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THE ROLE OF DROUGHT AND ANTHROPOGENIC FACTORS IN THE ORGANIZATION OF PISTACHIO ORCHARDS IN MOUNTAINOUS AREAS

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ABSTRACT
This article provides recommendations on the impact of drought and anthropogenic factors on seedlings when organizing nut pistachios in the mountainous regions of Uzbekistan, on the soil-climatic and economic conditions of districts and farms, on the proper selection and placement of varieties, on methods of growing and caring for gardens based on scientific and best practices, the artificial propagation of pistachios, their restoration by sowing seeds and their subsequent vaccination, and the suitability of the foothill and mountainous regions of Surkhandarya, Kashkadarya, Jizzakh and Samarkand regions for organizing such pistachios.
KEYWORDS: *drought, anthropogenic, factor, varieties, grafting, vegetation, artificial reproduction, slope, plantation, pattern, plant organ, precipitation, desertification. temperature.*

INTRODUCTION

By decree of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev No. PF-4947 dated February 7, 2017, an Action Strategy on five priority areas of the development of the Republic of Uzbekistan for 2017-2021 was approved. According to the decree, it is planned to take systematic measures to deepen structural reforms to modernize and accelerate the development of agriculture, further strengthen food security, expand production of environmentally friendly products, significantly increase the export potential of the agricultural sector, and further improve the reclamation of irrigated land.

"The state program for the implementation of the Strategy of Action for the five priority areas of development of the Republic of Uzbekistan for 2017-2021" is aimed at optimizing agricultural land for the rational use of land and water resources, including improving land reclamation of irrigated lands, development of irrigation and land reclamation facilities, ensuring their safe and sustainable operation, rational and economical use of water resources and achieving sustainable agricultural production.

In this regard, it turned out that pistachio plantations can be created on 50,000 hectares of Uzbekistan. These areas are located at an altitude of 500-1300 meters above sea level, where the annual rainfall is 200-400 mm, the average temperature is 13.1-16.0 ° C, and the growing season is 210-220 days. All these indicators greatly contribute to the growth and yield of pistachios. Individual forms and varieties of pistachios make it possible to create industrial plantations on many arable lands. This feature can solve several problems:

- satisfaction of population demand for nutritious food products;
- prevention of erosion in mountain and foothill areas;
-extension of existing forest areas;
- high crop yields;

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- water saving on irrigated lands, etc.

Nut orchards with an area of more than 32,000 ha were created in the mountainous regions of Uzbekistan. Of these, 27 thousand ha (84%) were not grafted. The area under cultivated nuts is 16% of the total number of nuts. In Uzbekistan, 2,500 hectares of almond orchards, of which 1,500 hectares, are wild (unvaccinated) almond orchards. Nut crops are widespread in the mountains and foothills of the Tashkent, Ferghana and Surkhandarya regions. Subtropical fruit trees are found mainly in the Ferghana Valley, Kashkadarya and Surkhandarya regions [3.p.16]

Taking into account the requirements of the day and the medical needs of the population, the government set the task to increase productivity by 1.5-2 times for the production of fruits per capita. This, in turn, will require that fruit growing areas and farms rely on soil, climate and economic conditions, proper selection and placement of varieties, and methods for growing and caring for orchards based on scientific and best practices.

In addition to walnuts and almonds, pistachios are also grown. The main pistachio plots are located in mountainous and dry mountainous regions with an annual rainfall of 300-350 mm. The growing season in these areas is 210-220 days. The maximum temperature is 47-48^{0}C. Pistachio roots penetrate to a depth of 10-12 m. According to many scientists (Korzhinsky, Lisnevsky, Popov), Uzbekistan really was a pistachio country. However, in mountainous regions, natural regeneration does not occur as a result of deforestation. Therefore, you can artificially propagate pistachios, sow seeds and then restore them by grafting. Pistachios planted around the Kattakurgan reservoir show the advantage of this method. Each year, several tons of crops are harvested from these areas. [8.p.186]

In pistachio gardens in the mountainous region, medium-sized nuts make up 44%, large-sized 19% and only 6% very large-sized. The number of nuts with a moisture content of more than 10% per 1 kg of nuts is 1,510, the average weight of 1 nut is 0.73 grams, and the fat content in the core, it ranges from 56.8% to 68.7%, which turned out to be lower with northern exposure than with southern exposure.

In general, there is enough land in the foothills to create pistachio gardens in the country. Prior to the 1970s, seedlings were planted densely to prevent soil erosion, to protect against floods and to create pistachio gardens in the foothills and slopes of mountains with low moisture content.

Pistachio seeds were sown at a depth of 1000 to 1650 prepared per hectare. At times, he even reached 2000 pieces. But then the demand for pistachio fruits increased. As a result, there is a transition to the organization of their plantations and the inoculation of male trees has begun. To organize industrial pistachio gardens, free lands are used within the natural pistachio gardens, adjacent territories, and slopes in the north, north-west and north-east directions.

The foothills and mountainous regions of the Surkhandarya, Kashkadarya, Jizzakh and Samarkand regions are suitable for organizing such pistachio gardens. It is no coincidence that in the Middle East pistachios are called “green gold” or “golden tree.” It should be noted that the creation of industrial plantations in our country has not been given due attention for a long time. Artificial pistachio gardens are of the forest type, that is, they are planted and built in a dense way, and their organization does not take into account the biological properties of pistachios. As a result of the density of planted seedlings, they began to bear fruit in 18-20 years, and the yield was very low.

Relevance of the topic: Today, the reproduction of forest fruits and products plays an important role in ensuring the abundance of food. In this context, the topic can be considered relevant.

Purpose of work: In-depth study of agronomic techniques for planting and growing pistachio plantations, development of scientific conclusions and recommendations for forest production.

The main objectives of the work are the preparation and sowing of pistachio seeds for planting, planting pistachios using the plantation method, studying the characteristics of pistachios and their transition to the phenological phase of flowering, crop formation, and yield.

As a result of scientific research, thinning of dense pistachio gardens was carried out and the following recommendations for the placement of seedlings were given:

-placing trees with a slope of 10 ° - 6x8, 8x8, 8x10 m, i.e. 200-120 pieces of trees per hectare;

-placing trees according to the scheme 6x6 and 6x8 m (300-200 pieces) with a slope of 11-15 °;

- at a slope of 16-20 ° - it is provided for placement according to the 4x6 and 6x6 m scheme (400-300 pieces).

Along with this, it was established on the plantations that pollination was good, and productivity increased when male and female trees were in the ratio of 1: 5 and 1: 7. [7. P.55]

For the normal growth and development of pistachios, a certain amount of the sum of the air temperature is required. In particular, for the development of autonomic organs, the sum of temperatures (above + 100 ° C) should be at least 350 ° C; and for the development of generative organs (above + 20 °) - not less than 200-220 ° C.

In general, to create pistachio industrial plantations in Uzbekistan, it is advisable to place them at an altitude of 500-1400 m above sea level

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and in the foothills with rainfall of at least 300 mm. Such regions include Bobotag and the foothills of the Samarkand region. In addition, pistachios can be grown in the foothills of the Ferghana, Namangan, Kashkadarya, Jizzakh regions in areas with an annual rainfall of 300-400 (500) mm. For the organization of plantings should be allocated as flat land as possible and slopes with a slope of not more than 20 °.

Pistachio care should be aimed at the accumulation of more atmospheric precipitation in the soil and their effective use during the growing season. To do this, the soil should be loosened a little deeper, and free from weeds. Pistachio orchards in rainfed lands need to be cleaned of weeds between rows, and also cultivated 3-4 times. Tillage is carried out throughout the growing season. Duration of cultivation depends on the amount of rainfall and infection by weeds. Crop care starts in April, depending on weather conditions. In the 1st year, cultivation is carried out more, in subsequent years it is slightly reduced. Well-cultivated, the soil remains soft for a long time after the end of the rainy season without tillage. This period lasts from late July to October-November [5. p. 33-34]

Soil cultivation during this period leads to the fact that the soil dries and becomes dusty. The depth of cultivation during tillage should be at least 18-20 cm.

Plowing without deep tipping between rows in the fall helps to maximize the accumulation of moisture from precipitation during the winter-spring period.

The territory of Uzbekistan is divided into 3 climatic zones: desert zone, foothills and mountain zones. With the exception of the Aral and Ustyurt districts, the plains of the republic are characterized by unstable snow cover and mild winters. Therefore, in most regions of the republic, plant development does not stop completely.

The climate of Uzbekistan, like the climate of the planet, periodically changes. The main factor determining global climate change is temperature. In recent years, there has been a tendency towards an increase in temperature, which is especially noticeable in the summer of 1973-1990 and in the winter of 1981-1990. The human impact on climate change in Uzbekistan is primarily associated with land reclamation and desertification. As a result of the creation of ponds on irrigated agricultural land, the temperature in the summer months is relatively low, humidity reaches 10-150%. However, due to the fact that it is located in a very small territory, the influence on the entire desert climate of Uzbekistan is almost imperceptible.

Drought is extremely dangerous in our conditions, it reduces the flow of rivers, reduces the level of groundwater, which leads to a shortage of water resources. As a result, the water supply to the population will deteriorate, productivity will decrease, and hydropower production will decline. Rising global temperatures put most water-scarce regions in the first place at a disadvantage. [3. P. 59]

As a result of anthropogenic impact, desertification occurs not only in the arid regions of the country, but also in the mountainous regions. By 2020–2030, the border between arid subtropical and temperate regions of Uzbekistan will shift by 20 degrees north latitude, extreme temperatures will increase, the amount of precipitation will change by 15-20 % of the norm. This, in turn, increases the period without frost, prolonging the vegetative period of plants.

CONCLUSION

In conclusion, the likelihood of hazardous weather events leading to lower yields along with positive consequences is expected. In particular, an increase in summer temperatures has a negative effect on the formation of autumn food supplies, and the following conclusions are made:

1. It is advisable to establish pistachio plantations in mountainous and arid areas, in areas with an annual rainfall of at least 300-350 mm.

2. Pistachio plantations are mainly created by simultaneously sowing selected, healthy seeds over large areas, in some cases by planting annual and biennial seedlings. Their planting pattern is 6X6, 8X8, 10X10 m, 1 male tree should correspond to 8-10 female trees.

3. Of course, when organizing pistachio plantations, the use of forms and varieties recommended for this area is very effective. Otherwise, the work done may be wasted. Because pistachios are harvested 3-4 years after planting.

4. When organizing pistachio plantations, it is necessary to pay attention to the growth and development features of forms and varieties. This is because if the early spring frosts coincide with the pistachio flowering period, this year's crop will be low or not at all.

5. Having studied the growth and development features of the pistachio garden, it is necessary to definitely determine its productivity. Because the main advantage of a pistachio tree is its productivity.

6. Trees should be planted according to the scheme -6x8; 8x8; 8x10 m with a land slope of 10^0C.. In this case, up to 120-200 trees will be planted per hectare. When the land slope is 11-15^0, it is recommended to place the trees in a 6x6 or 6x8 m pattern. If the slope is 16-20^0, it is recommended to place trees in a 4x6 or 6x6 pattern.

7. In agronomic methods of caring for pistachios, one should focus on the accumulation of moisture in the soil and its effective use. For this, it is

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necessary to work with cultivators between pistachios in spring and summer.

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