Basic pomometric analysis of 'Creska' sweet cherry

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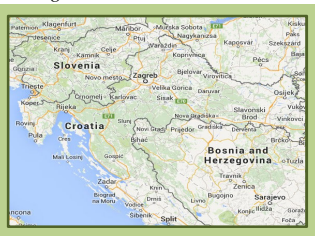
Abstract
'Creska' sweet cherry is local variety of sweet cherry traditionally produced in the island of Cres, in the region of northern Adriatic. The variety is known by high quality and firm fruits, good aroma and size. It is preferred by farmers due to high price and high income that are among their first seasonal income, already in the first half of June. The fruits of 'Creska' are also preferred by consumers and, due to its uniqueness and "local" image, its marketing has a potential in an offer within touristic market, in the beginning of touristic season. However, there are few scientific data on this variety, and there were no evaluations of their quality and performance in comparison to other well-known varieties. Recently, the evaluation was done during two subsequent years. 'Creska' sweet cherry was evaluated in commercial orchard, where the plants were growing in completely randomized design, and compared with 'Bing', 'Sue', and 'Stella'. The rootstock used was *Prunus mahaleb*, vegetatively propagated and traditionally used in the system of production typical for this area. The goal of this research was to give a basic pomological description of 'Creska' sweet cherry, based on the following parameters: length, wideness and thickness of the cherry fruit, the length of its stem, its weight and randman.
We are also giving some conclusions on ethno-agricultural facts and economic value of the production of 'Creska' in the island of Cres. Given results show that 'Creska' have excellent potential for production, and it is at least as good as standard varieties, including the heritage value important for local producers and touristic sector in north Adriatic region.



Picture 1. Island of Cres is in the Northern Adriatic region (screenshot: Google Maps)


Picture 2. Island of Cres is in largest island in the Adriatic [405.78 km^2; 3184 inhabitants (2011)] (Screenshot: Google Earth)

Introduction
The production of 'Creska' sweet cherry is concentrated in the island of Cres [Pictures 1 and 2], mainly in its northern part and around the city of Cres. It is an autochthonous variety which, putatively, has long tradition in production, but the production is limited to old producing approach. The production lacks contemporary approaches, and might have great potential for technological improvement. 'Creska' has not even been listed on the last national list of varieties (ZSR, 2009).
The production is low-scale in general, concentrated only in small family gardens limited to few trees intended for in-house consumption rather than for market. There are only few producers who maintain larger orchards for commercial production, but their production is still far from contemporary technological principles. They use rather *in situ* grown rootstock *Prunus mahaleb* grown by chance on the place they find appropriate for new cherry trees [Picture 3 and 4]. It means that some of their orchards are not plantation type, but they might be described as ''a group of scattered trees''.
There are few data on these two varieties, except basic research on their possible synonymy to other varieties as a result of unofficial introduction and their spreading under the local names. RAPD analyses opened speculations that 'Creska' could be a synonym to 'Lambert' or 'Lovranska' (other local variety) (Vokurka et at., 2001), but microsatellite analyses removed these doubts (Duralija, 2004). There has not been any pomological data on 'Creska' sweet cherry before this study. The goal of this research is to prove that the value of 'Creska' has been at least within the limits of other available standard varieties.

Materials and Methods
'Creska' sweet cherry was evaluated in a commercial orchard with 'Bing', 'Stella' and 'Sue' where these varieties were planted according to completely randomized design. The trees were in its 8th and 9th year of growth, and trained by the spindle bush training system.
The evaluation of fruit size, fruit height, fruit width, fruit thickness, length of the leaf petal and soluble solids contents was done during two consecutive years, in 2006 and 2007 on 50 fruits per tree, similar to Vursavuş et al. (2006). The goal of this research was comparison of 'Creska' sweet cherry with varieties existing in this orchard mentioned above.
The data for evaluated traits were analyzed by ANOVA using SAS STAT software 9.1. (SAS Institute, 2002). Determination of significance of differences and ranging within variants was performed by Tukey's test.

References
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Results and Discussion
'Creska' sweet cherry has large and beautiful fruits of the shape of heart [Pictures 5a and 5b]. In the year 2006 [Table 1] its high TSS contents comparable to three other varieties, but did not express any significant difference in any other trait. In 2007 [Table 2] each variety, including 'Creska', had significantly higher TSS content than 'Stella'.

Table 1. Average values for traits observed in comparison of 'Creska 'sweet cherry, Cres, 2006

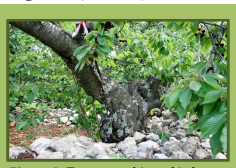
Variety	Fruit thickness (mm)	Fruit width (mm)	Fruit height (mm)	Stalk length (mm)	Fruit weight (g)	TSS (°Brix)
Bing	20.42	23.23	22.06	40.00	6.72	14.63 AB
Creska	21.97	24.77	22.98	49.00	7.99	15.37 A
Stella	21.27	24.63	23.18	40.67	7.77	13.63 B
Sue	21.28	25.13	21.16	33.17	7.50	15.50 A

Table 2. Average values for traits observed in comparison of 'Creska' sweet cherry, Cres, 2007

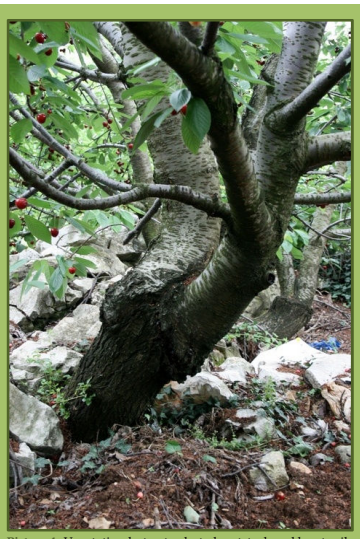
Variety	Fruit thickness (mm)	Fruit width (mm)	Fruit height (mm)	Stalk length (mm)	Fruit weight (g)	TSS (°Brix)
Bing	20.20	22.61	21.73	41.00 A	6.53	14.73 A
Creska	22.68	26.48	23.80	46.25 A	9.13	15.07 A
Stella	19.07	21.22	22.61	41.50 A	5.63	13.67 B
Sue	20.69	24.41	21.12	32.00 B	7.13	15.33 A

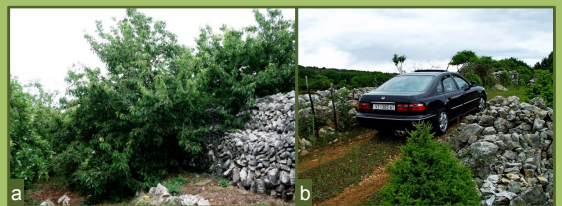
Local popularity of 'Creska' points out that the variety has importance as local cultivar with significant value in terms of traditional etno-botanical use (based on the way of production: karst locality, rich scenery of landscape). It deserves conservation, but also experimentation for new approaches of production. The potential of this variety may be linked with touristic sector where table fruits should become a part of the offer for touristic market. In that way, island of Cres may be known for sweet cherries as important pillar for development of tourism (like wines in Burgundy or beer in Bavaria) and general image of touristic destination. However, the production shall also be enhanced by experimentation with new technologies: rootstocks and growing system. Ecological and/or integral production shall also take an important role, as the climate and karst soil offer good conditions for lower or no use of chemicals.
The total contents of soluble solids and basic fruit parameters points out that, if not better than majority of other varieties included in research, 'Creska' is comparable with them. As a local variety, it shall be included in local production.

Conclusions
Local variety, 'Creska' expresses similar values within the range of other varieties in comparison, for all traits measured. They should be considered as possible choice for new orchards, as their performance in fruit dimensions and TSS contents go side by side with standard varieties in comparison.
'Creska' has also importance as a part of touristic offer. It provides high income for family budget, but added value comes in synergy with touristic offer. Cherry trees have also importance in general maintaining of rural Mediterranean landscape [Pictures 6a and 6b]. Therefore, 'Creska' sweet cherry shall be considered in socioeconomic frame as a basis for local development of rural island population and connection between people, guests (tourists) and environment.


Picture 3. Trees are cultivated in karst soil, grafted at *Prunus mahaleb* grown by chance

Picture 5 a & b. Fruits of 'Creska' sweet cherry (local variety)


Picture 4. Vegetative, but not-selected rootstock and karst soil cause irregular shape of trunk



Picture 6 a & b. The soil is cleaned from large stones which is put aside forming dry stone walls forming characteristic feature of Mediterranean landscape