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Effects Of Rejuvenating and Regular Pruning Methods and Levels on Growth, Productivity and Crop Quality in Apple Trees in the Soil-Climatic Conditions of the Bukhara Oasis

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ABSTRACT

This article provides information about the effect of cutting on the upper part of the tree trunk is directly related to its level and method of cutting, variety characteristics, soil-climatic conditions and resource-saving maintenance levels. In trees that have lost the ability to grow, along with periodic yielding phenomena characteristic of them, there is a decrease in winter resistance compared to normal productive years.

Keywords:

agricultural sector, productivity, saline soil, yielding, indicators

In Uzbekistan, the area of fruit orchards with intensive seeding, including slow-medium growing grafts, is considered to be one of the most important, highly profitable, and unique areas of the agricultural sector, the area of yielding varieties is increasing.

Today, together with the production of abundant and high-quality crops from intensive apple orchards, it is required that the established fruit orchards be brought into harvest in 2-3 years after they are transferred to the cold field. In intensive orchards, when medium-slow-growing, small-sized, constantly abundant and high-quality yielding varieties are collected in trees, and a set of high-quality and high-quality agrotechnical measures are applied to them, 30-35 t/ha is higher. an opportunity to obtain a quality harvest is created.

In Uzbekistan and foreign countries, a number of studies on methods and levels of cutting excess branches of apple trees, variety-grafting combinations, and the effect of seedling

thickness on growth and productivity have been carried out. Based on the study of the effect of intensive cultivars on the characteristics of the cultivars in climatic conditions, various data were obtained and, in turn, appropriate scientific recommendations were given in each condition. However, it should be noted that the research conducted in this regard does not give an opportunity to fully reveal the biological characteristics of intensive apple varieties, the ability of branches to bear fruit, the influence and advantages of resource-saving technology. (5), (6), (7).

Material and methodology.

The purpose of the experiment. In the soil-climatic conditions of the Bukhara region, regionalized regionalized apple varieties in Uzbekistan, by determining cyclically rejuvenating and standardizing cutting methods of the branches and the most effective trees for reducing the growing branches, depending on the condition of the tree, on a scientific basis. It

consists in making recommendations for production on the technology of growing quality crops.

Scientific news. The scientific novelty of the research is that, for the first time, scientific results were obtained on the dependence of cutting methods and levels on the productivity of 3 regionalized apple varieties in the soil and climate conditions of Bukhara region. The methods and degrees of pruning in the 3-4-year cycle of rejuvenating the productive branches are scientifically based and the amount of leaving the productive buds on the growing branches left to obtain a continuous abundant and high-quality harvest was determined in 8-12 productive shoots and their leaf level and photosynthesis the effect on productivity was studied. It should be noted that, based on the experiments, the most effective method of pruning is the renewal pruning, leaving 2-3 joints in order to renew the growing branches. The shoots left for harvesting were determined and recommended for production, taking into account the biological characteristics of apple varieties.

The method of cutting has a positive effect on the time of entry of trees into the harvest, the size and quality of the harvest. Regulating the growth and production of fruit trees, combating seasonality, and increasing winter resistance are among the most important tasks performed by pruning.

The purpose, object and program of the research.

During the years 2010-2020, scientific work was transferred to the farm "Amin Hayot Bogi" located in the Bukhara district of the Bukhara region. Bukhara province is located in the flower zone, and soil formation takes place in hot and dry climate. The climate of the Bukhara region is considered to be sharply continental: the average annual rainfall is 125-175 mm, mainly observed in early spring, late autumn and autumn. Winter is dry and cold: the average temperature in January reaches 40 C-130 C in June. Average relative humidity is 40-60%. According to the results of agrochemical studies, the amount of waste in pasture, old and new

irrigated fields is very low. The amount of humus in the tillage layer is 0.8-1.4%, nitrogen is 0.06-0.12%, phosphorus is 0.11-0.18%, and exchangeable potassium is 1.5-3.0%.

The soil of the farm "Amin Hayot Bogi" consists of alluvial-old irrigated, weakly saline soil, which is distinguished by the location of the water level (1.8-2.5m).

The main purpose of the research is to use the most effective rejuvenating periodical pruning methods and levels for production in productive varieties, to study the reduction levels for the remaining productive branches, to sustainably increase the yield of fruits in intensively fertilized orchards. and is to ensure continuous improvement and recommend production based on the most positive results obtained.

The object of research, studies in 2010-2020 in the farm "Amin Hayot Bogi" of Bukhara region, two zoned apple trees connected to grafts of 3 different mm-106 weak growth according to biological characteristics - Golden Delishes, Ronet Simirenka and Pervekes It was held in Samarkand. The garden, the leaves are heard - 1996, the tree trunk is branched-naturally improved, the trees were planted in a 6 x 4m scheme, furrowed 4-5 times during the growing season, watering 3200-3500m3 It was watered next to it.

Experience system. Scientific work was carried out in 2 fields in order to study the cutting methods and levels of branches in apple tree varieties.

Experiment No. 1

Application of the rejuvenating cutting method on growing branches that have already produced	The number of remaining yielding shoots, pcs
The cutting method used in production conditions is recommended (control)	Without prolonging
Rejuvenating cutting method for 3-year cyclic exchange	4-8 8-12 12-6 Without prolonging

Rejuvenating cutting method for 4-year cyclic exchange	4-8 8-12 12-6 Without prolonging
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Second experiment options

1. To cut off the 2-3-jointed and growing buds in order to rejuvenate the branches that have given a harvest;
2. To cut the branches that have produced fruit into 10-12 cm long bunches according to the buds that have not woken up;
3. To shorten the branches in order to form new branches from the main trunk of the tree.

In the scientific experiment options, the experiment used 3 returns, 8-10 trees were used for calculation. Variants are placed as a block, by randomization of the sequence of varieties.

Experimental methodology. From the generally accepted methodical manuals for apple varieties studied in the course of the experiment, calculation work and phytometric instructions of the apple tree, for the study of light and photosynthesis productivity and productivity and its quality indicators. The methodology developed at the All-Union Scientific Research Institute of Horticulture (1482) was used.

Experimental results. The effect of cutting on the upper part of the tree trunk is directly related to its level and method of cutting, variety characteristics, soil-climatic conditions and resource-saving maintenance levels. In trees that have lost the ability to grow, along with periodic yielding phenomena characteristic of them, there is a decrease in winter resistance compared to normal productive years.

In the research carried out during 2010-2020, it was found that the yielding branches of varieties and varieties increased depending on the level of rejuvenating pruning based on a 3-4 year cycle. Differences in the number, mass and structure of the productive branches removed according to the 3-4-year cyclic alternate cutting options show that the differences depend on the level of biological characteristics of the varieties. The results of the research

revealed that the mass of cut branches increased by 1.2-3.4 kt and 0.1-3.1 kt in the Golden Delishesh and Pervenesh Samarkand varieties, respectively, compared to the control option.

Shortening the overgrown branches activates the growth processes of the plant and provides deep physiological changes. By applying a three-cycle standardized, bioreplacement, rejuvenating method of cutting dead branches, old, ineffective branches are cut and replaced by new, young, fast-growing fertile branches. , makes it possible to obtain high and quality crops. In the process of cutting, the number of the main branches that yielded fruit was reduced by 8-51%, and the improvement of biological and physiological processes was created in all the remaining branches, which led to an increase in productivity and an improvement in the quality of the fruit.

Depending on increasing or decreasing the level of trees in the 3 studied varieties it was observed that the number of growth points, that is, the number of one-year varieties on one tree, is from 10 to 120 pieces in the Golden Delishesh variety, from 19 to 144 pieces in the Renet Simerenko variety, and 14 in the Pervenesh Samarkand variety decreased from 1 to 118 units.

It should be noted separately that the main indicator of the apple tree is the length of one-year varieties, this indicator is 13-33% in the Golden Delishesh variety, 16-24% in the Renet Semereko variety, and 20-31% in the Pervenesh Samarkand variety increased respectively compared to the control.

Among the 3 options studied in Apple's Golden Delishesh, Pervenesh Samarkand and Renet Semereko, the best option is to leave 3-4-year-old woody varieties as a replacement for rejuvenation near the main trunk of the tree (length 5 -7cm) is a cut. As a substitute, it is advisable to leave short cut jointed buds mainly from the side of skeletonized branches along the direction between the rows.

According to the biological characteristics of an apple tree, only 12-13% of the total (100%) buds become a crop, and the rest are shed. Therefore, the methods and levels of cutting carried out according to the 3-4 year cycle

create conditions for the correct and optimal passage of the physiological process in the tree, and as a result, the remaining harvest indicators are of high quality.

The best conditions for increasing the productivity of fruit trees are the good use of solar radiation and the increase of the leaf surface. The growth biomass of the plant organism, including the useful and economic biomass of the crop, is photosynthesis. All leaves work with very different productivity, which is due to the fact that the process of photosynthesis is cut differently depending on how the trunk of the tree is branched, and the productivity of photosynthesis also varies depending on the tree.

The branch area of the Golden Delishesh apple variety was 11.8-12.0m²/tree, and the Renet Semerenko variety was 12.4-14.0m²/tree. It was found that the size of the leaf plate was reduced to 7.0-20.0 in comparison to the control in the variants that used the standard cutting levels, which replaced the cutting level with increasing cutting levels, and increased during the 3-4 year cycle. Pruning apple trees in the period of full harvest, rejuvenating the replacement branches and following the standard reduction of overgrown branches, leaving 8-12 buds on the branches, the leaf plate area, on the contrary, increases visibly observed.

One of the main indicators of the productivity of apple trees is the distribution of solar radiation along the tree and cracking. On average, in one day, the number of branches located in the central part of the tree trunk did not exceed 36-38% in the control variant of the 3 different apple varieties studied, while the method and levels of rejuvenating pruning in the growing branches at the time of harvest 41.5% and 43.0% are achieved in lighted open areas in the used options.

The rate of photosynthesis is determined depending on how environmental factors respond to external environmental influences. They include the following factors: light, temperature, carbon dioxide concentration, air exchange in the leaves, humidity and the amount of nutrients.

It was found that the photosynthetic productivity of the leaves located at the periphery of the tree trunk is 4 times higher than that of the leaves located inside the tree trunk.

It should be noted that the total photosynthetic productivity of apple leaves located on the periphery of the tree trunk is 7.95g of absolute dry matter per night/m² of leaf surface.

Dry matter accumulation was only 2.74 g, or 34%, in the more shaded areas of the hornbeam. The highest photosynthetic net productivity was observed in the leaves located in the central part of the tree trunk, increasing to 0.10-0.125g compared to the control.

Thus, in the studied varieties, the percentage of useful pollination is high in the varieties that are cut leaving 4-8, 8-12 and 12-16 fruit buds in the varieties that have been left for 3-4 years based on the cycle for the purpose of rejuvenating the branches that have yielded and grown. is, the number of flowers is reduced, and as a result, fruit shedding is reduced.

During the studied research years, when the branches that have produced average productivity are rejuvenated according to a 3-4 year cycle and when cutting leaves 4 to 16 fruitful buds on the bearing branches, the apple in the Golden Delishesh variety is 0.1-4 0.0s/ha in Renet Semereko variety up to 0.9-3.5s/ha, in Pervens Samarkand variety up to 0.6-3/s compared to the control option.

Summary. When the trunk of the tree is thinned by layers in the studied 3 different apple varieties (grafted on 106 mm graft), after the 9th year of the growing period, the growth becomes longitudinal along the rows and forms a full body, expanding the leaf area. due to the application of rejuvenating and normalizing cutting methods and levels, the same standard height of the tree trunk was maintained, and as a result of slow reduction, it was possible to keep all the trees at the standard level.

Rejuvenation of apple trees and reduction of productive branches in a certain required amount caused a decrease in the number of buds by 15-22%. The best and the most new option is to cut branches 8-12 cm long. The amount of useful pollination is 12-13%, fruit

shedding is 17.5%, 18.6%, and 16.6% in Pervens Samarkand and Golden Deliushes varieties, when 12-16 fruit buds are cut, and in Renet Simerenko, when 8-12 buds are left. made up %.

In the studied varieties, the cutting method and levels increased by 18-35% according to the productive varieties, and the quality indicators: the weight of one apple, the amount of sucrose in the fruit, and the amount of dry matter increased. The economic productivity of apple cultivation in the cutting options is high, the net profit is 1980-2318 thousand soums according to the varieties, the profitability level has increased by 93-120% compared to the control option.

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