

SENSORIAL EVALUATION OF 26 Highbush Blueberry Varieties in Romania

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Abstract

Among many blueberry growers and general consumers perception, often are cross-cutting issues. The quality of the fruits depends on many factors such as variety, area where fruits are produced (environmental conditions), ripening and harvest time, producing technology etc. Of course many other influencing factors could intervene during the picking time till consumption of fruits and affects the fruit appearance, firmness, colour or other internal or external parameters. Besides all these reasons, the final consumer has particular demands and preferences which stays at the base of their choices. In 2017, a tasting session with 26 blueberry varieties cultivated in Romania were evaluated by different categories of consumers. Cultivar tested were: 'Coville', 'Chandler', 'Azur', 'Darrow', 'Blueray', 'Legacy', 'Simultan', 'Brigitta', 'Augusta', 'Spartan', 'Vital', 'Pemberton', 'Delicia', 'Reka', 'Toro', 'Berkeley', 'Denise blue', 'Duke', 'Safi'r', 'Lax', 'Hannah's choice', 'Bluecrop', 'Patriot', 'Nelson', 'Bluetta', 'Pink lemonade'. All these varieties were evaluated against fruit size, skin colour, firmness, juiciness, taste and flavor. 'Coville' and 'Chandler' performed better as general total score. 'Chandler' and the Romanian variety 'Augusta' remarked by large fruits and were appreciated accordingly. 'Coville' and 'Blueray' showed good appearance of the skin colour since the most firm fruits were noticed at 'Legacy'. Most tasty and aromatic fruits were scored for 'Coville'.

Key words: *Vaccinium corymbosum L., organoleptic assessment, consumer preferences.*

INTRODUCTION

As many other fruits, blueberries are subject of organoleptic analysis (Polashock J. et al.). General consumers perception is of great interest when it comes to retailers and influences the fresh fruit market. But, even with the latest performing lab equipments (Saftner R. et al., 2008) the consumers preference is still a cross-cutting issue. It was demonstrated that major traits of the varieties that influence the positive perception of fruits quality are the taste, fruit size, color and flavor (Gilbert J.L. et al., 2015). Indeed, the quality of the fruits depends on many factors such as area where fruits are produced (environmental conditions), ripening and harvest time, producing technology etc. Many other influencing factors could intervene during the picking time till consumption of fruits and affects the fruit appearance, firmness, colour or other internal or external parameters. Besides all these reasons, the final consumer has particular demands and preferences which stays at the base of their choices (Yue C. and Wang J., 2017).

Evaluation of blueberries traits is a continuously process required by the breeders, producers and consumers. Many studies were conducted in this regard (Itle R.A. and NeSmith D.S., 2017) trying to emphasize which is the best solution and what varieties are most suitable for a specific regions, countries or consumer preference.

Therefore, the main objective of the present study was to investigate the general consumers preference in Romania for the fresh blueberry fruits since the last 10-15 years, the blueberry consumption increase worldwide very fast.

A subsequent goal was also to decelerate the consumers preference regarding each criteria of assessment. This could be also relevant for the breeders when they decide to release new varieties on the market.

MATERIALS AND METHODS

In July 17, 2017, a tasting session with different 26 blueberry varieties cultivated in Romania (pot crop system), Dambovită county were evaluated by different categories of consumers: students, professors, researchers,

In relation with the fruit size, blueberry varieties ranged between 1.86 at the ‘Pink lemonade’ and 4.68 points at ‘Chandler’ out of the maximum 5 points foreseen in this criteria. For only 0.04 points less, the Romanian variety

‘Augusta’ followed the first variety in the class (Figure 3). Together with ‘Azur’ situated in the third position indicate that national varieties also could be reliable on the international competitive market.

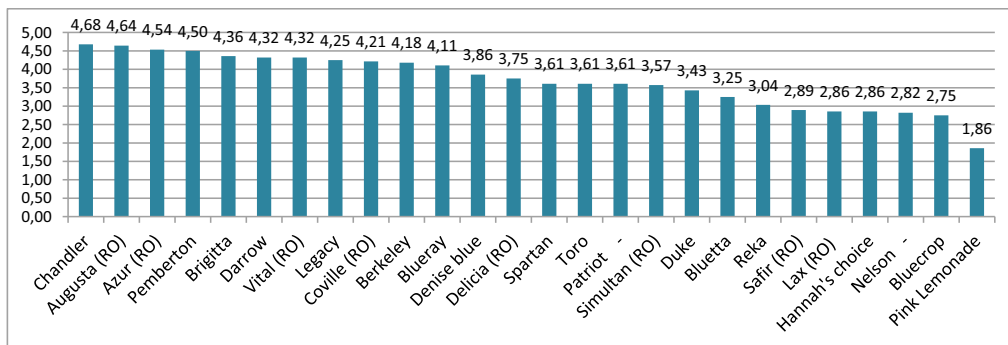


Figure 3. The ranking list of the blueberry varieties according to the fruit size

In the overall appearance perception, the color of the fruits skin is very significant. Thus, a prominent uniform blue of the blueberries skin

is an advantage for the varieties like ‘Coville’, ‘Blueray’ or ‘Safir’ (Figure 4).

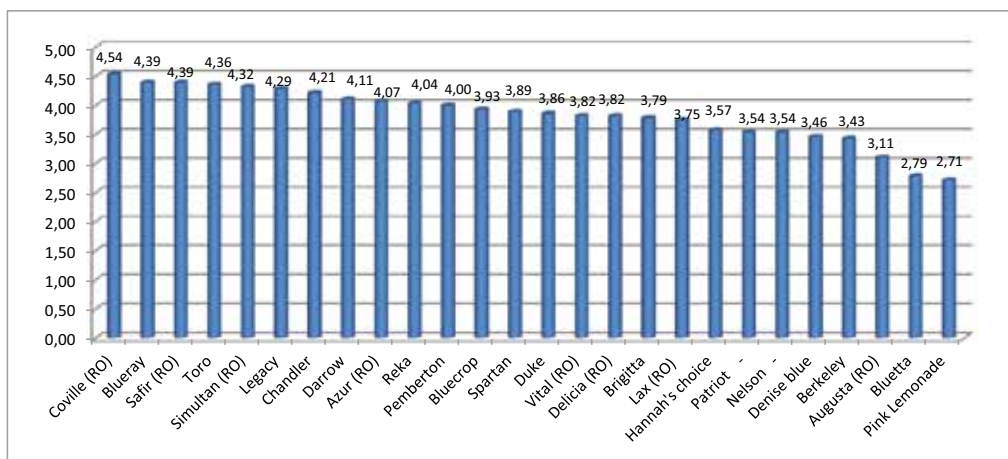


Figure 4. The arch of the blueberry varieties ranked by skin color total scores

The fruits firmness is nowadays, beside the shelf life of the product, more and more desired in the fresh consumption. In this respect we assist at a different rank of the blueberry varieties when it comes to a crispy pulp. In the top of the list, ‘Legacy’ confirms the texture preference of the evaluators and the literature

too (Strik B.C. et al., 2017). ‘Reka’ and the Romanian variety ‘Delicia’ took an upper position in the ranking list, next by ‘Chandler’ and ‘Duke’, varieties that are well known for their firm fruits (Figure 5).

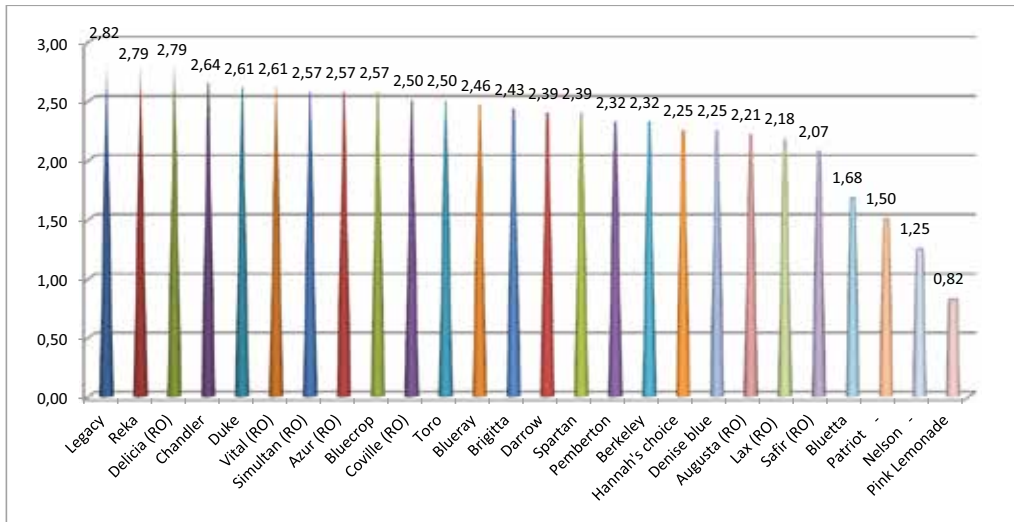


Figure 5. The variability of pulp firmness for the 26 blueberry varieties

The consistence of the fruits is direct influenced by the variety, harvest time, post-harvest storage conditions and many other factors that intervene in the process. Therefore, the values registered by the varieties tested in the same day are in a flesh juiciness stage according to their postharvest evolution. Even

so, it were remarked old varieties like 'Darrow' or 'Brigitta' next by four Romanian blueberry varieties: 'Vital', 'Lax', 'Simultan' and 'Azur'. Except few varieties like 'Toro', 'Nelson', 'Patriot', 'Bluetta' and 'Pink lemonade', all the other varieties did not vary too much in the scores given by the evaluators (Figure 6).

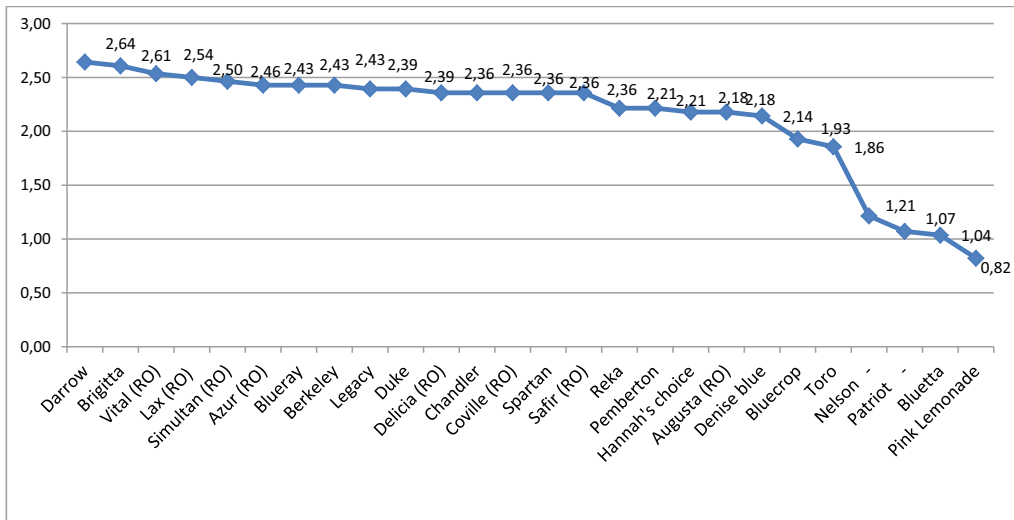


Figure 6. The juiciness spectrum of the 26 blueberry varieties

Taste is immediately after appearance the most important trait of the fruit assessed by the consumer.

It is definitely one of the criteria and reason for the consumer to return and taste again. It represents the path to remember the name of

the variety when the client wants to buy again. In this regard, a special attention was payed by the breeders trying to match the consumer preference. The results obtained in our tasting session restore the performance of an old blueberry variety, famous for taste and medium

It is again remarkable the fact that ‘Coville’ detached in a significant way from the second position also for this item analysed. Another Romanian blueberry variety (‘Simultan’) remains in the top preference of the consumers for the flavor, considered one of this variety major advantage.

CONCLUSIONS

‘Coville’ and ‘Chandler’ varieties performed better as overall total score and taste in the consumers preference range.

‘Chandler’ and the Romanian variety ‘Augusta’ were remarked for their large fruits.

‘Coville’ and ‘Blueray’ showed good appearance of the skin color.

The firmest fruits were noticed at ‘Legacy’ and ‘Reka’.

Most tasty and aromatic fruits were ones from ‘Coville’ and again ‘Augusta’.

High aromatic fruits were positive evaluated at ‘Coville’, ‘Augusta’ and ‘Chandler’.

Evaluation of the blueberry varieties from the consumers preference point of view has to be understood as a dynamic process and must be periodically repeated.

ACKNOWLEDGEMENTS

This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS-UEFISCDI, project number PN-II-RU-TE-2014-4-0749.

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