



IMPORTANT AGROTECHNICAL MEASURES CARRIED OUT IN ORCHARDS AFTER THE VEGETATION PERIOD

To'raqulov Mamaraim

Aynaqulov Komiljon Baxtiyor o'g'li

Ergashov Azizbek Ilashboy o'g'li

Gulistan State University

<https://www.doi.org/10.5281/zenodo.10369580>

ARTICLE INFO

Received: 06th December 2023

Accepted: 12th December 2023

Online: 13th December 2023

KEY WORDS

Autumn, winter, fruit
fertilization, irrigation,
agrotechnics, soil structure,
fertility, plowing, rest period,
horticulture, viticulture.

ABSTRACT

The article discusses the procedure and importance of the most important agrotechnical measures to be carried out in fruit orchards during the autumn-winter season. The implementation of agrotechnical activities is explained based on the heritage gained on the basis of observations and tests in folk horticulture and the conclusions of ongoing scientific research. Detailed scientific and practical information on the sequence of agrotechnical measures, implementation technologies, and importance of fruit orchards in the autumn and winter season. Among the autumn-winter agrotechnical activities, the issue of irrigation of land in gardens and its necessity is highlighted separately. The important conclusions and proposals related to the work are presented.

Organic and Global G.A.P. In order to fully use the opportunities of developing product production, ordering and coordination systems in accordance with the requirements of international standards, improving the quality and safety indicators of horticultural products, and further expanding the export geography, it is recommended to form cooperation between farmers, farmers, farms and fruit-viticulture clusters in a scientifically based manner. [1,2].

In order to obtain high-quality crops from orchards, the geographical location of our country is divided into agro-regions with favorable soil and climate suitable for different types of fruit. The formation of fruit growing and viticulture in Central Asia has a centuries-old history of development, and an excellent system of agrotechnical maintenance measures has been created. Each method of care in fruit viticulture requires a different approach depending on the seasons of the year and the months of the farmer's schedule.

Research object and applied methods

In fact, we focus more on the care of orchards during the growing season, from early spring bud break to late fall leaf fall. But in the rest period in the gardens, from late autumn to early spring when buds begin to wake up, that is, in the autumn-winter season, special agrotechnical measures are carried out, no less than in the growing season. With the arrival of autumn, almost all the crops in the gardens are harvested until the cold days. Autumn events mainly start from the benchmark month (21.09-21.10). In this month, fruit orchards, where



all crops except vines and pomegranates have been harvested, are irrigated with standard water [3, 4]. At this point, it can be said about the specific aspects of the Mezon month that at the beginning of the month, the equinox of day and night occurs, the temperature of the day gradually decreases, and the night becomes significantly cooler. The most characteristic is that in the early morning, when the air humidity increases, thick dew falls on the earth's surface. This softens the soil in the surface layer and increases water absorption. Due to the relative softening of the surface layer of the soil, the standard water easily penetrates into the soil, saturates the area where the root is located with sufficient moisture and further softens the soil. Roots actively develop in such a favorable soil environment created by irrigation. It is known from the observations of Mirishkor gardeners and the results of their scientific research that the leaves and flower buds of fruit trees watered in the month of Mezon are significantly larger than those of unwatered trees. The native farmers highly valued the standard water and eagerly waited for rain even once in this month [5, 6].

The obtained results and their analysis

It is known that in the dry hot environment of the summer season, the soil hardened due to lack of water begins to soften as soon as it is saturated with moisture. We can clearly observe this softening of the earth at the end of October and the second half of November. By this time, the fall of leaves in the gardens, that is, the autumn season, begins to end. Such a sight in nature means that it is time to turn the earth with a shovel in the fall plowing fields and fields. Plowing is the most important agrotechnical activity carried out in the autumn season. Before plowing, 30-40 tons of local, 200-250 kg of phosphorus and 40 kg of potash fertilizers will be applied to the land of seed orchards, which will have a more effective effect on the development of fruit trees. In this case, manure restores and stabilizes the soil structure. Phosphorous fertilizers provide soil softness and graininess, while potassium fertilizers further reduce the shedding of fruit elements. Leaves, weeds, and intercrop residues left by plowing remain under the overturned soil layer and easily rot completely by spring and become local fertilizer, enriching the soil composition. In fact, in order for the trees to grow and ripen their fruits during the annual vegetation period, most of the minerals taken from the soil are replaced by the rotting leaves that fall on the ground in the fall, and soil fertility is restored. It should never be allowed to collect and burn leaves and herbs. On the contrary, we should turn it into local fertilizer by rotting it here. According to the results of the conducted research, it was determined that up to 70% of leaves and grasses turn into pure humus when rotted [7, 8, 9].

The density of the plowed, softened soil layer and the unsoftened soil layer is sharply different from each other, and the layers are isolated from each other, and the heat coming from the subsoil layer is reduced to a certain extent by the plowed and air-saturated layer. The thermal difference in such layers leads to the sharp freezing of the upper layer in the bitter cold of winter and provides a complete winter rest period in the soil. The condition of the soil, which spent the rest period frozen, is significantly strengthened, the roots of perennial weeds freeze to death, the soil becomes easy and soft in the spring, creating favorable soil conditions for further cultivation.



Trees that have dried up in gardens, are irreparably diseased, and must be removed in order to thin out the garden, are cut down and their lower parts are dug up and removed from the garden area.

Vines, pomegranates, figs, etc., which are saved from the winter cold by burial, should be buried between the second half of October and the first half of November, depending on the area where they are located. Burying vines and figs with leaves on their branches causes very little damage to the buds, most importantly preventing branch rot from moisture in the soil from early spring rains [10]. Pomegranate and fig bushes are less resistant to cold compared to vines, so it is necessary to bury pomegranate and fig bushes with grass, mud and soil without leaving a gap for the cold wind to enter, and one-year branches of the vine should be buried completely under the soil. The relationship of the vine to fertilizer and water is special, and mainly fertilizing with local fertilizers in the furrows in the fall, watering at least 4-5 times in the autumn and especially in the winter chilla gives very good results. When fertilizing and watering are organized in this way, mineral-enriched water saturates the soil throughout the root zone. In such a soil-water environment, it is possible to grow high-quality grapes without watering the vine even once between February and November. In some cases, light watering in July is possible depending on the amount of winter irrigation and the lack of spring in hot and dry summer [11, 12, 13].

The end of the autumn month, i.e., in the farmers' calendar (from November 19 to December 18), the month of Sagittarius, with its bitter frosts and rains, connects autumn to winter. In the month of moderate spring, the surface of the land, the pond water should freeze and cover the fields with thick snow. Sagittarius is an important month in horticulture where the most important autumn-winter activities are carried out. By this time, the temperature of the air and the surface of the earth cools sharply, and the absorption of irrigation water into the earth becomes more active. At this time, responsible gardeners definitely water gardens and vineyards, as well as plowed spring crops [3, 13]. Gardens and vineyards flooded with spring water are resistant to summer water shortages, and fruits and grapes have a unique appearance. In autumn and winter chill, that is, until the end of January, the absorption of water into the ground is very high. This irrigation is also called winter watering. In the main late autumn-winter season, underground organs of trees, i.e. roots, actively develop and form in an environment with sufficient moisture and nutrients. By irrigating the lands with saline soil, the soil salt in the upper layer is washed down with water to the deep layers [14, 15, 16]. As a result, the alkaline environment and fertility of the soil in the upper layer are moderated.

From what we mentioned above, it can be seen that the most important autumn-winter agrotechnical event in horticulture is the implementation of fertilization and irrigation at the level of demand. We often conclude that the physiological process stops in fruit trees and seedlings during winter dormancy. In fact, it is not so, the observations and scientific studies show that the roots of trees develop more actively in the autumn-winter season. It was observed that the trunk of the tree, branches, and branches thickened and grew a little, and the buds gradually grew larger. We can clearly witness such changes in gardens with sufficient fertilization, softened soil and frequent watering in autumn [17]. We witnessed the consequences of drought sometimes in spring and summer. In fact, the consequences of droughts that occur in autumn and winter, like spring droughts, are no less. The negative



impact of autumn-winter drought can be eliminated only by adequate watering in autumn-winter. It is not advisable to cut and shape fruit trees during autumn and bitter winter. Excluding cutting and burial of vines. At the end of the winter season, which is from the second half of February to Nowruz, any irrigation should be stopped. This situation is explained by the fact that during this period, the temperature of the surface of the earth and the external environment become the same, and the irrigation water does not soak into the ground. Irrigation water unnecessarily compacts the soil and destroys its structure. As a result, the graininess of the soil is lost, the occurrence of lumps in the subsequent treatments increases, and it has a negative effect on the quality and weight of the harvest in the orchards.

Conclusions

1. When planting orchards, it is necessary to take into account the influence of soil-climate conditions and external natural factors.
2. Regular implementation of seasonal agrotechnical activities in horticulture on time and at the level of demand is the main factor for growing fruit products that meet the norms of high quality international standards.
3. Paying special attention to irrigation in the autumn-winter season of orchard care is considered one of the main criteria for healthy development of fruit trees and quality harvest during the growing season.
4. Implementation of seasonal agrotechnical activities in fruit orchards in accordance with the established time and agrotechnical requirements ensures healthy and stable ecology of orchards.
5. To achieve high productivity in horticulture, the implementation of all agrotechnical activities in the export of fruit products should be carried out according to international Organic and Global G.A.P. it will be necessary to focus on the production of products at the level of indicators set in the requirements of quality certificates.

References:

1. Decree of the President of the Republic of Uzbekistan No. PD 5995 of May 18, 2020 "On additional measures to ensure compliance of quality and safety indicators of agricultural products with international standards." - www.lex.uz.
2. Resolution of the President of the Republic of Uzbekistan dated December 11, 2019 "On measures for further development of the fruit and vegetable and viticulture sector, the creation of a value chain in the industry" Resolution PS 4549 - www.lex.uz.
3. Narzikulov A. Farmer gardener and rancher breed. -Tashkent "Mehnat" 1991.- 62 p.
4. R.Abdullaev, H. Abdullaeva "Agricultural hotspot for gardeners and entrepreneurs" Uzbekistan Agricultural Journal. - Tashkent. 2020 y. 8-number P 12-14 .
5. Tursunov L. Pochvennye ucloviya oroshaemyx zemel zapadnoy chasti Uzbekistana. - Tashkent: "Fan", 1981. -147 p.
6. G. Murtazaeva. "Agrotechnologies for intercropping". Agro-science, Tashkent. , 2021 y. 4 number, P 18-21.
7. Kamshilov N.A. Prakticheskie sovety po sadovodstvu. -Moscow "Kolos" 1971. - 303 p.



8. R.Abdullaev, H.Abdullaeva "Carrying out agro-technical measures in gardens and vineyards is in full swing". Agricultural Journal of Uzbekistan. -Tashkent. 2020 y. Number 5. P 12-14.
9. K. Mirzajanov, A. Mannonova. Agronomicheskie osnovy vysokogo urojava. -Tashkent, 1986 154 p.
10. M. To'raqulov, G. M. Mirsharipova, I.R. Rakhmonov "Syrdarya anorchilik" methodical manual Gulistan.-2017 - 32 p.
11. Ostanakulov TE, Narzieva S.H., Basics of fruit growing. -Tashkent; 2010. 317 p.
12. Razumov A. Vinograda: vyrashchivanie i pererabotka v domashnix usloviyax Tashkent "Uzbekistan". 1987. 246 p.
13. Temurov Sh. Viticulture. - Tashkent. 2002. 207 p.
14. Gorbunov. Orashаемые почвы Sredney Azii. -Moscow: science. 1965. 296 p.
15. Volobuev V.P. Promyvka zasolennix pochv. Baku: Azerneshar, 1998. 132 p.
16. S.S. Xamraev, X. Artykbaeva, S.A. Azimbaev, K.S. Akhmedov. Accumulation and extraction of salt in ostrostrukturnyx pochv. Tashkent izd. "Fan"; 1984. 126 p.
17. F. Hasanova, I.Karabaeva, Z.Shavkatova "Influence of different tillage on soil water permeability". Agricultural Journal of Uzbekistan. - Tashkent. 2020 11-number 2020 y. P 38-40.
18. Turakulov M. et al. Results of laboratory research on the movement of soil with a rotary working body from the area of the shelter roll vineyard //IOP Conference Series: Earth and Environmental Science. – IOP Publishing, 2022. – Т. 1076. – №. 1. – С. 012070.
19. Туракулов М. А. и др. ҲАЛҚ СЕЛЕКСИЯСИДА ТАНЛАНГАН НОЁБ НАМУНАЛАРНИ САҚЛАБ ҚОЛИШ ВА КЎПАЙТИРИШНИНГ АҲАМИЯТИ //Academic research in educational sciences. – 2022. – Т. 3. – №. Speical Issue 1. – С. 250-253.
20. Turakulov M., Ermatov V. Justification scheme installation of a rotary working body for opening grape bushes //IOP Conference Series: Materials Science and Engineering. – IOP Publishing, 2020. – Т. 883. – №. 1. – С. 012131.
21. Turakulov, M. A., Axmedov, A. U., Ermatov, V. A., Xolboeva, S. B., & Aynakulov, K. B. (2019). JUSTIFICATION OF THE KINEMATIC MODE OF ROTATION WORKING BODY. Bulletin of Gulistan State University, 2019(1), 18-22.
22. Khujakulov F. et al. The Dependence of Grape Feeding on the Productivity Indicator and Harvest Quality of Rizamat and Large Dry Varieties //Journal of Advanced Zoology. – 2023. – Т. 44. – №. S2. – С. 1970-1977.
23. Turakulov, M., Ermatov, V. A., & Raxmatullaev, R. Q. (2018). SUBSTANTIATION OF THE LAYOUT OF THE WORKING BODIES OF THE CULTIVATOR FOR LEVELING THE SURFACE OF THE ROW SPACING BEFORE HARVESTING RAW COTTON. Bulletin of Gulistan State University, 2018(2), 61-65.