Comparisons of some parameters of the Ennobled blueberry (*Vaccinium corymbosum* L.) grown at the two locations in Kosovo

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Abstract

Blueberry (*V. corumbosum* L.), Blueberry belongs among the types of fruit with tiny berries. It is very much spread throughout the world while lately due to the high nutritional values and in a specific way, since it contains considerable amounts of vitamin C, less than 25 mg/100g in fresh fruit, anthocyanin, iron etc., less than 0.5 mg/100g in fresh fruit its cultivation is spreading, worldwide and also in our area. Greater cultivation of Blueberries is limited due to the needs of acidity of the soil pH=4.2-4.8. The aim of our two year research (2008-2009), was to confirm the possibility of cultivation for the noble blueberry, at different sea level altitudes in Brezovice (1043 m), and Lluke e Eperme (490 m), and to observe the parameters as: the volume and the ratio between the thickness of the offshoots and fruits size of the sixth cultivars who are mostly spread in the area and in the world: ‘Duke’, ‘Elliott’, ‘Legacy’, ‘Spartan’, ‘Chandler’ and ‘Bluecrop’. Greater volume of the crown has the ‘Bluecrop’ cultivar (1,021 m³), while the smaller volume of the crown has the Elliott cultivar (0.326 m³). Offshoot thickness is at proper ratio with the fruit weight, the thicker offshoots has the Chandler cultivar (0.76 cm) and the average fruit weight (2.41 gr), while the smaller thickness of the offshoots has Elliott cultivar (0.54 cm) with the average size of the fruit (1.64 g).

Key words: blueberry, altitude, fruit yield, vigor

Introduction

For the production activity of blueberry, the leading place in world has the ennobled blueberry with the high crown (*V. corymbosum* L.). In general, cultivars with high crown are created relatively late and so far counted about 60 of them. The purpose of purifying the blueberry is to create cultivars selected for specific environmental conditions (climate, soil), resistant to various pests and diseases, to enter early in harvest and have a regular fruit yield. Fruit ripe at the same time and with the positive properties of fruit (size, quality, yield, color, hardness, taste, large amounts of nutrient etc.). In connection with the land reaction we say that: the light, well ventilated lands with optimum amount of moisture rich in organic matter (humus) 7-10% and pH 4.3 to 4.8 are suitable for the cultivation of blueberries with high crown. A very important impact on it that makes available nutrients in the soil type has a pH value, of which the smaller area can fluctuate and affect many processes of mineralization of organic substances, then this action continues structure land and finally we asorbion of ions and their exchange, Schmid, Andy: Suter, Francisco; Weibel, franco and Daniel, Claudia (2009).

Bluecrop cultivar has a greater vigor (1.11 m) tall, three years after planting (SMOLARZ 2000). These researches are approximate with our research. Eck P. Childers N.F. (1977). As to the thickness of the shoots in relation to the size of the fruit, the said authors conclude that there is a positive correlation between the thickness and mass of fruit shoots.
Material and methods

Our two-year research conducted in Qershizë - Brezovicë at the sea level altitude of 1043 m, in Luka e Eperme, at the sea level altitude of 490 m. As for the research materials, we were served by six ennobled enriched blueberry cultivars, of the *Vaccinium corymbosum* L. who were at the age of two years old. Cultivars that were included in the experiment are: ‘Duke’, ‘Elliott’, ‘Legacy’, ‘Spartan’, ‘Chandler’ and ‘Bluecrop’. Each cultivar was represented with four replications of six plants each. The volume of the bush is measured by the meter while the fruit mass is measured with electronic scales (10 fruits per bush).

In our research included are the following parameters:

1. The volume of the crown, according to cultivars
2. The volume of the crown of the same cultivars, but at different altitude of sea level.
3. The report in the middle of the thickness of shoots and of the fruit size according to cultivars at different altitude of sea level.

Results and discussion

The data from the chart shows so clearly that the greatest volume of Crown owns Bluecrop cultivar (1.021m³), whereas smaller volume of the crown has the cultivar Elliot (0.326m³). From the results above, it can be seen that there are significant differences in terms of the volume of the crown between cultivars, but there are no significant differences in the volume of the crown between two different altitudes of sea level. Bluecrop cultivar has greater growth power (1.11m) high, three years after planting (Smolarz 2000). These researches are approximately related to our research. In volume of crown, a positive impact have particles which affect the preservation of moisture, keeping of vegetation for several days, as well as hindering of the development of weed (visually noted).
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### Table 1. The volume of the crown by cultivars in m³

<table>
<thead>
<tr>
<th>Cultivar (A)</th>
<th>Brezovicië</th>
<th>Llukë e Epërme</th>
<th>Average (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spartan</td>
<td>0.690</td>
<td>0.642</td>
<td>0.666 Ns</td>
</tr>
<tr>
<td>Chandler</td>
<td>0.450</td>
<td>0.425</td>
<td>0.437 Ns</td>
</tr>
<tr>
<td>Bluecrop</td>
<td>1.021**</td>
<td>0.987</td>
<td>1.004 Ns</td>
</tr>
<tr>
<td>Duke</td>
<td>0.500</td>
<td>0.465</td>
<td>0.482 Ns</td>
</tr>
<tr>
<td>Legacy</td>
<td>0.400</td>
<td>0.360</td>
<td>0.380 Ns</td>
</tr>
<tr>
<td>Elliott</td>
<td>0.326**</td>
<td>0.346</td>
<td>0.336 Ns</td>
</tr>
<tr>
<td><strong>Average (B)</strong></td>
<td><strong>0.564 Ns</strong></td>
<td><strong>0.537 Ns</strong></td>
<td></td>
</tr>
</tbody>
</table>

The factors

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>Interaction A x B</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSD 0.01 %</td>
<td>0.538</td>
<td>0.328</td>
<td>0.702</td>
</tr>
<tr>
<td>LSD 0.05 %</td>
<td>0.431</td>
<td>0.263</td>
<td>0.558</td>
</tr>
</tbody>
</table>

Legend: Ns = No significant, * = significant ** = very significant

Regarding the volume of the crown between cultivars at the same altitude of sea level, there are differences of statistical significance of different levels, but there are not seen significant differences between cultivars at different altitudes of sea level respectively Brezovicië (1,043 m) and Luka e Epërme (490 m).

From the data presented in graphical form, clearly shows that the thickness of the shoots is proportionate to the size of the fruit. These data are consistent with the authors (Eck, P. Childers, NF 1977). Greater thickness of shoots possesses the cultivar Chandler, while smaller thickness of shoots possesses the cultivar Elliott.
Conclusions

- The larger volume of the crown it possesses the Bluecrop cultivar (1.021m³), while the smaller volume of the crown has the cultivar Elliot (0.326m³). As a result cultivar Bluecrop is listed as first on the yield and volume of the Crown, therefore the same one is preferred as a leader in orchard cultivars.

- The beginning of the vegetation of blueberries with its higher crown is different depending on agro-climatic conditions of the area concerned and genetic basis of certain cultivars.

- In the vegetation period, cultivars come in the following order: Bluecrop, Chandler, Spartan, Duke, Legacy, Elliot.

- The sea level altitude has an impact on the onset of vegetation, flowering process and fruit ripening, but has no impact on the yield. The average size of fruits has no difference between the cultivars which are planted in Brezovica at the sea level altitude of 1043 m, and Llukë e Epërme at 490 m. From this, we conclude that the altitude factor has no effect on the average size of the fruit.

- Thickness of shoots in relation to the fruit is in a right correlation.

References


