

THE BEHAVIOUR OF DIFFERENT ROOTSTOCK BIOTYPES FROM THE GENEVA GROUP DURING THE GROWTH AND FRUIT-BEARING PERIOD IN THE APPLE PLANTATION

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In the last 20 years, sustainable fruit growing has seen major changes in the implementation of new rootstocks from the Geneva group, characterized by stable growth, high, constant and quality yields, wide branch insertion angles, resistance to replanting diseases and insect infestation.

To study the behavior of trees of the Gala Nikangie variety grafted on M9, G11, G41 rootstocks and the Fuji King Grofn variety on the G11 biotype, on a replanted plot in the northern part of the country, an experiment was set up to analyze the development of variety/rootstock associations under the influence of the phenomenon of “soil fatigue”. Planting distance 3.5 x 0.8 m.

The height of the trees during 2023 depending on the variety/rootstock association studied recorded values from 233 cm (Gala Nikangie/G11) to 348 cm (Fuji King Grofn/G11). The Gala Nikangie/M9 and Gala Nikangie/G41 associations had average tree height, constituting 251 and, respectively, 272 cm. A smaller crown width was obtained in the trees from the Gala Nikangie/M9 association – 112 cm, compared to Gala Nikangie/G11 (123 cm) and Gala Nikangie/G41 (126 cm). The Fuji King Grofn variety on the G11 biotype recorded an increase in crown width by 43.1 % compared to Gala Nikangie/G11.

The trunk circumference length in the associations studied ranged from 9.1 cm to 11.2 cm. The trees in the Fuji King Grofn/G11 association recorded a higher value of this index (11.2 cm), being 23 % more developed tree trunks compared to those in the control variant (Gala Nikangie/M9). The Gala Nikangie/G41 association recorded an increase of 18.6 % compared to the control variant, and Gala Nikangie/G11 had an insignificant increase, constituting 4.4 %.

The vegetative macrostructure of apple trees is correlated with the variety/rootstock association, a higher value being obtained in the Fuji King Grofn variety with the G11 rootstock (3814 cm), recording an increase of 278.1 % compared to the control variant, which recorded a total branch length of 1371 cm/tree. The Gala

Nikangie/G11 and Gala Nikangie/G41 associations recorded average values of 1683 cm/tree and 1752 cm/tree, respectively.

The number of fruits tied in the crown of the trees in the second year after planting the orchard varied from 13 pcs. (Fuji King Grofn/G11) to 31 pcs. (Gala Nikangie/G11). The associations Gala Nikangie/M9, and Gala Nikangie/G41, formed an average number of fruits, i.e. 20 and, respectively, 24 pcs/tree.

The average weight of a fruit varied insignificantly in the Gala Nikangie variety grafted on the G11, G41 and G41 biotypes, constituting 168 g, 171 g and, respectively, 180 g. The biological peculiarities of the variety influenced the value of the studied index, registering an increase of 30.4% for the Fuji King Grofn variety compared to Gala Nikangie, both grafted on the G11 rootstock.

Fruit production per unit area for the associations taken into the research was 10.4-18.9 t/ha. The association Gala Nikangie/G11 (18.9 t/ha) had a more pronounced influence on fruit production, followed by Gala Nikangie/G41 (15.4 t/ha), Gala Nikangie/M9 (12.0 t/ha) and Fuji King Grofn/G11 (10.4 t/ha) was in last place.

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