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THE POTENTIAL FOR SOUR CHERRY ORCHARD VARIETY RENEWAL IN UKRAINE

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The global production of sour cherry (*Prunus cerasus* L.) fruits amounts to approximately 1,1–1,3 million tons annually and reached 1,5 million tons in 2022, according to FAOSTAT data. Ukraine is among the key sour cherry-producing countries – together with Turkey, Poland, and others. In 2022, Ukrainian farms of all categories harvested about 180 thousand tons of fruits [1].

The total area of sour cherry orchards worldwide is estimated at 225 thousand hectares, while in Ukraine (as of 2022) it covers about 20 thousand hectares. Analytical reports predicted that by 2024–2025, global production would remain stable or show a slight increase, approaching 1.6 million tons. However, in Ukraine, a reduction in orchard area has been observed, primarily due to complex socio-economic factors and the ongoing war.

In Ukraine, sour cherry breeding has been carried out at the Institute of Horticulture of the National Academy of Agrarian Sciences of Ukraine (L.S. Reznichenko, N.V. Moiseichenko et al.); at the Melitopol Research Fruit Growing Station named after M.F.Sydorenko (S.P. Kedryn, M.T. Oratovskyi, M.I. Turovtsev, V.O. Turovtseva, A.M. Shkinder-Barmina); at the Bakhmut Research Station (L.I. Taranenko); and at the L.P. Symyrenko Research Station of Pomology (V.P. Laskavyi, V.V. Laskavyi) [2–4].

As a result of long-term breeding work, a number of new sour cherry cultivars have been developed and officially included in the State Register of Plant Varieties of Ukraine. However, the introduction of these cultivars into commercial production remains limited and relatively slow.

In the post-war period, the restoration and development of fruit orchards in Ukraine will require a strategic combination of newly developed domestic cultivars with the adoption of innovative international technologies for cultivation, orchard management, and sustainability improvement.

The renewal of sour cherry (*Prunus cerasus* L.) orchards in Ukraine represents a crucial step toward restoring and modernizing the country's fruit industry. Many existing plantations are characterized by outdated or low-productive cultivars, declining tree health, and reduced economic efficiency. The introduction of new, high-yielding, disease-resistant domestic cultivars – in combination with modern orchard management and planting technologies – offers significant potential for improving productivity, fruit quality, and the overall sustainability of the sector in the coming years.

In order to inform producers of agricultural products, including planting material, about the advantages of new cherry varieties selected by the Melitopol Research Station, we present a brief description of three varieties of cherry origin.

The cherry cultivar *Vidrodzhennia* was developed at the Institute of Irrigated Fruit Growing named after M.F. Sydorenko of the National Academy of Agrarian Sciences of Ukraine (NAAS) from open-pollinated seedlings of the *Zhukovska* variety. Authors of the cultivar: V.O. Turovtseva, M.I. Turovtsev.

The tree is vigorous and fast-growing, with a wide-spreading crown.

Fruits are large, uniform, round, dark red, with an average weight of 6,1 g (Fig. 1). The fruit stem is long—up to 54 mm—of medium thickness, easily detaching from the branch; attachment to the stone is weak. The skin is firm yet easily peeled. The flesh is dark red, tender, and juicy. The juice is dark red. The stone is medium-sized, round, and free.

The taste is sweet and sour, refreshing. The fruits contain 13,3% dry matter, 6,9% sugars, and 0,96% acids. The tasting score of fresh fruits is 4,8 points. Under the conditions of Melitopol, fruits ripen in the third ten-day period of June and are of universal use.

The cultivar is resistant to moniliosis and coccomycosis, as well as drought- and winter-hardy. During a severe winter, when the air temperature dropped to –25,1 °C, the trees showed no freezing damage to wood or shoots, and bud death in flower buds was only 7,0%.

It begins fruiting in the fourth year after planting and rapidly increases yield. Fruiting occurs on bouquet branches and one-year shoots. The average yield at 8 years of age is 32 kg per tree.

The cultivar is self-sterile.

The cultivar passed state testing and was registered in the State Register of Plant Varieties Suitable for Distribution in Ukraine in 2006. It is recommended for cultivation in the Steppe zone of Ukraine.

Fig. 1. Fruits of the *Vidrodzhennia* cherry variety

The cherry cultivar *Griot Melitopolskyi* was developed at the Institute of Irrigated Fruit Growing named after M.F. Sydorenko of the Ukrainian Academy of Agrarian Sciences (UAAS) from a cross between the sour cherry *Samsonivka* and the sweet cherry *Drohanya Zhovta*. Authors of the cultivar: V.O. Turovtseva, M.I. Turovtsev.

The tree is vigorous, reaching 4–5 m in height, and fast-growing. The crown is spherical, slightly drooping, and dense. Fruits are flat-round, large, uniform, dark red, with an average weight of 6,9 g (Fig. 2). The flesh is tender, juicy, and dark red. The juice is dark red. The stone is small, round, and free.

The taste is sweet and sour. Fruits contain 22,1% dry matter, 13,6% sugars, and 1,12% acids. The tasting score is 4.5 points. Under the conditions of Melitopol, fruits ripen on June 20–25 and are of universal use.

The cultivar is resistant to moniliosis and slightly affected by coccomycosis. It has high winter hardiness. During a severe winter, trees withstood temperatures as low as –25,1 °C without visible damage, while flower death reached 56,4%.

Grafted trees begin fruiting in the fourth year after planting. Fruiting occurs on bouquet branches and one-year shoots. The average long-term flowering date is April 28. The average yield at 10 years of age is 25–30 kg per tree.

The cultivar is self-sterile. The best pollinators are *Ozhidanie*, *Vstrecha*, *Griot Podbelskyi*, and sweet cherry cultivars *Vinka* and *Valerii Chkalov*.

The cultivar passed state testing and was registered in the State Register of Plant Varieties Suitable for Distribution in Ukraine in 2002. It is recommended for cultivation in the Steppe zone of Ukraine.

Fig. 2. Fruits of the *Griot Melitopolskyi* (A) and *Solidarnist* (B) cherry variety

The cherry cultivar *Solidarnist* was developed at the Institute of Irrigated Fruit Growing named after M.F. Sydorenko of the National Academy of Agrarian Sciences of Ukraine (NAAS) from open-pollinated seedlings of the sour cherry cultivar *Zhukovska*, which grew surrounded by sweet cherry trees. Authors of the cultivar: V.O. Turovtseva, M.I. Turovtsev.

The tree is vigorous and fast-growing, with a spreading, moderately dense crown. The main fruiting occurs on one-year shoots and bouquet branches.

Fruits are large, weighing 6,5–7,0 g, round in shape (Fig. 2). The fruit apex is rounded. The color is dark red, with barely noticeable subcutaneous dots. The skin is thin and easily removable. The flesh is red, tender, and juicy. The stone is medium-sized, round, free, with an average weight of 0,4 g.

The taste is sweet and sour. The fruits contain 14,9% dry matter, 7,5% sugars, and 1,02% acids. The tasting score of fresh fruits is 4,8 points. Fruits ripen at the end of the third ten-day period of June and are of dessert type.

Trees begin fruiting in the fourth year after planting. The yield of a 10-year-old tree is 43 kg.

The cultivar is resistant to coccomycosis and moniliosis and is characterized by high drought and winter hardiness.

The cultivar is self-sterile.

The cultivar passed state testing and was registered in the State Register of Plant Varieties Suitable for Distribution in Ukraine in 2005. It is recommended for cultivation in the Steppe zone of Ukraine.

Conclusions. The introduction of new cherry varieties into industrial plantations will allow for stable, high-quality harvests.

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