



GROWTH AND DEVELOPMENT OF APPLE TREES UNDER SOIL AND CLIMATIC CONDITIONS OF BUKHARA DEPENDING ON THE METHOD AND DEGREE OF CUTTING

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ABSTRACT: - This article provides data on the creation of intensive apple orchards that contribute to obtaining the highest yield with good qualities from the second or third after planting.

KEYWORDS: Intensive apple orchards, semi-dwarf trees, weak and medium growing rootstocks, productivity, efficiency.

INTRODUCTION

Fruit growing is one of the most important and unique branches of agriculture in Uzbekistan. Orchards are cultivated on low-growing and medium-sized rootstocks in various soil and climatic conditions, under production

conditions they receive consistently high and high-quality yields. In order to sharply increase the production of fruits, radically improve the quality, as well as reduce the cost of apples produced in this soil and climatic conditions, it

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is planned to create new intensive orchards that give stable and high-quality apple crops.

In recent years, intensive (accelerated) gardens have been created in our country, in these gardens, taking into account the biological characteristics of varieties, giving them a specific and correct form, pruning techniques have been studied, taking into account the variety and its biological characteristics, depending on the age of the trees, productivity, techniques and levels pruning of 3-4 branches according to the cycle of annual rejuvenation, specific and specific formative measures, including the use of resource-saving agrotechnological factors on a scientific basis in the soil and climatic conditions of the Bukhara region, have not been studied enough.

In recent years, it is required that the established and existing orchards be able to fully bear fruit within 2-3 years after planting, while obtaining an abundant and high-quality harvest in intensive orchards. Also, in intensive orchards, when selecting weak and medium-sized rootstocks, a consistently plentiful and high-quality harvest of agricultural crops is obtained, as well as the application of scientifically based agrotechnical measures to them, conditions are created for the cultivation of 35-50 t / ha of a high yield with good qualities.

In our republic, as well as in foreign countries, a group of fruit growers carried out scientific research on the influence of methods and degrees of pruning extra branches on the growth, development and productivity of apple trees and obtained various scientifically based information based on studying the effect of rootstocks of the characteristics of a variety in various soil and soil conditions. climatic conditions, developed scientific recommendations suitable for a particular soil and climatic condition. However, it should be

noted that the ongoing research does not make it possible to fully identify the biological characteristics of fruit tree varieties, the fruiting of branches, and the cycles of their rejuvenation [1,2,3,4,5].

Rejuvenating and normalizing pruning techniques used for cyclic renewal of apple tree branches for 3-4 years, as well as determining the degree of shortening depending on the condition of the branches, activities to give a certain shape to the trunk is the most important agrotechnical factor in increasing productivity and improving quality in our republic. There have been no studies that provide complete information on soil and climatic conditions in our republic.

In the process of growing apples in intensive apple orchards in the Bukhara region, it is necessary to pay special attention to the biological characteristics of trees and varieties, the year of fruiting of the branches, methods of rejuvenating and normalizing pruning, pruning levels, trunk shaping, the quantity and quality of apple harvest.

The purpose of the experiment is to scientifically determine the methods of rejuvenating and normalizing pruning of branches of apple varieties released in Uzbekistan in the soil and climatic conditions of the Bukhara region, as well as to identify the most effective levels of pruning of growing branches depending on the condition of the trees and give specific recommendations for production using technology to obtain a plentiful and high-quality harvest .

When laying intensive apple orchards, first of all, attention is paid to the variety of the apple tree and its rootstock combination, the shape of the trees, the small size of the crown, the use of high agrotechnical measures, the trees are densely planted in the garden, and every year, based on the state of the intensive apple tree, crown pruning is the requirement of this

period of fruiting and give greater economic efficiency [8,9,10].

Experimental field method. Research work was carried out in 2010-2019 at the Amin Hayot Bogi farm, located in the Bukhara district of the Bukhara region. The Bukhara region is located in a desert zone, and soil formation occurs in a hot and dry climate.

The climate of the Bukhara region is mainly sharply continental and includes: an average of 125-175 mm of precipitation falls annually, which is mainly observed in early spring, late autumn and winter. Hot sunny days last up to 240 days, during which the average air temperature is 26-30°C. Winter is dry and cold: in January the average temperature reaches from +4.00°C to -13°C. The average relative humidity is 40-60%.

The soil of the Amin Hayot Bogi farm, which specializes in the production of fruit crops, is alluvial - old-irrigated, slightly saline soils, differs from other places in the location of the water level on the surface (2.3-2.5 m). according to the mechanical composition, it is considered average, including suitable for intensive cultivation of apple trees.

The studies were carried out on the farm "Amin Hayot Bogi" on 2 experiments with zoned apple varieties of varieties Golden Delicious, Renet Simerenko and Pervenets Samarkand from grafted apple varieties of different biological characteristics on the stock MM-106, weak and slow-growing. The apple orchard was founded in 1997, the shape of the tree crown is considered a natural improvement.

The order of planting trees in the garden 6x4m. For one year, i.e. during the growing season, irrigation was carried out 4-5 times along the furrows at the rate of 3200-3500 m³/ha per year

In carrying out an agrochemical analysis, the amount of humus (humus) was 0.8-1.4%, nitrogen 0.06-0.12%, total phosphorus 0.1-0.18%, potassium 1.22-1.45%. The groundwater level is 2.5-2.7 meters.

This experiment was carried out in the field in order to study data on the methods and levels of pruning in apple varieties.

Table 1

№№	Options for applying anti-aging pruning on growing branches that have already borne fruit	Number of fruit-bearing buds on other branches, pcs.
11	Trimming method used in the production environment (according to the current recommendation)	Without shortening
22	Anti-aging pruning method for three-year cyclic pruning	4-8 8-12 12-16 Without shortening
33	Anti-aging pruning method for four-year cyclic pruning	4-8 8-12 12-16 Without shortening

In the experiment, the determination of the degree of pruning and shortening of productive branches was studied in detail during a three- and four-year cyclic alternation of anti-aging pruning on growing branches that gave fruit.

Experimental results. Obtaining experimental data show that in intensive orchards during cyclic pruning of 3-4-year-old branches of an apple tree, 1-2- and perennial growing branches are cut off from a tree. The results of the experiment show that in the pruning options, compared with the control options, 18-85 annual, 8-47 biennial and 1-18 perennial branches of the Golden Delicious variety were removed. Such similar results were obtained for other varieties, it was found that the mass of uncut branches in the studied varieties is 18-25% more than in the control variant. Also, according to the results of a 4-year pruning cycle, it was noted that with an increase in the level of pruning, the number of branches removed from the tree, the mass of crops and branches increased.

Differences in the number, weight and structure of productive branches removed during 3-4-year cyclic pruning options in apple trees show that they depend on the biological characteristics of the varieties and the level of pruning. So, in the experiment it was noted that the number of pruned fruitful branches was greater in the varieties "Renet Simirenko" and "Golden Delicious".

As a result of the research, it was found that when using the method of 3-4-year cyclic exchange pruning and leaving 4-8 buds in the fruit-bearing branches, the largest number and mass of lignified branches are removed from the studied branches by M. M. Adaskalitsy [1], R. P. Kudryatsev [7] and R. Yunusov [3,9,10] confirm similar findings based on their pruning experiments.

Thus, according to the results of the studies, it was found that, taking into account the biological characteristics of apple varieties, the tendency to decrease and increase the thickness of the crown depends on the method and degree of pruning.

As a result of the application of methods and levels of pruning, the speed of the processes occurring in the internal parts of the apple tree (photosynthesis, transpiration, etc.) is clearly manifested in changes in the vegetative activity of fruit crops, first of all, this change affects their growth and productivity. It is indicated that the apple tree was affected to varying degrees depending on the method of pruning and the degree of shortening, that is, the development of branches, as well as changes in other elements in the crown of branches, while the tree trunk thickens and an increase in the level of leaves and its leaf surface area is observed.

In our experiments, when leaving 12-16 eye shoots in the Golden Delicious and Firstborn of Samarkand varieties, and 8-12 eyes on the productive branches of the Renet Simirenko varieties, as a result of 3-4-year cyclic anti-aging pruning of the apple tree, favorable conditions for optimal growth, development and formation of tree crop elements. In the fourth year of pruning, the thickness of the tree trunk for the studied varieties: in the control variant - 64-66 cm; 5-65.0 cm.

In the studied variants, the height of the apple tree was about 350-365 cm, and in the variants with three-four-fold cyclic replacement, rejuvenating and moderate pruning, it was 318-350 cm, and this figure was the highest in the Renet Simirenko variety. The apple-tree variety "Firstborn of Samarkand" showed the lowest performance. The length of the tree trunk was 170-200 cm, and the length was 218-222 cm. In the options where pruning was carried out, the utilization rate of the areas

under the ledges of tree crowns was 47-54%, this figure is at a normal level for modern intensive (accelerated) type gardens good conditions are created for the growth, development and formation of crop elements.

In our studies, it was found that the annual increase in the length of the branches of the first order in zoned apple varieties grafted to the medium-sized rootstock MM-106 in the first years after transplanting the seedling was 39-47 cm in the garden, which is the norm for the growth of fruiting apple trees.

The conducted studies show that the number of growing branches by varieties decreased by 12-18% compared to the control in rejuvenating variants with a 3-4-year cycle of replacement of branches, tree branches become compact, as a result of which it is more convenient to carry out agrotechnical measures.

According to the results of a four-year experiment, the length of one branch in the control variant was on average from 48.6 cm to 32.6 cm. It was found that the growth of annual branches was reduced. Branch length increased from 41 cm to 46 cm in variants that applied a three to four year cycle of rejuvenation, normalization techniques and pruning levels, leaving 4-16 fruiting buds for fruiting, and this condition is considered normal. in intensive gardens.

CONCLUSION

According to the data obtained, rejuvenating the branches given as a replacement, and shortening them by leaving buds on the branches, will dramatically improve the illumination, increase the productivity of photosynthesis, increase the number of leaves and surface area, and also ultimately lead to an increase in labor productivity.

From the above indicators, it was clear that over the years of research, when rejuvenating

branches that gave an average yield, with a 3-4-year cycle as a replacement and leaving fruit-bearing branches from 4 to 16 buds, the yield of apples is 0.1-4, 0 centner/ha for the variety "Golden Delicious", 0.9 for the variety "Renet Simirenko" - up to 3.5 centners / ha, and for the variety "Firstborn of Samarkand" up to 0.6-3.1 centners / ha. The best results were obtained in variants with 8-16 buds left on fruit-bearing branches against the background of 3-4-year rejuvenation of fruit-bearing branches; in these variants, the best indicators of productivity and fruit quality were noted.

It was found that the average weight of one apple fruit increased by 41-56 g in the "Golden Delicious" variety, by 16-35 g in the "Renet Simirenko" variety and by 35-49 g in the "Firstborn of Samarkand" variety in the studied pruning options.

In general, among the studied apple varieties, the most optimal in terms of yield and quality of the crop are the fruit-bearing branches of the apple tree, where rejuvenation was carried out according to a 3-4-year cycle, and high productivity of orchards is achieved in the variant where 8-16 buds are left.

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