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**PROSPECTS FOR ESTABLISHMENT OF PISTACHIO PLANTATIONS BY SOWING
HANDON PISTACHIO SEEDS***Nabiyeva Nargizaxon Nazirjonovna**Andijan institute of agriculture and agrotechnology.**Nargizatuychiyeva8084@gmail.com*

Annotatsion:The control of traits in wild, ruderal and cultivated tropical varieties of plants distributed in nature depends primarily on genetic information. The variability that occurs during the vegetation period of a plant is subject to environmental factors. Based on this, it is assumed that artificial selection carried out by man has led to progress in the evolutionary process. Pistachio is one of the main valuable economic traits of the plant.

Keywords:pistachio, tree, bush, plant, garden, selection, cultivar, variety, nut, mass, form, bark, seed.

The Central Asian republics, namely Uzbekistan, Tajikistan, Turkmenistan, Kyrgyzstan, are considered one of the centers of pistachio cultivation. It was studied 90 years ago that the areas covered with natural pistachios are decreasing as a result of human economic activities, and that pistachio orchards in Central Asia are the main gene pool for pistachio selection. As a result, the first recommendation on the creation of cultivated pistachio orchards in Central Asia was developed. It was found that Central Asia is one of the regions with a large number of different forms of pistachios and has a 3000-year experience of pistachio cultivation. The need to grow pistachio orchards in the main part of the fertile lands of the Kopedo Mountains of Turkmenistan was noted. At the same time, it was found that by this time a significant part of the pistachio forms had disappeared. (N.I. Shavrov 1914, K.LVavilov 1935).

The first research on pistachio cultivation in the Central Asian republics began in the 1930s by employees of the All-Union Institute of Plant Science (VIR) and the All-Union Scientific Research Institute of Forestry. At that time, the main direction of pistachio cultivation was the study of various forms in areas where pistachios are widespread.

In Uzbekistan (Bobotog Range), I.K. Trosko conducted research on pistachio polymorphism and the selection of promising forms. He found that in the Bobotog pistachio orchards, as Speransky noted, small-fruited forms with a nut weight of 0.42-0.45 grams and a degree of openness of 40-45% prevailed (up to 60%). Large-fruited forms with a nut weight of 1.01-1.45 grams were also observed, which accounted for 3% of the trees. In the pistachio orchards here, the degree of openness ranges from 0 to 100%, the kernel yield ranges from 37 to 55%, and the oil content ranges from 53-66%. The sugar content in the kernel of wild pistachios in Bobotog is 12-13%, which is superior not only to pistachio forms in other regions of Central Asia, but also to ancient foreign promising varieties.

This family consists of trees and shrubs. They are distributed in tropical and subtropical regions, some species are found in temperate climates. The species that grow in tropical regions are evergreen, while those that grow in our country shed their leaves in autumn. The bark of all species is resinous. It is considered the most widespread and important. In the mountainous regions of Central Asia, it grows in rocky places, on forest slopes, on foothills and hills, forming large pistachio groves. It is cultivated in industrial plantations in the mountainous regions of Transcaucasia, Crimea and Central Asia. In Central Asia, the species *Pistacia vera* L. grows wild on mountain slopes. In the Caucasus and Crimea, the second type of pistachio, the blunt-leaved *Pistacia* (*Pistacia mutica* L.), is found on mountain slopes at an altitude of 2100-2500 m above sea level. Currently, about 80 thousand hectares of pistachio orchards have been established in Uzbekistan. Professors S.M. Ablayev and G.M. Chernova have made great contributions to the study of large-fruited forms of pistachio. G.M. Chernova created and popularized 9 varieties of pistachio.

According to many scientists (Korzhinsky, Lisnevsky, Popov), Uzbekistan was indeed a country of pistachios. However, as a result of their cutting down in mountainous areas, natural regeneration does not occur. Therefore, it is possible to artificially propagate pistachios, sow seeds and then restore them by grafting. Pistachio orchards planted around the Kattakurgan reservoir demonstrate the advantages of this method. Several tons of crops are harvested from these areas every year.

In general, there are enough land plots in the foothills of our republic to establish pistachio orchards.

Until the 1970s, in order to prevent soil erosion, prevent floods, and to establish pistachio orchards on foothills and mountain slopes with low humidity, seedlings were planted in thick beds.

Pistachio seedlings were planted in prepared pits of 1,000 to 1,650 per hectare. Sometimes, even up to 2,000 pieces were planted. However, later the demand for handon pistachio fruits increased. As a result, they began to organize their plantations and graft male pistachio trees.

To establish industrial pistachio orchards, vacant land within natural pistachio orchards, adjacent areas are used, and slopes in the northern, northwestern and northeastern directions are allocated.

The foothill and mountainous regions of Surkhandarya, Kashkadarya, Jizzakh and Samarkand regions are suitable for organizing such pistachios. It is not for nothing that in the countries of the Middle East pistachios are called “green gold” or “golden tree”. It should be noted that for a long time in our republic, no attention was paid to the establishment of industrial plantations. Artificial pistachios were planted and established in a forest type, that is, densely, and the biological characteristics of the pistachio tree were not taken into account when organizing them. As a result of the thickness of the planted seedlings, they began to bear fruit after 18-20 years, and the yield was extremely low.

The Handon pistachio is naturally distributed in the following areas. In Central Asia, its northern border is the Almalyk River at 420-460C north latitude, and it extends to Afghanistan in the south, the Kopetdag in the west, and the Pamir-Alai in the southeast, occupying the part of the mountain slopes from 500-600 m to 1600 m in altitude. In Afghanistan, its growing bushes have

been found even at mountain heights of 2700 m. The Handon pistachio grows even in Moldova, the Mediterranean countries, California, Syria, Iraq, Palestine, Turkey, Italy, and Pakistan. The main areas of the Handon pistachio are located in the foothills and dry mountain regions with an annual rainfall of 300-350 mm. The vegetation period in these places is 210-220 days. The highest temperature is 47-48 °C. The roots of the pistachio tree penetrate to a depth of 10-12 m.

As a result of scientific research, thinning of thick pistachio groves has been carried out, and the following recommendations have been given for the placement of seedlings:

- when the slope of the mountain slopes is 10 ° C, place the trees 6x8, 8x8, 8x10 m, that is, achieve from 200 to 120 trees per hectare;

when the slope is 11-15°C, the trees are placed in a 6x6 and 6x8 m scheme (300-200 bushes);

- when the slope is 16-20°C, the trees are placed in a 4x6 and 6x6 m scheme (400-300 bushes).

At the same time, it has been found that when the number of male and female trees is placed in the plantations in a ratio of 1:5 and 1:7, pollination is good and productivity increases.

In particular, the implementation of agrotechnical measures, namely: plowing the rows to a depth of 25-27 cm in the fall, loosening to a depth of 15-18 cm in the spring, and 8-12 cm cultivation work and feeding with organic and mineral fertilizers, the supply of moisture and nutrients to pistachios improves. As a result, their total annual growth and leaf mass increase, and pistachio productivity increases.

After 10 years of carrying out these works, the yield per hectare of pistachio increases by 3-4 times. In addition, the quality of pistachio fruits improves, and the incidence of various diseases and pests decreases.

The roots of the pistachio tree reach a depth of 10-12 m, and in the horizontal direction - 20 m. It can spread even further. The fruits ripen in August. (At this time, the moisture in the soil is completely used up).

The natural distribution area of the pistachio tree was much lower 100-200 years ago. But they were cut down for fuel, used and completely destroyed.

There is no complete information about the area of natural pistachio plantations. However, according to some estimates, their area was more than 300 thousand hectares, including 25.1 thousand hectares in Uzbekistan. If we add pistachio plantations in artificially created areas in Uzbekistan, we now have more than 40 thousand hectares of pistachio plantations. The first experience of creating artificial pistachio plantations in Uzbekistan was carried out 100 years ago in the areas around Samarkand. Then I.K. Trosko (1930) continued this work at the Bobotog Forestry Department, where 12 different pistachio tree varieties were selected and recommended for propagation.

In Uzbekistan, the most widespread area of natural pistachio plantations is in the Bobo-Tog range, in addition, it is also found on the southern slopes of the Tien Shan, on the slopes of the Fergana, Chatkal, Turkestan, Zarafshan and Khisos mountain ranges.

For the normal growth and development of the pistachio tree, a certain level of air temperature is required. In particular, for the development of vegetative organs, the sum of temperatures (above +100° C) should not be less than 3500 0 C; for the development of generative organs (above + 20°) - not less than 2000-2200° C.

In general, for the establishment of industrial pistachio plantations in Uzbekistan, it is advisable to locate them in the foothills, where the annual precipitation is not less than 300 mm.

Such regions include the foothills of the Babatog and Samarkand regions. In addition, pistachio can be grown in the foothills of the Fergana, Namangan, Kashkadarya, and Jizzakh regions with an annual rainfall of 300-400 (500) mm. For the organization of plantations, it is necessary to allocate as much flat land as possible and slopes with a slope of no more than 20°. Pistachio plantations are mainly established by sowing seeds. To establish pistachio plantations, seeds are used, selected from healthy, undamaged trees. The seeds are harvested after they are fully ripe. They are dried in the sun for 4-5 days and separated from the outer shell. Before sowing, the seeds are stratified. This process lasts 30-40 days. Pistachio fruits are mixed with wet sand in a ratio of 1:3. The germinated seeds are cleaned of sand and taken to the place of planting.

In order to accelerate stratification, the seeds are watered and kept in a warm room for 3 days, the water is changed 3-4 times a day. The ripened seeds are placed in bags as long as they are moist, kept in a room without losing moisture for 7-8 days, and after 9 days, when the seeds begin to germinate, they are sown.

Professor S.M. Ablayev (1987) recommended a method to accelerate stratification. According to his recommendation, pistachio seeds are kept in warm (20° C) water for 12 hours. Then they are mixed with sand in a ratio of 1:3 and stored in a layer no more than 50 cm deep in a room at a temperature of 18-20° C. After 11-12 days, the seeds open and begin to sprout, they are taken to the place of growth and planted.

The establishment of pistachio plantations with high yields depends on the slope, altitude, and rainfall, and is prepared by plowing the land and preparing it in steps or platforms.

According to S. Ablayev, Ya. Yuldashov (2008), seeds of trees with large nuts, high degree of openness and quantity are used to establish pistachio plantations. Such tree branches were selected by UzOKHITI employees from natural pistachio plantations in the Bobotog forestry of Surkhandarya region and cultivated pistachio plantations in Saraykurgan and Kattakurgan forestry of Samarkand region. Pistachio seeds can be sown in autumn without stratification. If there is a risk of insect damage, seeds should be stratified and sown in spring.

For sowing seeds, the soil is worked to a granular state, in which the mineral particles in the soil must be well combined with the seed.

Stratified seeds of Handon pistachio are placed at the following depths during spring sowing. On loamy soil, 4-5 cm, on loamy and sandy soils, 6-7 cm. On typical gray soils of low-lying and high-altitude soils, the best seed placement is 5-6 cm deep. From the beginning of seed germination, the growth of the taproot begins. The period from seed sowing to the emergence of shoots lasts 20-30 days. At this time, the root reaches a depth of 27-50 cm in the soil, and in July-August, when the upper layers of the soil begin to dry out, it reaches a depth of 100 cm or

more. At the end of the first year of growth, the main root system of Handon pistachio is 150 cm deep and the above-ground part is 7-15 cm high. The root system of the pistachio tree clearly demonstrates beneficial hydro and chemotropism.

When caring for pistachios, it is necessary to focus on accumulating more atmospheric precipitation in the soil and using it effectively during the growing season. For this, the soil should be loosened a little deeper and kept free from weeds. It is necessary to cultivate pistachios on loose lands 3-4 times, along with cleaning the rows of weeds. Tillage is carried out throughout the growing season. The duration of cultivation depends on rainfall and weed infestation. Crop care begins in April, depending on weather conditions. In the first year, cultivation is carried out more, and in subsequent years it is slightly reduced.

After good cultivation, the soil is kept soft for a long time without being tilled after the end of the rainy season. This period lasts from late July to October - November. Tillage during this period causes the soil to dry out and become dusty. When cultivating the soil, the loosening depth should not be less than 18-20 cm. Plowing between rows in the fall without deep turning helps to maximize moisture accumulation from atmospheric precipitation in the winter-spring period.

Currently, special attention is paid to the establishment of Handon pistachio plantations. Fruit-bearing forest massifs in the mountainous regions of Uzbekistan are used as a seed raw material base. A lot of work has been done by scientists of TashDAU to select valuable forms with high productivity and biological durability from existing forest species and recommend them for propagation. Seeds of trees with large nuts, high degree of openness and quantity are used to establish Handon pistachio plantations. Such tree forms were selected by UzOKHITI employees in natural pistachio plantations in the Bobotog forestry of Surkhandarya region and in cultural pistachio plantations in Saraykurgan and Kattakurgan forestry of Samarkand region. In the preparation of ordinary almond seeds, attention is paid to late-flowering varieties with large, sweet nuts and thin shells.

As a result of scientific research in recent years, work has been carried out to thin out thick pistachio groves, and the following recommendations have been made for the placement of seedlings: on mountain slopes with a slope of 100°, trees should be placed 6x8, 8x8, 8x10 m, that is, to achieve 120-200 trees per hectare.

When the slope is 11-15 ° C, trees are planted in a 6x6 and 6x8 scheme, placing up to 300-200 bushes per hectare. When the slope is 16-20 ° C, trees are planted in a 4x6 and 6x6 scheme, placing 300-400 bushes per hectare. At the same time, when the number of male and female sexes is placed in the plantations in a ratio of 1/5 and 1/7, pollination is good and productivity is increased. In particular, when implementing agrotechnical measures, namely plowing rows to a depth of 25-27 cm in the fall, loosening to a depth of 15-18 cm in the spring, cultivating to a depth of 8-12 cm, and feeding with organic and mineral fertilizers, the supply of moisture and nutrients to pistachios is improved. As a result, the total annual growth and leaf mass increase, as well as the productivity of pistachios. When these works are carried out, after ten years, the productivity of 1 hectare of pistachios increases by 3-4 times. In addition, the quality of pistachio fruits improves. The incidence of various diseases and pests decreases.

The roots of the pistachio tree can reach a depth of 10-12 m and spread horizontally by 20 m or more. The fruits ripen in August. At this time, the moisture in the soil is fully used.

For the normal growth and development of the pistachio tree, a certain level of beneficial temperature sum is required, including for the development of vegetative organs, the temperature should be above + 10 0 C, and the beneficial temperature sum should not be less than 35000 C. For the development of generative organs, the temperature should be above + 20 0 C, and the beneficial temperature sum should not be less than 2000-2200 0 C.

In our republic, it is advisable to use foothill lands at altitudes of 500-1400 m above sea level and with a rainfall of at least 300 mm for the establishment of industrial pistachio plantations. Such regions include the Togaldi districts of the Bobotag and Samarkand regions. In addition, pistachio can be grown in the foothills of the Fergana, Namangan, Kashkadarya, and Jizzakh regions, where the annual rainfall is 300-500 mm.

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