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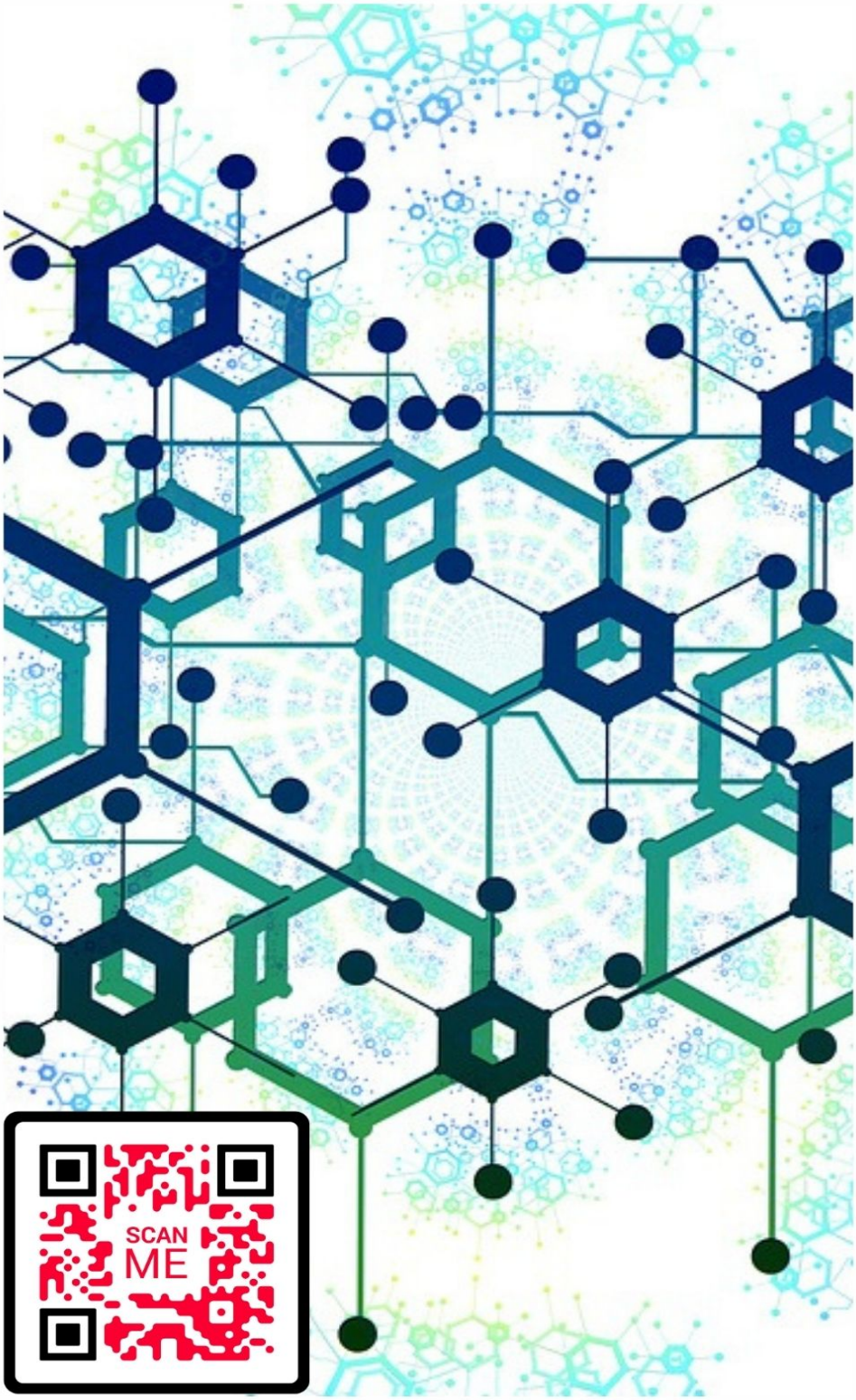

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Geoecological issues of horticulture development in the foothills of the Namangan region of the Republic of Uzbekistan

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Abstract

This article describes the possibilities of achieving economic efficiency and environmental stability through the development of horticulture in the foothills of the Namangan region. Also discussed are the features of the spread of the formed geoecological problems caused by irrigation farming and the methods of their prevention.

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Introduction

The hill was formed on a large area in the northern foothill area of Namangan Province. The valleys occupy a vast area from the western part of the region, from the lower part of Chodaksay, to the northeast, to the Pop, Chust, Turakurgan, Kasansay, Namangan, Yangikurgan, Chartak and Uychi districts. The total area of the islands is 418,000 hectares, with a typical (range 600-900 m) and dark-tailed (d.S. 400-600 m height), which is ideal for farming in the region. 900-1600 m) is widely used in cold weather [4].

Today, in most of the hills, irrigated farming is under way. Most of these irrigated areas are under sowing. According to the data, 70% of total irrigated land in Namangan region (235.1 thousand ha [8] corresponds to Adir region [5,9].

Specific features of the Adir region (soil fertile layer (15-20 cm), most of the soil mechanical composition consists of water-permeable and water-resistant rocks, such as sand, sand, beech, gravel, widespread water-soluble salts in soil substrates [7 , 9)), and the long-running irrigated agriculture (especially the demand for more water-intensive crops) has led to a number of geo-ecological problems. Soil salinization, irrigation erosion, suffocation processes, agglomeration and aggravation of soils, and pollution by various agrochemical means.

Main part

It is desirable to gradually reduce the number of water-intensive crops in the Adir region to prevent the increasing geo-ecological problems and to develop gardening instead. Because less water is needed to water the fruit trees. For example, the rate of irrigation used by young fruit gardens is about 500 m3 per hectare. For irrigated orchards, the irrigation rate is 800-1000 m3 [6]. If irrigation can be achieved by drip irrigation, this amount can be reduced to 50%. For comparison, under irrigated soils of Fergana valley, 7,000 m3 of water is required for irrigation of 1 hectare cotton fields [1].

The most favorable natural environment for the growth of many fruit trees, including apricots, peaches, pistachios, almonds, nuts, grapes, plums, hawthorn, apples, pears, quince and others, is in the adyr region. Therefore, the implementation of the planned gardening areas in the future is largely effective.

One of the more important pillars to the development of horticulture in the Adir region is the ability of fruit trees to protect the soil from water and wind erosion. Fruiting trees protect the soil from fading fertility. The root of the tree strengthens the soil layers, improves the soil's water resistance and moisture absorption. As a result, the erosion process, which occurs under the influence of artificial irrigation and soils, is reduced.

One of the more positive ways to expand the area of fruit gardens in the Adir region is to reduce the density of soil fertility and to restore the soil structure. Observations show that only one cotton field is 7-10 times a year (in some sources 17-20 times [9]). There are 3-4 types of young fruit gardens or 1-2 times the agro-technical gardens that are in the gardens. If the yield period of fruit gardens is about 10-15 years, then the soil consolidation in the garden grounds will be prevented.

Expanding fruit gardens also positively impacts on the diversification of diverse animal populations living in the hills. Specifically, the bird population is growing rapidly, and the microorganisms in the soil also increase and their activity is intensified. As a result, the soil biota becomes satisfactory.

It is important to note that every year the fruit trees are able to get wood from the horns, which are used to shape the trees. It is about 5-10 tons of wood. In addition, with the aim of rejuvenating adult trees with roots, 30-50 tons of pure wood can be obtained per hectare. This will cover most of the local population's livelihood needs.

Establishing fruit gardens in large areas of the Adir region creates favorable conditions for the development of beekeeping. The development of beekeeping, along with the production of honey, also has a positive effect on the growth of fruit gardens.

In summary, the development of horticulture in the Adir region will result in the reduction of the anthropogenic impact on the ecosystems of hawks and the recovery of the adjacent ecosystems as a result of the intensification of natural processes. Economically, it is possible to get rich fruits, honey and wood from different fruits and, therefore, increase the incomes of the population.

As noted above, many geo-ecological problems arise as a result of the long-term irrigated agriculture work in most of the hills. Soil salinization, discovery of crushed layers, aggravation of soil, concentration and pollution by various agrochemical means. These problems have evolved at different levels in different parts of the hillsides, high-low hills. It is well known that the biological properties of fruit trees are different in different varieties. For example, some fruit is resistant to saline, some to soil compaction, and some fruits can grow freely both on gravel and in arid lands. From this perspective, it is better to plant saline soils, saline soils that are densely packed in soil, to grow

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fossils in the rocky deserts, to grow foliage, and drought-resistant fruits to water-prone areas to achieve better economic efficiency capacity.

The geo-ecological problems in irrigated areas in the Northeast Adir region of Namangan region have shown that the formation, development and distribution of the geo-ecological problems are characterized by low levels of land degradation (Figure 1). In particular, soil salinization has developed mainly in the lower parts of the slopes, in the adjacent areas of the slopes and on the slopes. Growing of the saline areas, mainly grape, fig, pomegranate, pear and apricot, gives good results. They are fruit trees with saline resistance. In fact, the most resistant to salinization are jade and herd. However, the demand for these fruits is very low among the population, and their exportability is much lower. It is not beneficial to plant saline soils, such as peaches, cherries, cherries, walnuts, dates, and saline soils [6].

In the lower parts of Adir mountain slopes, gravel layers have been opened and rocky soils have been eroded because of soil erosion. These lands need to be planted in separate fruit trees. In particular, fruit trees such as apricots, almonds, grapes, nuts and apples grow on craggy ground and produce plenty of fruit. In addition, fruit trees such as cherries, cherries, peaches, plums, pears and quince can grow on rocky soils, but less productive.

Due to the uncontrolled and excessive irrigation of crops in various parts of the Adir region and the frequent access of the tractors to the area of the soil, the soil becomes aggravated and the structure is degraded. In such areas, it is desirable to plant fruit-bearing trees, resistant to soil cortex. The fertile trees can be stored in the following order: soil cherry> apricot> plum> cherry [10].

Due to shortages of water resources and water shortages, most of the hills are not involved in farming. It is in this region that sowing drought-resistant pistachio and almond fruit trees and developing horticultural crops will provide economic benefits. In this regard, the Department of Ecology, Namangan State University, has been instrumental in determining the possibility of establishing irrigation bottlenecks in the north-eastern hills of Namangan Region [2,3]. This experience rests on keeping the atmospheric precipitation around the seedlings for a long time and collecting it at the expense of mulching.

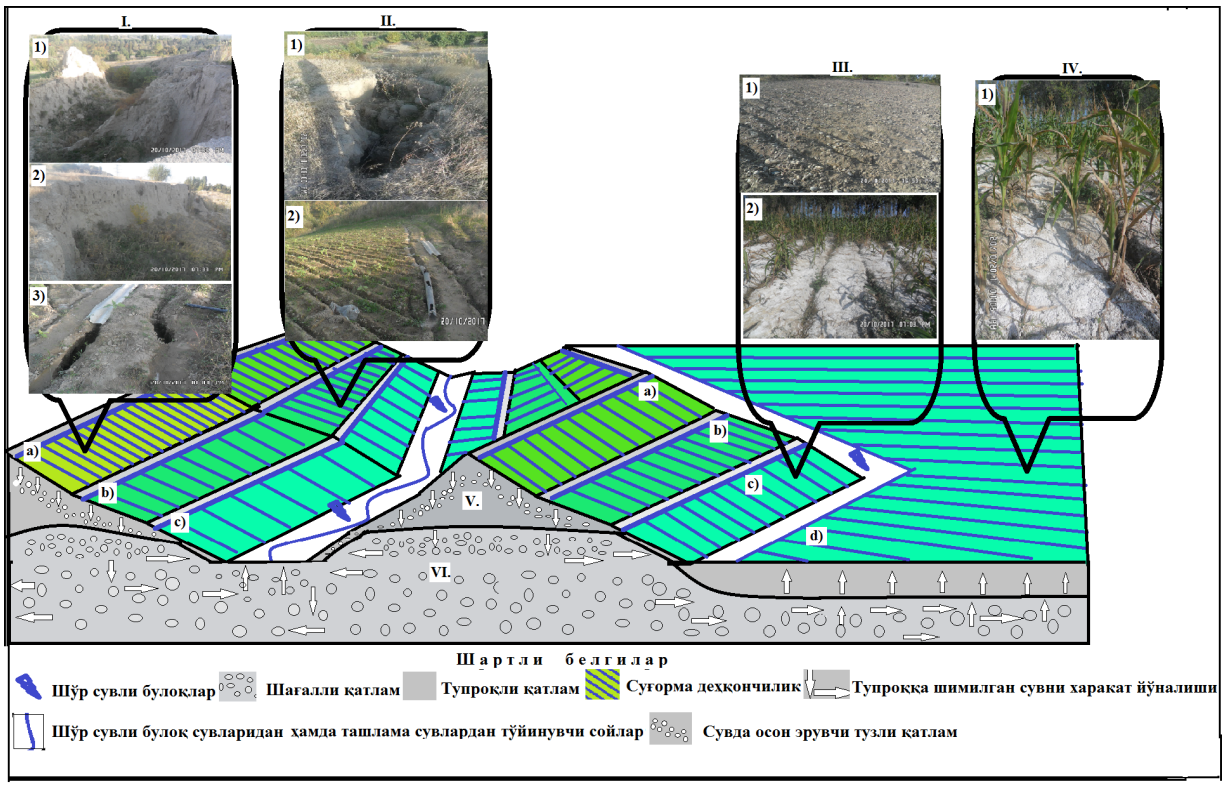

Figure 1. *Formation and distribution of geoecological problems along various parts of the hillsides caused by irrigated agriculture*

Figure 1 a) The highest part of the ramparts. I. The geo-ecological problems that occur in these areas are: 1) jar, 2) circle, 3) watering pits. b) middle part of tricks. II. Geoecological problems occurring in these areas are: 1) small junctions; 2) surface irrigation erosion. s). lower part of the inclination. III. Geoecological problems occurring in these areas are: 1) erosion as a result of erosion of gravel layers, 2) soil salinization. d) The plain of the hill. IV. The geo-ecological problems in these areas are: 1) soil salinization. V. soil layer. VI. Crumbling layer.

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Indeed, using such agro-technical measures, it has been discovered that many fruit trees have the potential to produce crops without artificial irrigation. For example, fruit trees such as apple, cherry, peach, apricot, plum, and quince. In fact, these fruit trees were harvested without irrigation

Summary

In short, deeply studying the natural geographical conditions of the Adir region and the geo-ecological problems in the region, planting fruit trees that meet these conditions guarantees high results in horticulture. In particular, the natural geographical conditions of the hills are favorable for the development of the root system, well-developed and drought-resistant, with the shorter vegetation period and the varieties of these varieties. In geo-ecological terms, it is important to consider the strength of fruit trees. That is, it is desirable to plant saline soils with fruit trees resistant to salinization, fruit trees with high soil density, and frost tolerant soils on rocky soils. In addition, the use of agro-technologies to capture atmospheric precipitation and the widespread use of long-term moisture-based moisture-based moisture-based irrigation capacities allow for irrigation.

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