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RESULTS OF VARIETY STUDY OF CORNELIAN CHERRY (*Cornus mas* L.) IN CONDITIONS OF THE WESTERN FOREST STEPPE OF UKRAINE

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Among plant world of Ukraine there are many valuable species of plants that are little or not used at all. Their features and value are widely known, so many of them can be introduced into industrial culture. They include, in particular, cornelian cherry known also as cornel (*Cornus mas* L.) [2].

In the wild, it is found in the undergrowth of deciduous and mixed forests. Cornelian cherry is common in the southwestern part of the Ukrainian Right Bank of Dnipro territories, the Carpathians, Transcarpathia and the Crimea. In the process of cornelian cherry cultivation various breeding forms were obtained. Currently, the main harvest of cornelian cherry in Ukraine is collected in the one and only 14.5 hectares orchard and mostly in natural, not commercial plantations, therefore the gross yield of berries of this culture is not constant, and recently it has significantly decreased [2, 5, 6].

Cornelian cherry in industrial culture is able to bear fruit generously and stably, gives large, juicy fruits, does not require special care, it is suitable for organic production. Cornelian cherry production cycle is unexpensive and very profitable [3-5].

Cornelian cherry is used as a fruit, medicine, technical and decorative plant. Delicious sweet-tart-sour fruits with a wonderful aroma and color are used for food in fresh form, as well as source for processing: in the confectionery, canning industry as a component in production of jam, jelly, juices, extracts, syrups etc. [1, 3].

Cornelian cherry wood is very hard and heavy, has a beautiful natural color and structure is an excellent material for the woodworking industry. In addition, cornelian

cherry is a beautiful early spring honeybush. It is one of the first fruit plants to bloom and is a source of early and valuable bait for bees. It is a valuable ornamental plant as well. Due to its high winter resistance, resistance to dust, gas, smoke, it can be widely used in recreational territories, parks, private backyards [3].

Now cornelian cherry is a forgotten plant that deserves to be restored in culture, and therefore research should be carried out now aiming to establish new commercial plantations. There are very few commercial plantations of cornelian cherry in Ukraine, no commercial nurseries propagate cornelian cherry trees. Wild cornelian cherry resources are unstable, its area, as well as productivity, change under the influence of human activity. Cornelian cherry reserves in nature have greatly decreased lately. The loss of areas can be compensated by replacing wild areas with the establishing of new cultivated plantations [6].

Object of study. The Fruit Plant Department of the Central Botanical Garden of the Ukrainian Academy of Sciences is currently engaged in the restoration of cornelian cherry culture, a collection of various forms and varieties of cornelian cherry was bred, the basis of which was large-fruited forms [2].

Some of the selected varieties and recommended for study in the Western Region of Ukraine were brought to Lviv region in 1997 and planted in collection plantations. Studies were conducted to compare five new varieties of cornelian cherry: Vyshhorodsky, Vydubesky, Lukyanivsky, Evgenia and Elegant. Local forms of cornelian cherry were used as a standard.

The results of the study of different varieties of cornelian cherry in the conditions of the Western Forest Steppe of Ukraine point out that during the years of observation (2000-2020) in the conditions of the Lviv region, no damage to the cornelian cherry by frost was noted even in the most severe winter of 2002-2003, when the temperature dropped to -32°C , no damage was noted to shoots, perennial formations and generative buds of fruit-bearing plants.

The height of the cornelian cherry bushes ranged from 2.3 (Lukyanivskiyi) to 3.3 m (Evgenia). The width of the crown is within 1.5-2.5 m (Table 1).

Unfavorable temperature fluctuations and frosts in April, have almost no negative effect on the flowering of cornelian cherry. In some years, with cold frosty weather, temporary thaws and winds, the flowering period extended for 2-3 weeks. Under favorable conditions, it lasts usually for 7-12 days. The difference in the flowering period of different varieties of cornelian cherry over the years of observation is not significant and ranged by 1-3 days. Vegetative buds began to break on average 10-12 days after the beginning of flowering. The fruits ripening starts from August, in some years at the end of July. The ripening period is extended and lasts for 3-4 weeks.

Table 1

Characteristics of cornelian cherry varieties (average by 2015-2020)

Variety	Bush height, m	Crown width, m	Fruit weight, g	Fruit shape	Crop per bush, kg
Local type (k)	2.8	1.7	2.3	oval	4
Lukyanivskiyi	2.3	1.5	5.4	bottle-shaped	8
Vydubetsky	2.6	2.0	4.4	cylindrical	10

Continuation tab. 1

Variety	Bush height, m	Crown width, m	Fruit weight, g	Fruit shape	Crop per bush, kg
Vyshgorodskiyi	2.6	1.8	3.6	oval	12
Elegant	2.5	2.2	4.3	pear-shaped	11
Eugenia	3.3	2.5	3.5	oval	10

According to the maturing period, all studied varieties of cornelian cherry were divided into very early ones - Evgenia, Vyshhorodskiyi (ripening on 28.07-1.08); early - Vydubetsky (ripening 08.08-08.20); medium - Elegant (ripening on 10-20.08) and late - Lukyanivskiyi (ripening on 20.08). On one tree, the fruits ripen within 25-40 days, on the periphery of the crown they ripen earlier, in the middle - somewhat later and unevenly. Varieties have different fruit shapes: oval in Vyshhorodskiyi, Evgenia varieties and local forms; bottle-shaped in Lukyanivskiyi; cylindrical in Vydubetskyi and pear shaped in Elegant. The weight of fruits over the years of observation ranged from 2.3 g in the local form to 5.4 g in the Lukyanivsky variety. The most large-fruited varieties were Elegant (4.3 g) and Vydubecki (4.4 g). Medium-sized fruits were noted in varieties Evgeniya (3.5 g) and Vyshgorodskiyi (3.6 g).

Almost all cornelian cherry varieties started fruiting in the 3-4th year after planting, except for the local form, which fruited only in the fifth year. The highest yield, over the years of research, was recorded in the Vyshgorodsky variety - 12 kg per bush. Varieties Vydubetskyi, Evgenia and Elegantiy provided a harvest of 10-11 kg per bush, Lukyanivskiyi - 8 kg. The lowest productivity was noted in the local wild-growing form - 4 kg per bush.

Conclusions. Appearing of a new high-yielding cornelian cherry varieties, the high consumer value of the fruits and the versatility of their use in the food and medical industry allows us to hope that in the near future the cornelian cherry will take an appropriate place in commercial plantations, and products of its processing - in the system of rational human nutrition.

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