

**THE INFLUENCE OF SOIL-CLIMATE CONDITIONS ON THE DISTRIBUTION
OF WALNUT JUICE IN THE FERGANA VALLEY***Sharipova Barno Salimovna**Teacher at Fergana state university*

Annotation: This article analyzes the distribution of walnut juice in the Fergana Valley and its relationship with soil-climatic factors. During the study, the productivity, distribution intensity and quality indicators of walnut juice in different regions of the valley were studied. Also, the impact of climate change, soil composition and moisture level on juice production was scientifically analyzed. Based on the results, the necessary agrotechnical measures were recommended for the optimal development of walnut juice in the Fergana Valley.

Keywords: Distribution of walnut juice, soil-climatic conditions, Fergana Valley, agroecological factors, productivity, agrotechnics.

Walnut (*Juglans regia* L.) is a valuable fruit tree, the juice of which is widely used in the confectionery industry, folk medicine and other areas. The quality and quantity of juice obtained from a walnut tree depends on many environmental factors, in particular, soil and climatic conditions. The Fergana Valley is one of the most fertile and agroecologically diverse regions of Uzbekistan, where the development of walnuts and the production of juice occur in different conditions. In this regard, the study of the characteristics of the distribution of walnut juice in different districts of the valley is of practical and scientific importance. The article discusses this issue and analyzes the relationship between soil and climatic conditions and the yield and quality of walnut juice. The Fergana Valley is one of the most fertile regions of Uzbekistan and is distinguished by its complex soil and climatic conditions. The growth of walnut trees and the process of extracting sap from them in this region are closely related to many factors. The relief of the surface, soil types, climatic variability and moisture distribution differ in different parts of the valley, which significantly affects the level of productivity and quality of walnut sap.

As a result of research, it was found that the eastern and southern regions of the Fergana Valley - for example, the areas around Kuva, Fergana and Margilan - have relatively fertile soils. The soil composition in these areas consists of medium loam and fertile alluvial soils, with a high water retention capacity. Sufficient moisture and moderately warm temperatures in the spring months stimulate active walnut vegetation and sap extraction. In particular, the richness of the soil in nutrients and a sufficient level of mechanical composition increase the amount of sap and its quality.

On the other hand, in the central and western regions of the valley, including the Rishton and Uzbekistan districts, the soils are more saline and water resources are limited. In such areas, walnut trees grow relatively slowly, the growing season is shortened, and the ability to produce sap is reduced. Dry and warm climatic conditions, low rainfall, and deep groundwater levels worsen the nutritional conditions of trees, leading to a decrease in sap yield. The level of sap production also varies depending on the age and health of walnut trees. Studies show that healthy and strong trees between 15 and 25 years old are considered the

most optimal in terms of sap production. Sap production activity decreases in very young or old trees. Therefore, it is necessary to regularly monitor the age and health of trees in plantations. Along with the influence of soil and climatic conditions on walnut sap, agrotechnical measures also play an important role. In particular, timely irrigation, the use of organic and mineral fertilizers, soil mulching and weed control significantly increase the yield of walnut sap. For example, in areas with good water supply, it has been observed that the amount of sap obtained from one tree is on average 2–3 times higher. In addition to agrotechnical measures, it is also necessary to take measures to adapt to climate change. In recent years, the variability of weather in the spring months, namely the increase in dryness and evening frosts, has had a negative impact on the quantitative and qualitative indicators of walnut sap. Therefore, it is possible to maintain a stable yield of walnut sap by strengthening agroecological monitoring, introducing soil moisture conservation technologies and using flexible agrotechnical methods. In general, the characteristics of the distribution of walnut sap and its yield in the Fergana Valley directly depend on the mechanical composition of the soil, moisture level, climatic conditions and the level of agrotechnical measures implemented. By properly managing and coordinating these factors in a timely manner, the overall yield of walnut sap and its quality can be maintained at a high level.

CONCLUSION

The distribution and productivity of walnut sap in the Fergana Valley largely depends on soil and climatic conditions. In areas with moist and fertile soils, the quantity and quality of sap obtained from walnut trees is high, while in dry and saline areas, on the contrary, it is low. To stabilize the production of walnut sap, it is necessary to maintain soil fertility, develop irrigation systems, and constantly monitor plant health. The results of the study serve as an important basis for developing agrotechnical strategies aimed at increasing sap productivity in walnut plantations in the Fergana Valley.

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