

**DETERMINATION OF THE FERTILITY OF SOILS WITH
VARYING DEGREES OF SALINITY DISTRIBUTED IN THE
SURKHANDARYA REGION.**

Hakimova Nodira Khairilloyevna-associate professor of the Department of “technology of storage and processing of agricultural products”, Bukhara city, Republic of Uzbekistan, Bukhara State Technical University. E-mail:

nodira.xayrullayevna-83@mail.ru

G'aybulloyeva Mashhura Faxritdinovna - Doctoral student of Termez State University of Engineering and Agrotechnologies.

Currently, demographic problems in the world, issues of food production and ensuring their safety have become increasingly acute due to problems such as climate change and degradation of land resources .According to the international FAO organization ,by 2050, the current world population (7 billion people) is expected to increase by about 9 billion people.By this time, it will be necessary to produce 1 billion tons of grain and 200 billion tons of livestock products per year.issues of food production and ensuring their safety have become increasingly acute due to problems such as climate change and degradation of land resources .According to the international FAO organization ,by 2050, the current world population (7 billion people) is expected to increase by about 9 billion people.By this time, it will be necessary to produce 1 billion tons of grain and 200 billion tons of livestock products per year.This, in turn, requires studying the state of land resources, including soil, which is the main tool of agriculture. studying,increasing and managing the state of fertility the fight against soil degradation is one of the pressing problems.. Today, in the world, “12% of the total land area is considered arable land, of which 300 million (19%) corresponds to irrigated land.23% of the land currently used for farming is high and 53% is of good quality.tudying,increasing and managing the state of fertility the fight against soil degradation is one of the pressing problems.. Today, in the world, “12% of the total

land area is considered arable land, of which 300 million (19%) corresponds to irrigated land. 23% of the land currently used for farming is high and 53% is of good quality. The average share of high-quality land in developed countries is 32% and in developing countries 28%”¹. Therefore, in all countries of the world, it is important to prevent processes that negatively affect the fertility of soils, restore the fertility of low-fertility soils and use them effectively.

Therefore, it is important to determine the regional agrophysical characteristics of Oasis soils developed in different regions of the Republic's rich soil region, assess the activity and direction of the processes of their transformation under the influence of natural and anthropogenic factors, increase the productivity of the main crops, maintain and increase the fertility of soils, based on the results obtained.

"This article will serve to some extent in the implementation of the tasks set out in the strategy of agricultural development of the Republic of Uzbekistan for 2020-2030, as well as in the implementation of the tasks set out in other regulatory legal acts related to this activity.

In arid and semi-arid climatic regions of the world, scientific research is carried out in such priority areas as determining the genesis of Oasis soils, their current state, their change under the influence of natural and anthropogenic factors, improving them, increasing productivity, maintaining and effective use of them. Factors such as the appearance, development, geographical distribution and characteristics of nature components in the surkhandarya region are not uniform in all its parts, the complexity of the relief, the origin and lithological structure of rocks, the variety of hydrological conditions, the arid-type continental climate and the distribution of plants have caused the formation of different soils in the territory.

In the region, the soil layer, types and composition change from Plains to mountains. In our region, there is a sharp difference in the conditions of soil formation between the plains and the mountainous part, so that in the lowland zone there is a feature of the soil cover by latitudes, while desert-specific soil types are formed, and in mountainous zones it can be seen that soil types are arranged by

altitude regionalization. The distribution of soil cover in the region is divided into three parts in territorial terms: desert zones, altitude regions, and zones with scattered irrigated soils. The process of soil formation is slow, since the climate is hot, dry, serophthobic, natural conditions characteristic of the desert zone are observed in the territory of the lowland part of the region. The distribution of soil cover in the region is divided into three parts in territorial terms: desert zones, altitude regions, and zones with scattered irrigated soils. The process of .

On the territory of the region, dense soils are distributed in the transient zone of gray soils with dense soils. Dense gray soils are characterized by the weight of their mechanical composition, having the characteristics of a flat-surface relief. The surface layer of this soil is dense, a waterproof layer is formed. Low humus content is 0.40 - 1.03 percent in low-lying soils. In the region, calcareous soils are sediments between mountain ranges, in the Sherabad region, calcareous soils alternate with ochreous soils found in the lower parts of the Surkhan rivers as well as on the Qiziriqdara plateau.. Hungry-toned grey soils are distributed in the lowland part of the province in areas ranging from 300 meters above sea level to 500-700 meters. In the region, calcareous soils are sediments between mountain ranges, in the Sherabad region, calcareous soils alternate with ochreous soils found in the lower parts of the Surkhan rivers as well as on the Qiziriqdara plateau.. Hungry-toned grey soils are distributed in the lowland part of the province in areas ranging from 300 meters above sea level to 500-700 meters. The humus content of these soils is 1-1.5%. Loose soils of a light tone are covered with Lewis deposits in river valleys. The soil-forming genus is alluvial and proluvial deposits of loess and bearing cones. The irrigated agricultural part of the province has high soil fertility, and these soils have lost their natural properties to irrigated cultural oasis soils. On loose soils of a light tone, the main part of the humus is in a plowing layer, the amount of which decreases towards the bottom. genus is alluvial and proluvial deposits of loess and bearing cones. The irrigated agricultural part of the province has high soil fertility, and these soils have lost their natural properties to irrigated cultural oasis soils. On loose soils of a light tone, the main part of the humus is in

a plowing layer, the amount of which decreases towards the bottom. In the Sherabad desert zone of the region, light-colored and typical gray soils are subject to salinization. This necessitates the implementation of comprehensive reclamation measures to improve soil fertility in this zone.

Factors such as the appearance, development, geographical distribution and characteristics of nature components in the surkhandarya region are not uniform in all its parts, the complexity of the relief, the origin and lithological structure of rocks, the variety of hydrological conditions, the arid-type continental climate and the distribution of plants have caused the formation of different soils in the territory. In the region, the soil layer, types and composition change from Plains to mountains.actors such as the appearance, development, geographical distribution and characteristics of nature components in the surkhandarya region are not uniform in all its parts, the complexity of the relief, the origin and lithological structure of rocks, the variety of hydrological conditions, the arid-type continental climate and the distribution of plants have caused the formation of different soils in the territory. In the region, the soil layer, types and composition change from Plains to mountains. The total land area of the region is 2,009,911 hectares. The agricultural arable land area is 278,124 hectares, of which irrigated land is 238,632 hectares, lalmi land is 39,492 hectares, in poor condition is 19,744 hectares.[3].

Research on the Provincial Land Fund shows that there are great opportunities for extensive agricultural development (opening of new land; conversion to conditionally irrigated land; improving the productivity of mountainsides, desert pastures by drilling artesian wells as well as releasing water). Use of the provincial land fund three zones: 1. Research on the Provincial Land Fund shows that there are great opportunities for extensive agricultural development (opening of new land; conversion to conditionally irrigated land; improving the productivity of mountainsides, desert pastures by drilling artesian wells as well as releasing water). Use of the provincial land fund three zones:

1. Fully irrigated river valleys, yahlit Plains Massif;

2. Conditionally irrigated Mountain received irrigation land with little development of construction;

3. It is divided into Lalmikor (Hill).

Of this, the first zone is permanently irrigated land, of which 55-60% cotton is planted. In the rest, cereals, grapes and fruits and vegetables, melons of potatoes and khashaki crops are planted. Conditionally irrigated land is mainly on mountain slopes; on mountain rivers and streams. The zone has developed gravelly horticultural viticulture and partial tillage. Of this, the first zone is permanently irrigated land, of which 55-60% cotton is planted. In the rest, cereals, grapes and fruits and vegetables, melons of potatoes and khashaki crops are planted. Conditionally irrigated land is mainly on mountain slopes; on mountain rivers and streams. The zone has developed gravelly horticultural viticulture and partial tillage. Farming in the mountainous, arid zone is largely dependent on atmospheric precipitation. Sometimes there is a border between the second and third zones. In zone three, grain grazing livestock is the leading agricultural sector. [4].

Of the total 275,465,000 hectares of irrigated land in surkhandarya region, 236.9,000 hectares are saline to varying degrees. Of this, 60.5% (166,500 ha) is weakly saline, 22.5% (62,000 ha) is moderately saline, and 3.1% (8,400 ha) is strongly saline. Of the total 275,465,000 hectares of irrigated land in surkhandarya region, 236.9,000 hectares are saline to varying degrees. Of this, 60.5% (166,500 ha) is weakly saline, 22.5% (62,000 ha) is moderately saline, and 3.1% (8,400 ha) is strongly saline. Salinity worsens the water-physical, chemical, and agrochemical properties of the soil, which negatively affects crop growth and yield. For example, in saline soils, plant roots are delayed in moving to lower layers, water absorption is slowed, and the amount of water used for transpiration is reduced.

On saline soils, the yield of crops decreases significantly. For example, while the yield of cotton and grain increased by an average of 2-4 centners, this still did not reach optimal levels. The reason for this is such factors as salinity, violation of the irrigation regime and a decrease in soil

fertility .n saline soils, the yield of crops decreases significantly. For example, while the yield of cotton and grain increased by an average of 2-4 centners, this still did not reach optimal levels. The reason for this is such factors as salinity, violation of the irrigation regime and a decrease in soil fertility . Reclamation measures: it is necessary to reduce the level of salinity of the soil by washing saline soils, building drainage systems and optimizing the irrigation regime. Agrochemical analysis: through the agrochemical Analysis Center located in Surkhandarya region, it is possible to analyze the chemical composition of the soil and develop fertilization plans based on the results . Nutrient recovery: to increase productivity, it is necessary to regularly restore nutrients to the soil, such as nitrogen, phosphorus, potassium.

Conclusion.

The results obtained by analyzing the agrophysical condition of cultivated areas with scattered soils of Boz-Oasis, Boz - Meadow-Oasis and Meadow-oasis in the Surkhan-Sariasiya Valley are important to effectively manage agricultural activities in the area and increase yields. Also of great importance are the issues of solving problems and maintaining soil fertility, obtaining high yields from Acorns, the main crop in these cultivated areas. To solve these problems, it must be carried out through soil processing, the introduction of ecotechnologies and the maintenance of natural balance. The main recommendations identified in the studies are that the implementation of complex approaches to solving problems will help to some extent. When the results and recommendations of the studies are put into practice, it helps to significantly increase the effectiveness of agricultural activities in the area.

LITERATURE USED

1. Lex.uz O‘zbekiston Respublikasi Prezidentining 14.03.2019 yildagi PQ-4239-sonli qarori.
2. Parpiyev.G’ “Bo’z-voha tuproqlarining regional xususiyatlari va ularning tuproq unumdorligi shakllanishidagi roli” Biologiya fanlari ixtisosligi bo’yicha fan doktori (DSc) iliy darajasini olish uchun yozilgan dissertatsiya. Toshkent-2020. 4-

5 b.

3. Abdunazarov H.M. Umarova M.H. “Surxondaryo viloyati tuproqlari va tuproq qoplamini muhofaza qilish “ ,maqola. "Экономика и социум" №5(120)-2 2024. 32-39 b

4. Erdanov M.N. “Surxondaryo viloyati tuproq qoplamini o’rganishning geografik jihatlari “ maqola. "Экономика и социум" №10(113)-1 2023. 52-57 b.

5. G‘.T.Parpiyev “VOHA TUPROQLARI” O‘zbekiston zamini jurnal 2/2022 4/2019 37–43 b.

6. Qurvantayev R.” Оптимизация и регулирование агрофизического состояния орошаемых почв пустынной зоны Узбекистана” Avtoref Toshkent 2000. - 45 b.

7. Tursunov. L. T., Axunova.B.B., Adilov.D “Mirzacho’l sug’oriladigan bo’z o’tloqi tuproqlarining fizikaviy va suv fizikaviy xossalari, ularning o’zgarishi hamda boshqarish muammolari”. Mirzacho’l vohasi tuproqlari unumdorligini oshirish muammolari va vazifalari: mavzusidagi respublika ilmiy-amaliy konferensiyasi ma’ruzalar to’plami. Guliston: GulDU, 2003. 63-66 b.

8. Berdiyev T.T. Surxon-SHerobod vohasi cho’l mintaqasi sug’oriladigan tuproqlarining kimyoviy holati, fizik-kimyoviy xossalari va unumdorligini oshirish yo’llari: Biologiya fanlari bo’yicha falsafa doktori (PhD) diss...avtoreferati. - Toshkent: TAITI, 2018. - 46 b

9. N. X. Hakimova , M. F. G’aybulloyeva. “DETERMINATION OF THE PRODUCTIVITY AND CROP YIELD OF SALINE SOILS ON THE BASIS OF ADVANCED TECHNOLOGIES AND THE DEVELOPMENT OF AGROTECHNOLOGY OF THE APPLICATION OF FERTILIZERS IN OPTIMAL QUANTITIES”. Web of Agriculture: Journal of Agricultural and Biological Sciences. Volume 3, Issue 6, June - 2025 ISSN (E): 2938-3781