferrovía’	‘Vasiliadi’
Stone length (mm)	10.60 a <sup>x</sup>	9.80 b
Stone width (mm)	8.00 a	8.90 a
Stone thickness (mm)	6.40 b	7.30 a
Stone weight (g)	0.32 a	0.39 a
Ratio of stone/fruit weight	1/24.5	1/23.1

<sup>x</sup> Means followed by the same letter in the same row are not significantly different (Fisher’s F; P < 0.05).

**Figures**

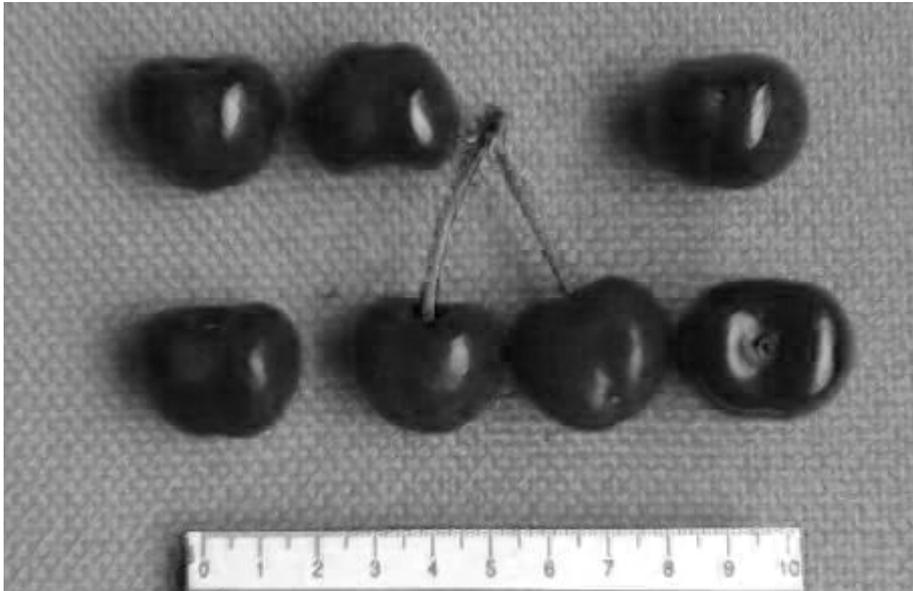


Fig. 1. Fruits of 'Vasiliadi'.