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PROVIDING ADDITIONAL INFORMATION TO STUDENTS ABOUT THE TECHNOLOGIES OF INTENSIVE GARDEN ESTABLISHMENT IN THE TRANSITION FROM THE “SCIENCE OF BIOLOGICAL BASES OF AGRICULTURE” TO TOPICS RELATED TO FRUIT GROWING

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ABSTRACT

The paper involves the materials on the technologies of planting intensive gardens, including the effective use of land areas, when passing topics related to fruit growing from the science of biological foundations of agriculture. The data about establishment of intensive gardens using resource-saving intensive technologies, cultivated varieties, seedling planting technologies, schemes for planting seedlings, care and shaping of seedlings, installation of reinforced concrete columns and wire pulling, irrigation and drip irrigation, cultivation of high-quality exportable agricultural products, the quality of agrotechnical activities during the season in intensive gardens are given in the article.

KEYWORDS

Intensive, technology, agrotechnics, experimental field, variety, seedling, drip irrigation, reinforced concrete, trellis, recommendation.

INTRODUCTION

In the Republic of Uzbekistan, great importance was attached to the development of agriculture, like all other sectors. In our country, under the leadership of

the President, large-scale works are being carried out in the field of growing fruit and vegetable products, improving their quality, and at the same time,

establishing intensive gardens by increasing the variety of fruit tree seedlings.

Laws of the Republic of Uzbekistan aimed at the development of agriculture, decrees and decisions of the President of the Republic of Uzbekistan and many decisions of the government were adopted [1].

Starting from the 2020-2021 academic year, in addition to the existing agricultural universities, admission quotas were allocated for the training of agricultural experts in the state universities of Gulistan, Bukhara, Karshi, Namangan, Samarkand, Fergana, Urganch.

In 2023, about 8.2 million tons of grain, more than 3.8 million tons of cotton, 15 million tons of vegetables and fruits, 5 million tons of fruits and grapes, 4 million tons of potatoes, and more than 26 million tons of cocoons were grown in our country.

In addition, water-saving technologies have been introduced on 500,000 hectares of land, 3 billion cubic meters of water have been saved, and the water supply of nearly 1 million hectares of land has been improved. In the last two years, 200,000 hectares of cotton and grain areas were reduced, and they were given to 670,000 people on a competitive basis. As a result, more than two million permanent and seasonal jobs were created and an additional 3 million tons of products were produced [2].

As a result of such reforms and structural changes, fruit and vegetable products grown in the republic were exported to more than 70 countries.

It would be appropriate to provide additional information on the establishment of intensive orchards by breeding fruit tree saplings from the science of

biological foundations of agriculture to students studying biology at higher educational institutions in the field of pedagogy.

It is very important to educate students about the establishment of intensive gardens by breeding fruit tree seedlings, to form students' knowledge and skills in the field of fruit growing, and to form the idea and skills of entrepreneurship in them.

Students will be given the following information on establishing intensive gardens. The word “intensive” means to accelerate. The fact that intensive gardens have many advantages is being demonstrated in practice today. For example, a common fruit tree usually takes 4-5 years from planting to producing its first crop. In intensive horticulture, the tree begins to harvest in the second or third year. This is confirmed by the average yield of 300 centners per hectare of created intensive orchards after 3 years, and the yield is increasing year by year [3].

DISCUSSION

Due to the fact that the trunks of pakana and semi-pakana trees in intensive orchards are small, they have good light and air circulation, so the quality and taste of their fruit is good. In addition, it is very convenient to cultivate such gardens, and it is easy to pick the fruits. Harvesting is done without the use of ladders, especially in trellis gardens. At the same time, the work is productive, high, and the picked fruits are stored well in the future.

It is explained to the students about the maintenance work, depending on the types and varieties of seedlings connected to small grafts in the soil and climate conditions of different regions of our country [5].

Based on the experience of experts, the following are recommended for the establishment of intensive fruit orchards in our republic:

Preparation of the area for planting seedlings - the area selected for planting seedlings is plowed in autumn to a depth of 50-60 cm.

Students will be informed about the large number of fruit tree seedlings and high productivity in intensive orchards.

If apple tree seedlings connected to dwarf M-9 are planted at intervals of 3.5 x 2.5 m, we can see that 1142 bush saplings in 1 hectare. In addition, 952 bush saplings grow when planted at 3.5 x 3 m spacing, pear seedlings are 1428 bush saplings when planted at 3.5 x 2 m spacing, and 1142 bush saplings are planted when medium-growing varieties are planted at 3.5 x 2.5 m spacing.

Apples from medium-sized seedlings connected to half-sized MM-106 grafts, when planted at a distance of 6 x 4 m, 416 bushes per hectare, when planted at a distance of 6 x 5 m, 333 bushes, pear when planted at a distance of 5 x 3 m, 666 bushes, when planted at a distance of 5 x 4 m and 500 seedlings will be planted.

It is recommended to plant apple varieties Gold Spur, Jonared, King David, Royal red Delishes, Stark Erlist, Nafis, which are included in the state register of agricultural crops recommended for planting in the territory of the Republic of Uzbekistan. The height of these fruit trees is 2-3 meters.

Among the varieties of apples grown in semi-pigmy MM-106 of welding - Boravinka Tashkentskaya, Golden Delishes, Jonaret, King David, Korey, Parmen Zimniy Zolotoy, Pervenets Samarkanda, Renet Simirenko,

Royal red Delishes, Stark Erlist varieties are recommended.

Planting of seedlings – before planting seedlings, holes with a depth and width of 60 x 60 cm are dug. When digging them, the soil of the upper 20-25 cm layer is removed on one side, and the rest of the soil on the other side. Before planting seedlings, 350–400 g of phosphorus, 30–40 g of potash fertilizer and 8–10 kg of rotted manure are mixed with soil in the pit, and then seedlings are planted.

Before planting, the seedling is dipped in a specially prepared mixture (fresh cattle manure mixed with soil in a 1:1 ratio) and planted. The seedling is placed in a hole, and the soil taken earlier is thrown into the bottom of the hole. The place where the root is grafted should be 4-5 cm above the soil. After planting seedlings, if water is poured into each hole, the soil will be compacted and the seedlings will grow well. After the soil settles, it is filled with soil around the seedling.

Care and shaping of seedlings - the area of intensive gardens in our republic is expanding every year. The most effective way to accelerate (intensify) horticulture is to build a garden with fruit trees grown on small and half-sized grafts, especially by tying their trunks to symbags. The period of formation of fruit buds in the seedlings of intensive orchards corresponds to the second half of summer. At this time, it is necessary to carry out all agrotechnical processes in a timely and qualitative manner.

The climatic conditions of our country are very favorable for the establishment of orchards connected to low grafts. In increasing the productivity of intensive gardens, it is necessary to pay attention to the constant feeding of the soil. For this, it is advisable to

add 30-40 tons of humus per hectare and 240-260 kg of nitrogen, 120-150 kg of phosphorus and 60-70 kg of potassium. Also, great attention is paid to providing water to newly planted seedlings in the initial period [3].

If these agrotechnical processes are carried out on time in full and quality, the newly planted pakana and semi-pakana trees will begin to yield from the second-third year. In particular, in the second year, 2-5 t per hectare can be obtained, and in the third year, 5-10 t per hectare. By the 4th-5th year, this indicator reaches 40-50 tons per hectare.

In autumn, 90 kg of phosphorus, 45 kg of potash fertilizer and 20 tons of manure are applied per hectare.

One of the main factors in garden care is feeding trees, and it is advisable to give not only nitrogen fertilizers, but also phosphorus and potassium fertilizers. Therefore, equal amounts of phosphorus and potassium fertilizers given in intensive gardens are effective if given in the second half of summer. In the summer season, maintenance work is focused on ensuring proper rooting of seedlings, good growth and development.

Under the conditions of our country, in intensive gardens planted in small grafts, seedlings are cut 60 cm above and given shape. Seedlings coming from the outside in the form of veretino, that is, the main leader branch is left, and it is directed to give more branches next to it, that is, it is branched. When shaping, 50 cm is left for a stamp on the main leader branch of the seedling, 8-10 eyes are left above it, and then the excess is cut after 3 eyes are left [3].

For sufficient branching in the future, 3 eyeballs located 50 cm above the body in the shape of a moon (if the seedling has not branched in the growing seedlings plot) are cut from the growing part of the eye, and three more eyes are left and three more eyes are made in the form of a straight line. Doing this process when the seedling begins to grow, it gives good results. Branched branches are bent at 90° and tied in July-August. In order to form fruit buds on young branches, they are pruned at a certain time. This method ensures the formation of more fruit buds.

Installation of reinforced concrete columns and wiring. In the first year, planted saplings are tied to trellis and reinforced concrete pillars are installed for maintenance.

Care of seedlings by tying them to trellis. After newly planted apple and pear orchards, reinforced concrete pillars and wire are drawn, the branches of the seedlings are tied to the wires, and maintenance work is carried out for the growth and development of the branches in the future.

Vegetables, potatoes, and potatoes can be planted in the first year among the gardens with young small grafts. It is not recommended to plant these crops from the second year. Because the garden begins to be cultivated between the rows.

Watering. In order for the seedlings to catch completely (if the drip irrigation technology is not installed), they should be watered with a circular ditch. Since fruit trees enter the period of rest in winter, watering from the second half of September is not recommended. In October-November, the rows of seedlings are cut and softened. It is cleared of weeds.

Therefore, the moisture level in the soil is well maintained during this period.

The irrigation system of fruitful orchards grown in small plantations should be established in such a way that the soil moisture level at a depth of one meter between the orchard rows should not be less than 70-75 percent during the growing season. During the growing season, the surrounding of the seedlings is softened so that it does not become lumpy. Depending on the soil conditions, water is given from 10-12 to 16-20 times. After each watering, the ground is softened.

It is necessary to pay great attention to the provision of water to newly planted seedlings in the initial period. Drip irrigation works well (30–40 percent water savings) to allow seedlings to fully bloom. In the first year, young seedlings are well prepared for winter, so it is not recommended to water them from the second half of September.

Drip irrigation. In modern intensive gardens, there is almost no water stress in the seedling based on the drip irrigation system. Because the moisture level in the soil is the same around the root.

In intensive gardens, if there is a drip irrigation system, it is advisable to drip all mineral nutrients through water. In this case, the efficiency of fertilizer absorption is much higher.

Depending on the type and location of the drippers, the time and amount of watering is determined. 40% of water is saved during drip irrigation. When installing a drip irrigation system in older gardens, it is necessary to pay attention to ensure the smooth supply of water to the layers where the roots are located [4].

CONCLUSIONS

In a word, the establishment of resource-saving intensive fruit orchards in a new way will serve to develop the horticulture of our republic, and the further increase in the productivity of new promising varieties will increase the number of fruit and grape products, ultimately increasing the well-being of the population.

Providing additional information to students studying biology from the science of biological foundations of agriculture about the establishment of intensive gardens by breeding fruit tree seedlings, will increase the imagination of biology teachers who are preparing for general secondary schools in the future about agricultural sciences, greening the school territory and its surroundings, school It serves as the main resource for planting tree saplings in the territory and experimental areas, organizing garden construction works.

It is also important to provide students with additional knowledge in the teaching of agricultural sciences, to direct them to the profession, and to form the idea and skills of entrepreneurship (business) in students.

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