

фенологічного календаря. У зв'язку з інтенсивним розвитком хвороби та її високою токсичністю, навіть на фоні передових агротехнічних практик на плодкових культурах, слід застосовувати дозволені фунгіциди відповідно до вимог щодо способу, часу та строків останньої обробки.

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FORMATION OF PRODUCTIVITY OF APPLE TREES DEPENDING ON THE METHOD AND TIME OF CROWN PRUNING

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Analysis of recent research and publications. To offset this problem, small-sized narrow crowns should be used, which can increase the biological potential of fruit plants as a result of better illumination of the middle of the crown [1]. According to the research of Breen, K.C., the highest level of illumination as a result of the correct choice of crown shape is a key factor for achieving maximum yield and fruit quality [2]. The formation of a certain crown shape and its subsequent pruning, in particular in the summer, contributes to the formation of a certain crown architecture, which facilitates technological care for it and creates maximum conditions for the best

possible absorption of light by all its parts [3].

Better light penetration into the crown and its uniform illumination of all its parts improves not only the yield level but also the quality of the fruit [4].

Removing weak shoots as a result of summer pruning, which are characterized by high respiration rates, has a positive effect on the subsequent leaf-to-fruit ratio and carbohydrate distribution within the plant [5].

Research methodology. The study of the influence of crown formation methods and the timing of their pruning on the formation of apple productivity began in the spring of 2019 in the experimental garden of the Uman National University of Horticulture. The orchard was established in the spring of 2015 with Fuji and Honey Crisp varieties grafted on M.9 dwarf rootstocks. The planting scheme of the studied trees in the orchard is 4x1 m, the soil type is black soil soddy podzolic. The system of soil maintenance in the aisles is sod-humus, in the trunk strips - herbicide fallow.

In general, the weather and climatic conditions during the study were typical for the region.

The influence of two factors was studied: three crown shapes and two pruning dates. The studied trees were pruned in two terms: in winter (0 BBSN) and twice during the growing season: in winter and summer after the June ovary shedding (II decade of June, 74 BBSN), forming a crown: slender spindle, ballerina (with the removal of overgrown wood on the central conductor, in the zone 25 cm above the tier of semi-split branches) and French axis.

Phytometric records were made according to generally accepted recommendations and research methods by Kondratenko P.V., Bublyk M.O. [6]. The number of flowers and ovaries was determined by counting them on each accounting tree. The level of useful ovary as the ratio of the number of ovaries formed after flowering to the number of ovaries left after their June shedding.

Research results. During the experiment, the number of flowers, due to the increase in the age of plantations and the influence of crown formation, increased annually, which provided an increase in the value of the indicator by 28% and the maximum level of which was reached in 2021 and 2022 at 655 pieces per tree (10% factor influence).

On average, the number of flowers prevailed in the Fuji variety by 17% compared to the Honeoye Crisp variety.

Investigating the influence of different crown shapes and terms of their pruning on the formation of productivity of apple trees of Fuji and Honey Crisp varieties, a general trend was established for both studied varieties to significantly reduce the values of the number of flowers in the results of crown formation of the French axis - the influence of the factor 59%, which is confirmed by the results of statistical data processing ($p = 0.05$).

Forming the crown of the ballerina, in particular by pruning it twice during the growing season in winter and summer, contributes to an increase in the number of flowers of both studied varieties. In the Fuji plantation, the formation of the ballerina crown in winter and summer contributed to an increase in the number of flowers by 14%, which is 107 pieces per tree, and by 15% (94 pieces per tree), respectively, in the

Honeye Chris trees. A positive effect on the increase in the values of the indicator was caused by the introduction of additional summer crown pruning by 8% compared to winter pruning.

The value of the number of ovaries significantly depended on the year of the study (influence of the factor 6%) and gradually increased over the years of the experiment with an average value of 66 pieces per tree in the year of the experiment, up to 78 pieces per tree in 2022, which is an increase of 18%. Due to the formation of more flowers in the Fuji trees, more ovaries were also observed, on average 10% more compared to the Honeye Crisp trees.

In the trees of both studied varieties, the number of ovaries in the formation of the crown of the French axis was significantly inferior to the other studied variants. However, the formation of the ballerina crown provided the maximum value of the studied indicator at the level of 97 pieces per tree in Fuji trees and 84 pieces per tree in Honey Crisp. Also, a positive effect on the number of ovaries in the plantations of both studied varieties was caused by the introduction of additional summer pruning, which increased the number of ovaries in the experiment by 10%.

The level of useful ovary slightly differed among the variants of the experiment with the predominance of the value of the indicator as a result of the formation of the crown of the French axis (the influence of the factor 6%), but no statistically significant difference within the indicator was found. Also, a significant influence of 13.8% on the change in the values of the indicator of the level of useful ovary was found by the joint action of the factors "year of research" and "crown shape".

The value of the control variant, in the formation of the crown of the slender spindle of the Fuji variety, was marked by the lowest useful ovary among other variants of the experiment at the level of 11.9%. A significant difference in the level of useful ovary in the general experiment depending on the term of crown pruning was not found.

The level of useful ovary is inversely correlated with the crown diameter, crown volume, number of flowers and number of fruits.

Conclusions. According to the results of the study of the influence of crown shape and the term of their pruning in the conditions of the Right-Bank Forest-Steppe of Ukraine, a significant influence of the studied factors on the formation of productivity of apple trees of Fuji and Honey Crisp varieties was established. The number of flowers and the number of ovaries prevails in the trees of Fuji variety. There was also a significant influence of the factor "crown shape" at the level of 59% on the number of flowers and 69% on the number of ovaries, which ensured the obtaining of significantly higher indicators as a result of the formation of the ballerina crown. No significant effect on the value of the level of useful ovary was found among the study variants.

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