

**THE EVALUATION OF A NEW APRICOT SELECTIONS
IN THE PERSPECTIVE OF INTRODUCTION IN THE ASSORTMENT**

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ABSTRACT

The increasingly unfavorable climatic conditions for apricot cultivation in Dobrogea, imposes the need to introduce new apricot selections in order to improve the assortment of this species with adapted cultivars to the new climatic conditions. Romania has a rich germplasm found for apricot (350 genotypes at RSFG Constanța), so following the breeding program a significant number of perspective selections have resulted. 'Canada 510915' and 'V.T.O Selection 1' showed yield stability and good quality of the fruit. 'Canada 510915' is late flowering, self-fertile, a round fruit with an average weight of 55 g, orange skin with carmine red on the sunny side. 'V.T.O Selection 1' has a late flowering period, abundant, self-fertile, with a medium port, slightly open. The fruit is round, large, weighing 70 g, orange with carmine red on the sunny side. The ripening period of the third decade of July.

INTRODUCTION

The transition period from the cold to the warm season (called the "spring release" period) is of particular importance for apricot production in the area of favorability of this species. The evolution of the agro-meteorological conditions from this period, in the South-East area of Romania, especially of the air and soil temperatures and humidity, presents special fluctuations, which reflect on the soil condition, apricot vegetation and finally on fruit production (Cociu et al, 1993; Balan et al, 2008).

The main objectives of the breeding program are high productivity, self-compatibility, resistance to primary viruses specific to apricot culture, high fruit quality and attractiveness, resistance to manipulation and good postharvest behavior, and extension of the blooming and ripening periods. The purpose of this study is to provide data on the new apricot selection recommended for planting in areas where this species find good conditions. The apricot fresh consumption lasts from the 10th day period of June to 15th of August in south-eastern of Romania.

MATERIAL AND METHODS

The study was carried out in apricot demonstrative lots at Research Station for Fruit Growing Constanta, located in south-eastern Romania, near the Black Sea.

The site is located at 44°10' Northern latitude and 28°29' Eastern longitude, and 70 m above sea level. Climate is continental with warm and droughty summers, frequent dry winds all the year round and temperate winter generally without snow.

The mean annual temperature is 12.0°C and the total active temperature is 3988°C, out of which 3170°C during the growing season; the annual precipitation amount is 400 mm, out of which during the growing season (April 1 to September 30), 240.7 mm.

The lowest winter temperatures below -20°C are not very often: 1 out of 10-15 years and so are the spring frosts susceptible to cause apricot yield damage.

The climatic water deficit reaches as much as 400 mm/year, so irrigation application is needed for apricot.

The zonal soil type is a calcareo-calcic chernozem formed on loess, with loam texture and a proper capacity of water preserving, holding and circulation. The humus content ranges between 2.5 and 4%; pH of the soil is poor alkaline (7.0-8.1).

The selection are planted in demonstrative lots (4 m x 4 m scheme) in 2011 with north-south row orientation and the crown shape is improved vase. The apricot trees are grafted on Constanta 14 described by Indreias et al (2010).

The floral, agronomic and fruit-quality characteristics were checked for last four years. The beginning of flowering was considered when the first open flower was visible and its end was noticed when the last petals of the flowers fell.

The blooming intensity was noted from 0 (absent) to 5 (abundant), according to the research methodology of fruit tree breeding (Cociu, 1989).

Determination of dry matter was conducted by reading it directly from the refractometric scale (Zeiss) and the determination of acidity was based on potentiometric titration with the solution of sodium hydroxide (AOAC, 1995).

The trees and fruit characteristics were evaluated according to the Methodology for trying new varieties of fruit trees, shrubs and rootstock in order to approve the homologation and International Union for the Protection of New Varieties of Plants (UPOV) guidelines.

During 2018-2021 the fruit yield was recorded, when fruit production was considered stable. The average yield was evaluated by weighing the fruit of three apricot trees of each variety (kg/tree) and then as kg/ha.

RESULTS AND DISCUSSIONS

During this period of time, we noticed that the 'Canada 510915' has constantly yields, of about 14.0 t/ha. (table 1). Compare with other studied apricot cultivars, 'V.T.O Selecție 1' has late blooming and constant yields of 12.5 t/ha (table 1), which recommends it for the establishment of new apricot orchards.'Harcot' cv. we use as control.

Table 1
Phenological stages and average yield of apricot at RSFG Constanta, Romania
(multiannual data)

Selection	Flowering time		Flowering intensity ^x	Ripening time	Yield	
	Beginning	Ending			Kg/tree	t/ha ^y
Canada 510915	26. III	07. IV	5	20.VII - 30.VII	22.4	14.0
V.T.O Selecție 1	29. III	10. IV	5	18.VII - 25.VII	20	12.5
Harcot	16. III	28. III	4	25.VI - 3.VII	15.54	9.7

^yThe orchard density: 624 trees/ha (4m/4m); ^xFlowering intensity: 0 = 0%, 1= 0% to 25%, 2= 25% to 50%, 3= 50% to 75%, 4= 75% to 100%, 5= 100%.

Also, 'Canada 510915' and 'V.T.O Selecție 1' have good and constant yield and offer a high agrobiological potential even if the apricot culture in Romania faces significant damage due to the late hoarfrosts and freezing.

'Canada 510915' is an apricot selection (Fig.1) obtained in RSFG; the tree vigor is medium, with a large habit; blossoming time: late (26.III – 07.IV, Table 1), very abundance; the bearing is mainly on short shoots; the fruit has round shape and an average weight of 45–55 g (Table 2). The skin is orange with carmine red on the sunny side, the flesh is orange, medium firm, flavored and very tasty, non adherent to the stone. The average yield is good (14t/ha^y). It can be used for fresh consumption or can industry.

Table 2

Apricot selections - fruit characteristics (Multiannual data) RSFG Constanta, Romania

Selections	Fruit mean weight (g)	Dry matter (%)	Acidity ^z (mg %)	Fruit destination
Canada 510915	45 - 55	11.7 – 12.8	0.90 -1.50	Fresh consumption and processing
V.T.O Selecție 1	60 - 70	12.1 – 14.3	1.20 – 1.90	Fresh consumption and processing
Harcot	55 - 60	9.5 – 12.5	1.50 – 2.50	Fresh consumption and processing

'V.T.O Selecție 1' is an apricot selection (Fig. 2) obtained in RSFG; tree vigor is medium, with a large habit; blossoming time: late (29.III-10.IV, table 1), very abundance; the cultivar is auto fertile; the ripening time is late (18.VII – 25.VII); the fruit shape is round and the average weight is between 60-75 g; the skin is medium orange with red on the sunny part, good aroma and fine texture, non adherent to the stone. The average yield is good (11.2t/ha^y). It can be used for fresh consumption or can industry.



Fig. 1 'Canada 510915'



Fig. 2 'V.T.O Selecție 1'

CONCLUSIONS

All studied apricot selections had resistance to late frost in spring and an abundant flowering (noted with 5). The data (2018- 2021) show the limits of the blooming period between 16.III and 10.IV.

The yield of the studied apricot selections was higher; 'Canada 510915' had an average yield of 14 t/ha and 'V.T.O Selecție 1' 12.5 t/ha.

Dry matter expressed by refractometric method had values between 11.7% -12.8% (Canada 510915) and 12,1% -14,3% (V.T.O Selecție 1).

Acidity (mg malic acid/100 g flesh fruit) of the studied apricots ranged between 0.90 mg% ('Canada 510915') and 2.5 mg% ('Harcot').

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