

THE IMPACT OF THE CROWN SHAPE ON THE GROWTH AND FRUCTIFICATION OF CHERRY TREE VARIETIES GROWN IN AN INTENSIVE SYSTEM

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In the Republic of Moldova, new varieties of cherry trees grafted on semi dwarfing rootstocks (Gisela 5, Krymsk 6), moderate vigor rootstocks (MaxMa 14, Piku 1, Piku 4) and semi vigorous rootstocks (Gisela 6, PHL-C, Krymsk 6) are cultivated. Dwarfing rootstocks have made it possible to grow high density orchards of small trees, which are more productive and develop earlier. Fertile well-irrigated soils are used to grow trees grafted on the above-mentioned rootstocks. Medium-sized trees, which can be fully tended from the ground, provide early average yield of fruit and reduce fruit harvesting costs by increasing the harvesting productivity. Since the use of dwarfing (Gisela 5, Krymsk 6), moderate vigour (MaxMa Delbard 14, Piku 1, Piku 4) and semi vigorous (Gisela 6, P HL-C, Krymsk 6) rootstocks, the need has arisen to use small crown trees as well. As the result of this fact, the impact of the crown shape on the productivity of the Early Star, Samba and Black Star varieties, grafted on Gisela 6 was studied.

The aim of the research was to increase the productivity of sweet cherry orchards by identifying highly productive crown shapes for the Early Star, Samba and Black Star varieties, grafted on Gisela 6, suitable for the Republic of Moldova. The researches were carried out in the central orcharding area of the Republic of Moldova, at the StarAgroGroop Ltd., between the years 2018-2021. The impact of the crown shape on the growth and fructification of the Early Star, Samba and Black Star cherry tree varieties, grafted on the rootstock Gisela 6, was studied. The trees were established in 2015. The orchard had a planting density of 1250 trees/ha. The crowns of the trees were of improved thin spindle shape, and of Cup and Kym Green Bush shape. The orchard was irrigated using the drip irrigation system and fertilized using foliar applications of urea and microelements to fruit trees. The soil on the rows of trees was artificial grassed and treated with herbicides. The weeds on the two-meter-wide strips of land between the rows were mowed down as needed and left as mulch.

The fruit yield varied greatly depending on the late spring frosts during the opening of the buds and the flowering of the cherry trees, the variety and the shape of the crown. In 2019, the Samba variety cherry trees produced the best crop, namely 16.8 t/ha, by 56.4-139.9 % larger than the Early Star and Samba varieties. In 2020, the Black Star variety produced a rich harvest of 10.3 t/ha, which was 111.4-151.4% larger than the Early Star and Samba varieties. In 2021, the Samba variety stood out with the highest harvest (10.3-16.2 t/ha) followed by the Early Star variety (7.7-9.4 t/ha) and Black Star (3.7-5.5 t/ha). The highest yield on average over three years was obtained from the trees with improved thin spindle crowns as compared to the cupped and Kim Green Bush crowned trees. In the first four years of their fruiting, the fruit harvest in the Samba variety was significantly higher as opposed to the Early Star and Black Star varieties.

Keywords: variety, productivity, sweet cherry, orchard, growth.