Assessment of irrigated lands in the soil climate of the Bukhara oasis.

Artikova Hafiza Tuymurodovna[1] Sattorova Mahfuza Muhiddinnovna[2]
Doctor of Biological Sciences, Associate Professor Bukhara State University, [1]
Teacher of Bukhara State University [2]

Abstract:* *The resource that grows agricultural products is the soils of this country and will always need to be registered and evaluated. Soil quality assessment is a comparative assessment of soil quality and natural fertility when agricultural crops are at a moderate level. Soil valuation is carried out taking into account the soil properties and characteristics, which in many respects are related to crop yields. The assessment of soil quality takes into account the main properties and natural conditions of soils: genetic origin of soils, mechanical composition, humus content, salinity, erosion, stonyness, gypsum and other natural factors.

Key words: Soil quality assessment, grading, mechanical composition, humus, scale, climate, relief, bedding, mineralization, gravel-sand, geological period, meadow soils.

Introduction. A number of scientific researches aimed at identifying the processes and changes in irrigated lands, improving the ecological reclamation status, preserving, restoring and increasing soil fertility are being carried out in the country and certain results are being achieved. Therefore, in different soil and climatic conditions of the country, including the Bukhara oasis, to determine the properties of irrigated soils, to determine the evolutionary changes in soils, to reduce the impact of degradation processes in oasis soils, to prevent salinization, to maintain, increase and protect soil fertility. It is important to conduct research on its use.

Decree of the President of the Republic of Uzbekistan dated May 31, 2017 No. PF-5065 "On measures to regulate the maintenance of state cadastres, strengthening control over the protection and rational use of land, improving the activities of geodesy and cartography" and No. PQ-3318 of October 10, 2017 The Resolution "On organizational measures for the further development of the activities of farmers, dehkan farms and landowners" and other regulations related to this activity.

Analysis of the relevant literature. The reclamation condition of the soils of the Bukhara oasis, the reasons for their origin and formation, measures to improve the reclamation of meadow alluvial soils with different salinity levels are given. It was noted that the reclamation condition of oasis meadow alluvial soils is better than other meadow alluvial soils [10,11].

Even very small amounts of humus in the soil can radically change the structural-functional hydrophysical and mechanical properties of the soil. These elements are achieved both by aggregation of the mineral part of the soil particles and by modification of the particle surface [1,3,4].

As a result of the decrease in the amount of humus, the soil buffer decreases, which leads to an increase in pH by 1-1.5 units in saline soils. The process of man-made halogenesis affects terrestrial ecosystems according to the following scheme: changes in the physical and chemical properties of soil and groundwater, damage and death of plants, reduction of invertebrates (reduction of soil and terrestrial organisms departure) [2,5,6].

Information on the humus status of alluvial soils of the Bukhara oasis and the impact of different levels of salinity and its types on it. As the amount of water-soluble salts in the soil increases, the activity of humification processes decreases. This is especially noticeable in soda and chloride salinity and saline soils. This is due not only to a decrease in the activity of microorganisms involved in the humification process, but also to a decrease in the accumulation of organic residues in saline soils [7,8].

Changes in the composition of the absorption complex of saline soils and an increase in the proportion of sodium and magnesium cations in it are associated with the migration of salts in the Aral Sea by wind. In saline washing should take into account not only the mechanical composition of the soil, the degree of salinity, but also the type and salinity of salinity.

Soil fertility is determined by the optimal manifestation of its properties. One such important property is the microbiological property of the soil. The microbiological properties of soil are assessed by its activity. Many of the processes that take place in the soil are carried out by microorganisms. Such important processes include humification and dehumidification, nitrogen fixation, ammonification, nitrification, denitrification, carbon, phosphorus, sulfur cycle in the soil. The fact that these processes go in the right direction, in the right proportion and at the optimal level is important in soil fertility. The formation of humus, the rate of its mineralization and accumulation depends on the course of microbiological processes in the soil. Microbiological processes also play an important role in the soils of the Bukhara oasis. Intensification of certain microbiological processes and, conversely, attenuation of others have a significant impact on the processes of soil formation and formation. This is especially true in the meadow alluvial soils, which are common in the Bukhara oasis [12,13]. Various natural and anthropogenic factors influence the course of microbiological processes in meadow alluvial soils. The study of the influence of these factors is relevant in the management of microbiological factors in the soil in the desired direction and in the prediction of soil fertility and properties and characteristics [9].

Research methodology. In 2020, together with specialists of the Bukhara branch of the Institute "Uzdaverloyiha" to carry out soil assessment in irrigated lands of Karakul district of Bukhara region in order to determine the current state of fertility and quality of soil cover (field quality) field, soil research and laboratory work , under the guidance of the chief engineer of the branch J.Yusupov, chief engineer of the project T.Turaev and soil scientist U.Ruziev, head of the laboratory department N.Ganieva.

All soil-rating research works are updated in the latest edition of the normative documents on land use, land management and land cadastre - "Guidelines for soil research and soil mapping for the state land cadastre" (Tashkent, 2009) and "Bonding of irrigated lands of the Republic of Uzbekistan" The study was carried out on a scale of 1: 5000, the study used a map scale of 1: 10000, the plan of economic land structure and topographic maps.

The morphological structure and specific features of their individual features were noted in the cross-sections taken in the district, from which soil samples were taken for chemical analysis and samples were analyzed in the branch laboratory.

In the analysis, it was necessary to determine the score quality of irrigated soils: mechanical composition of soil, humus, mobile phosphorus and potassium, water-soluble salts, salinity and types of soil salinity, depth and quantity of gypsum and gravel, washing and compaction levels, etc. data were analyzed.

The district is located in the western part of Bukhara region.

The total land area of the district is 494963.0 hectares, the irrigated land area of 330 farms is 19599.6 hectares. There are opportunities to grow agricultural products from these lands.

Climate: Due to its geographical location, the district belongs to the Central Asian arid continental climate region (province) of the Turan subtropical climate zone and is distinguished by its peculiarities belonging to the foothills. The climatic conditions of this region are determined by its distance from the southern oceans and seas, proximity to deserts. The general climatic conditions of the region are formed under the influence of two factors: desert climate and semi-desert climate. Common features of the climate are its sharp continental dryness in the plains, declining air temperatures on land, increasing rainfall, solar radiation, daily, monthly, annual and seasonal temperature fluctuations, and uneven distribution of atmospheric precipitation throughout the year.

The average annual temperature is + 130C.

The first cold snap occurs in the last 10 days of October. According to long-term data, the last cold spell occurs in late March or even mid-April.

The average temperature in July is +27,280 C. The period above +100 C is 210 days from March 28 to October 28.

The coldest month is January - 100, the absolute minimum temperature drops to 27-290.

Heavy rains in the spring lower the air temperature, causing soil compaction, and in some years the crop fields have to be replanted, destroying them.

The average amount of annual precipitation varies from 280 to 370 mm, the maximum amount falls in the winter-spring months, with almost no precipitation in the summer. Snow cover is unstable and its thickness is usually 3-10 cm, in some cold years its thickness reaches 25-35 cm. The average annual relative humidity is observed at 50-55%, rising to 75-80% in winter and falling to 25-30% in summer, during which time the lack of moisture is replenished by irrigation.

These areas are located at a height of 300-500 m above sea level on river terraces, and 500-850 m above sea level.

Low rainfall and high temperatures in the summer months cause high evaporation from the soil. Evaporation is 1280-1470 mm, atmospheric precipitation is 320-363 mm, moisture deficit (evaporation minus precipitation) is observed at 960-1107 mm. The average wind speed is 1.5-3.4 m / sec, with a maximum speed of 22-28 m / sec. is formed. In general, the climatic conditions of Korakul district allow to grow medium-ripe varieties of cotton and other crops.

The territory of Karakul district has a complex orthographic structure, descending to the south and reflected in the form of weak wavy low-altitudes. The north of the region consists of wide wavy, slightly elevated hills, and sometimes low-lying depressions, the main part of the land is covered with natural vegetation belonging to the class of wormwood, sagebrush, sagebrush, sagebrush, sagebrush and sagebrush. Erosion processes are characteristic for the relief of this zone, the occurrence of salinization in the lower weakly drained and lowland soils.

Complex relief: low-altitude, intersected by small cliffs in some places, wavy meso- and macro-relief The condition of groundwater in the area determines its degree of mineralization. Groundwater levels fluctuate from 1.0-2.5 m to 4-5 m depending on the relief structures, which have different effects on soil formation processes. A general view of the terrain is that the slope descends from north to south.

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Soil quality assessment is a comparative assessment of soil quality and natural fertility at an average level of agricultural techniques. Soil valuation is carried out taking into account the soil properties and characteristics, which in many respects are related to crop yields.

Under irrigated farming conditions, the processes that take place in the soil are variable, and many properties of the soil change over a short period of time and become unstable. Therefore, when selecting its assessment point, its low variability and its properties, which are closely related to the yield of agricultural crops, are taken into account. [1,2.].

The assessment of soil quality takes into account the main properties and natural conditions of soils: genetic origin of soils, mechanical composition, humus content, salinity, erosion, stonyness, gypsum and other natural factors.

Soil quality assessment is conducted on a closed 100-point scale. Soils with the best, optimal properties, high productivity are evaluated with 100 points, reduction coefficients are used in the calculation of quality points in case of deviations from the optimal values.

For example: to determine the yield of an agricultural crop, the value of one point corresponding to the yield is multiplied by the score quality of the place. To determine the value of one point corresponding to the yield, divide the amount of crop yield (ts / ha) by 100 points (most fertile soil) (Table 1).

The calculation of the cotton yield for 60-point soils is as follows:

$$60 \times 0.40 = 24 \text{ ts / ha.}$$

The calculation of corn (silage) yield for 59.5-point soils is as follows: 59.5 x 6.50 = 386.75 ts / ha.

Wheat yield in 80-point soils:

$$80 \times 0.60 = 48 \text{ ts / ha.}$$

Table 1

Yields of agricultural crops in the best soils

Crops	Average maximum productivity in the republic, ts | ga	The value of 1 point according to the yield
Cotton	40	0,40
Wheat	60	0,60
Barley	75	0,75
Beda 2 and 3 years	200	2,00
Corn on the cob	80	0,80
Cereal grains are pure and without coating	60 25	0,60 0,25
Corn into silage	650	6,50
Root food	950	9,50
Annual grasses (blue mass)	300	3,00

Intermediate crops (blue mass)	250	2,50
Potatoes	125	1,25
Vegetables	350	3,50

Irrigated and ancient irrigated meadow-alluvial, newly irrigated gray-brown, newly irrigated sandy-desert, irrigated meadow-swamp soils, which have been used in irrigated agriculture for many centuries, are administratively divided into Karakul, Alat, Romitan and Jondor districts of Bukhara region. corresponds to.

The most common soils in the region are newly developed meadow alluvial soils, newly irrigated meadow alluvial soils, irrigated meadow alluvial soils, old irrigated meadow alluvial soils, newly irrigated swamp-meadow soils, newly irrigated brown sandy soils, newly irrigated sandy loam soils.

Irrigated brown soils: occur in the outskirts of the irrigated zone, ie in some parts of the Bukhara-Karakol delta, on the plateaus and highlands surrounding the delta, such as Kyzyltepa, Dengizkul, Azkamar, Tashkuduk, Karakir, Karakul. Sandy desert soils: It is widespread in the remote parts of the region, ie in the areas adjacent to the Kyzylkum, Kimirek, Sandukli, Eshakchi sands, in some small areas in the interior of the delta. The content of humus in these soil types is very low, 0.3-0.4%.

Irrigated meadow alluvial soils: In the oasis part of the region there are mainly irrigated meadow (meadow-oasis), irrigated meadow-alluvial soils. Irrigated swamp-meadow soils: In the Bukhara-Karakul delta, meadow and swampy soil types are located on the banks of the Zarafshan River, where groundwater is close to the surface (at a depth of 0.5-1.0 m).

Thus, it is known from the above that the irrigated soils in Bukhara region are more or less saline due to the surface water surface, the amount of evaporation, which in turn requires constant improvement of their reclamation.

Genetic and geographical comparisons, study of soil cross-sections, analytical calculations, mapping and semi-stationary methods were used in the research.

In order to study the development of genetically and geographically different soil cover of the soils of the Bukhara oasis, soil sections were excavated and their morphological structure, characteristics, thickness, properties and composition of the horizons were analyzed. The section was 1.5–2.5 m deep, from which soil samples were taken along the genetic horizons.

Additional cuts were made to determine the salinity level of the soil. The content of dry residue, anions and cations in them was determined.

In order to analyze the importance of agro-irrigation deposits in the process of soil formation, genetic-geographical, lithological-geomorphological, comparative-chemical-analytical and profile methods were used. Statistical analysis of the data was carried out by the method of Dospekhov.

In this part of the study, soil sections were obtained to study the agrochemical and agrophysical properties of soils in the Bukhara oasis, the amount and composition of water-soluble salts. In addition, the mechanical and microaggregate composition, chemical properties, the amount of nutrients in them, the mineralogical composition of the turbid suspensions of irrigation water in the laboratory were analyzed. Determination of soil humus was carried out by the Tyurin method.

Analysis and results. Karakul district consists of only one geomorphological region. The southern part of the district consists mainly of flat lands, while the northern part descends from the hills, from north to south. It varies drastically according to its geological structure and relief, climatic conditions and soil-vegetation. The territory of Karakul district is located in a landscape zone consisting of low mountains, foothills (hills).

The wavy wide plains in the region are composed of various complex deposits of the ancient Quaternary period. The lands of the region are located at an altitude of 300-850 m above sea level. The area is covered with saline proluvial rocks of different degrees, which are composed of layers of hard rocks of different colors and gypsum clays (loamy soils). In the lowlands between the hills there are salt marshes, sometimes sedimentary mountain deposits.

The complex geological, geomorphological-lithological, soil-climatic conditions of the district have created a very complex hydrogeological situation in the region, which is reflected in the regime and balance of surface and groundwater. The hydrographic networks in the region are extremely unevenly distributed.

In the main areas of the natural and artificial low-lying part of the district, high levels of irrigation and a number of other factors allow groundwater to rise to the surface, which in turn leads to the accumulation of salts in the soil and re-salinization. Periodic fluctuations in groundwater levels change with the seasons, leading to a complex hydrogeological process in the regions. In the northern desert areas of the district, the groundwater level is observed at a depth of 3-4 m and more, in the main areas of the plain - about 1.5-2 meters, rises to 2 m during the growing season, the amplitude of seasonal vibrations is 1.0-1.5 meters. Especially in the lowlands of the plains, where the flow of groundwater is almost non-existent, the amount of easily soluble salts in water is increasing, and the primary type of sulfate salinization in soils and groundwater is becoming mainly sulfate-chloride salinity.

The level of mineralization of groundwater is observed at different rates in different parts of the district, in the northern foothills around 0-1, 1-2 g / l, in the middle parts of the region 2-3 g / l, in the lower lowlands 3-5 g / l and more is formed. In particular, the average mineralization of groundwater in the district is 1.5-2 g / l.

The territory of the district consists of a variety of rocks deposited in different geological periods, and the high-mountain soil-forming parent rocks are composed of low (weak) proluvial and lyoss deposits. To the south-west and south-east of the plain of the district there are soft-rock proluvial deposits mixed with gravel-sand and soil, sometimes covered with alluvial ridges. In the main part of the region, sandstones with clayey, sandy and loamy layers on top of the parent rocks that form the soil lie beneath them mixed sand-gravel layers of alluvial-proluvial deposits.

Soils of irrigated lands of the district: subtropical desert zone, subtropical plains consisting of alluvial and proluvial deposits of Sur-colored brown soils, distributed in the geomorphological region and developed in different lithological, hydrogeological and soil-climatic conditions.

Due to the fact that the soils of the district are distributed in the soil zone, mainly irrigated lands are divided into alluvial and semi-hydromorphic water regimes - meadows, which are characterized by wind and water erosion and salinization, humus and other nutrients. scarcity, low availability of their mobile forms, relatively deep groundwater levels, weakly mineralized, soils consisting mainly of heavy, medium and light sandy mechanical composition.

The average amount of humus in the topsoil is 0.82-1.05%, the average amount of mobile phosphorus is 12.5-15.8 and the amount of exchangeable potassium is 127-219 mg / kg. Alluvial soils of this utloki form a group of soils with low humus content, low and moderate amount of mobile phosphorus, and low, sometimes moderately supplied soils in terms of exchangeable potassium.

According to the results of aqueous absorption, light gray soils consist of unsalted sediments. In weakly saline irrigated grassland soils, the total amount of water-soluble salts averages 0.242-0.290%; in moderately saline soils - 0.524-0.590%. Sulfate according to salinity chemistry, in some cases from chloride-sulfate salinity types.

Irrigated meadow soils have a heavy, medium and light sandy mechanical composition, the amount of physical mud fractions is 27.4-43.5%, humus in the plowed layer is 0.61-0.88% on average, low-supply, mobile phosphorus is on average 10 , 0-15.8%, exchangeable potassium - 118-205 mg / kg, is one of the low and moderately supplied soils. The irrigated meadow soils of the farm are mostly weak and moderately saline.

Analysis of soil research data shows that irrigated meadow alluvial soils in the district are relatively complex due to their relief and geomorphological-lithological structure, the specificity of these soils is the shortness of the humus layer, the upper layers of which are exposed to irrigation and atmospheric precipitation. In some areas, the upper horizons are washed away, and low-carbonate layers are located close to the surface. Poor in terms of mobile phosphorus and potassium, with the exception of some soil separations.

In the soil profile gravelly, gley layers, groundwater averages at different depths in the farm area at an average of 2.5-3 m, in the middle - at 1.5-2 m, and in areas with low meadow and takir-meadow soils 2-3, even 1 -1.5 m, forming a group of weakly mineralized waters. Gypsum layers (gypsum layers) start from 50, 70, 100 cm at different depths, and in some soil separations from 120 cm.

In determining the agrochemical properties of the soil, its humus status also plays an important role. Humus is the main component of the organic matter of the soil and it has a positive effect on all the properties of the soil. Therefore, the assessment of the humus status of soils in the Bukhara oasis is important in the study of their agrochemical properties. The amount and reserve of humus is the most important indicator in determining the condition of humus. The amount of humus in the studied meadow alluvial, marshy meadow, brownish-brown and sandy desert soils was found to be relatively high in humus alluvial and marsh-meadow soils. It was found that the amount and reserve of humus in the brown and sandy desert soils of Sur color is very low. In meadow alluvial soils, the amount and reserve of humus increased with the increase in the duration of farming and irrigation. This is due to the formation of agroirrigation layer. The longer it is watered, the more it has a positive effect on the condition of the humus. Therefore, the old irrigated meadow alluvial soils, which have the longest irrigation history, had the highest rate of humus content and reserve. The amount of humus decreased sharply towards the lower layers along the soil profile. For example, the amount of humus in the genetic layer A1 (0-25 cm) of newly developed meadow alluvial soils was 0.82%, in the layer A2 (25-40 cm) 0.62%, in the V1 (40-66 cm horizon 0.45% V2 (66-110 cm) layer was found to be 0.38% (Fig. 5.3.1). In newly irrigated meadow alluvial soils, the amount of humus was higher in all layers than in newly developed meadow alluvial soils. Newly irrigated meadow alluvial soils had lower genetic layers along the profile. This is due to the fact that the organic material for humus formation decreases towards the substrates and the activity of microbiological processes decreases.

deterioration leads to a decrease in the amount of humus in these layers.For example, newly irrigated meadow alluvial while the humus content in the A1 (0-26 cm) layer of soils was 0.93%, this figure was 0.70% in the A2 (26-45) layer, 0.56% in the B1 (45-70 cm) layer, and B2 (70-117). cm) in the layer was 0.43%

Irrigation of fields for 60-100 years has a positive effect on the humus condition of the soil. At the same time, the thickness of the agroirrigation layer increased, and the mechanical composition of the lower layers also became heavier. This had a positive effect on the amount and reserve of humus and ensured that these figures were high even in the lower layers. For example, in the A1 (0-29 cm) layer of irrigated meadow alluvial soils, the humus content was 1.10%, in the A2 (29-57 cm) layer it was 0.88%, and in the A3 (57-85 cm) layer it was 0.65%. , 0.52% in the V1 (85-140 cm) layer, 0.38% in the G1 (140-182 cm) layer. has gained. For example, humus content was 1.16% in the A1 (0-30 cm) layer of old irrigated meadow alluvial soils, 1.12% in the A2 (30-47 cm) genetic horizon, and 0.84% in the A3 (47-85 cm) layer. , 0.71% in the A4V1 (85–120 cm) layer, 0.64% in the V1 (120–170 cm) layer, and 0.48% in the G1 (170–230 cm) layer. (Fig. 5.3.4)

Hence, as the duration of irrigation increased, the amount of humus also increased, and therefore the amount of humus in the old irrigated meadow soils was the highest. The fact that the groundwater level is close to the top layer also has a positive effect on the humus state of the soil. For example, in swamp-meadow soils with groundwater 1-1.5 meters, the amount of humus had the highest value in the oasis. This condition was observed on all layers. For example, the amount of humus in the top layer A1 (0-25 cm) of newly irrigated swamp-meadow soils was 1.25%, in the layer A2 (25-48 cm) it was 1.16%, in the layer AVFE (48-80 cm) it was 0, 95%, was found to be. The combination of anaerobic conditions with high soil moisture has a positive effect on the amount of humus.

Significant humus content was observed in soils formed in the parent rocks with light mechanical composition, especially in the conditions of automorphic water regime and drought. This situation has been reported in newly irrigated brown desert soils and newly irrigated sandy desert soils. The amount of humus in all layers of these soils was low. For example, the amount of humus in the ax (0-27 cm) layer of newly irrigated brown desert soils is 0.61%, in the genetic horizon of Axo (27-43 cm) 0.40%, in the layer V1 (43-60 cm) 0.35%. , 0.27% in the V2S1 (60–76 cm) layer and 0.18% in the S2 (76–98 cm) layer, while the newly irrigated sandy desert soils were A1 (0–28), A2 (28–48), AB (48-85), 0.55 in the genetic horizons of C (85-165), respectively; 0.33; 0.29; Humus reserves in the soils of the Bukhara oasis were also correlated with the amount of humus. The increase in humus content had a positive effect on humus reserves. In all soils, humus reserves were high in the upper layers. As the duration of irrigation increased in alluvial soils, the amount of humus also increased. The meadow had the smallest humus reserve among alluvial soils, newly reclaimed and re-irrigated meadow alluvial soils, and the highest humus reserve was observed in old irrigated meadow soils. For example, the humus reserve in the layer of newly developed meadow alluvial soil (0-25 cm) was 27.06 t / ha, in layer A2 (25-40 cm) 12.93 t / ha, in V1 (40-66 cm) horizon 16.85 t / ha. e, was found to be 25 t / ha in the V2 (66–110cm) layer.

The newly irrigated meadow was 31.43 t / ha in the A2 (0-26 cm) layer of alluvial soils, while this figure was 18 in the A2 (26-45), V1 (45-70), V2 (70-117) layers, respectively. 22; 20.02; Was equal to 29.91 t / ha (Table 2).

Table 2

Humus reserves in the soils of Bukhara oasis, t / ha

Cut №	Horizon and depth, cm	Humus reserves t / ha
Newly developed meadow alluvial soils		
29	A_1 0-25	27,06
	A_2 25-40	12,93
	B_1 40-66	16,85
	B_2 66-110	25,25

As the duration of irrigation increased, so did the humus reserves. Hence, the formation and thickening of the agroirrigation horizon as a result of irrigation has a positive effect on humus reserves. Therefore, humus reserves in irrigated meadow alluvial soils were higher than in newly developed and newly irrigated meadow alluvial soils. For example, in the A1 (0-29 cm) layer of irrigated grassland alluvial soils, the humus reserve was 42.43 t / ha, in the A2 (29-57 cm) genetic horizon it was 34.25 t / ha, and in the A3 (57-85 cm) layer 26 , 61 t / ha, V1 (85–140 cm) 43.19 t / ha, and S1 (140–182 cm) in the layer 24.42 t / ha.

Significant humus content was observed in soils formed in the parent rocks with light mechanical composition, especially in the conditions of automorphic water regime and drought. This situation has been reported in newly irrigated brown desert soils and newly irrigated sandy desert soils. The amount of humus in all layers of these soils was low. For example, the amount of humus in the ax (0-27 cm) layer of newly irrigated brown desert soils is 0.61%, in the genetic horizon of Axo (27-43 cm) 0.40%, in the layer V1 (43-60 cm) 0.35%. , 0.27% in the V2S1 (60–76 cm) layer and 0.18% in the S2 (76–98 cm) layer, while the newly irrigated sandy desert soils were A1 (0–28), A2 (28–48), AB (48-85), 0.55 in the genetic horizons of C (85-165), respectively; 0.33; 0.29; 0.13%. Humus reserves in layers A1 (0-28), A2 (28-48), AB (48-85), C (85-165) of newly irrigated sandy desert soils are 18.79, respectively; 8.51; 14.27; 14.04 t / ha.

When the duration of irrigation is at a maximum, the amount of humus is also the highest, which is also manifested in the lower layers. Above are the ranking coefficients that characterize the regions. In addition, depending on the properties of the soil in the soil zone, zone, district, in addition, the degree of skeletal, gypsum, density and other coefficients are taken into account, as the Republic occupies a large area and has no zonal and regional boundaries.

One of the most complex agrophysical properties of soil is the density of the soil layer. Therefore, one of the necessary measures to increase soil fertility is to maintain an optimal environment in it during the entire vegetation period of the plant. The relative variation of soil fertility indicators varies with the density of the drive layer, and grading coefficients are applied.

The division of lands into agro-industrial groups is necessary, first of all, for the scientifically based conduct of agricultural production, the correct choice of agro-technical and reclamation measures. Therefore, the land allotments requiring the same reclamation and agro-technical measures in the district were grouped into specific agro-industrial groups, and on this basis the farm irrigated lands were divided into 6 groups: good, above average, average, below average, worse.

The first group (class VIII) is considered to be good quality lands with a quality score of 71-80 points. The total area of soils of similar quality in the region is 3068.1 hectares.

The second group (class VII) is qualitatively above average, with a quality score of 61-70. The total area of soils of similar quality in the region is 1846.5 hectares.

The third group (class VI) is qualitatively average lands with a quality score of 51-60 points. The total area of this group of bonitet ball soils is 4905.9 hectares.

The fourth group (V-class) is qualitatively below average, with a quality score of 41-50 points. The total area of lands of this category is 4049.9 hectares.

The fifth group (class III) is the poorest soils with a quality score of 31-40. The total area of this group of bonitet ball soils is 4317.2 hectares.

The sixth group (Class II) is considered to be of poor quality, with a quality score of 21-30. The total area of this group of bonitet ball soils is 1412.0 hectares.

The area of irrigated lands studied in the district was 19,599.6 hectares, and the average score quality for the region was estimated at 51 points.

Conclusion. In summary, negative reclamation processes are observed in irrigated lands, the area of semi-hydromorphic (meadow) soils is expanding, groundwater is approaching the surface, salinization processes are intensifying, the problem of preventing and stopping negative processes remains a key issue.

The irrigated lands in the district are located in the zone of gray soils and, according to their natural conditions, belong to the continental climate zone. That is, summers are hot and dry, winters are cold, and the main atmospheric precipitation falls in winter and spring. Automorphic, semi-hydromorphic soils are widespread in the region. Irrigated soils have mainly light mechanical content, and in some cases moderate and heavy mechanical content are also encountered. The reclamation condition of soils, its groundwater, is closely related to their mineralization. Therefore, it was found that the farm soil cover was saline to different degrees and the depth of groundwater was mineralized differently.

Irrigated light gray, ice-covered, and grassy soils are more prone to water erosion. In these soils, fine soil particles are eroded under the influence of periodic irrigation throughout the year.

The soil fertility of the regions depends on the efficient and differentiated use of mineral fertilizers.

In order to protect the fertility of irrigated lands and increase the productivity of agricultural crops in the district, we recommend the following measures:

1. In years when the weather is dry, it is possible to carry out spring wet irrigation, periodic leveling, economical use of irrigation water.

2. In order to increase soil fertility, it is expedient to introduce crop rotation and establish reserve trees.

3. In order to increase the efficiency of fertilizers, organic fertilizers are prepared in the form of compost with mineral fertilizers, feeding agricultural crops, application of 25-30 tons of organic fertilizers per hectare is highly effective.

4. Periodic cleaning of collector drainage systems in district farms, which increases their efficiency and prevents the rise of groundwater.

5. Assessment of reclamation of irrigated lands for cadastre, inspection and control of mineralization and depth of groundwater, hydrometric and hydrotechnical monitoring of flow in collector ditches, soil salinity;

6. Preparation of advice on the rate of leaching of saline soils, the use of collector-discharge water for irrigation, the operation of the system of vertical drainage;

The land is always in need of control and protection and upbringing, and it can never be deceived. A well-owned land does not always produce high yields. The value of it, that is, the land, is also measured by the yield. That's what happened. Even the method of economic-statistical assessment, which is carried out at a very high level without taking into account the natural properties of the soil, does not lead to the expected result. The great thinker and scholar Abu Ali Ibn Sina once said, "The earth is a living being - life is the basis of death." These thoughtful words have not lost their power even now.

REFERENCES:

1. I.Turapov, H.Namozov "Soil valuation". "Science and Technology Publishing House. Tashkent 2010 study guide
2. R.Q.Kuziev, F.Yu.Yuldoshev, I.A.Akramov "Soil valuation". Tashkent "Finance" 2004 Monograph
3. Ryjova I. M, Chernova O. V., Sileva T. M, Chichagova O. A., Vyunenko A. V. Gumusnoe sostoyanie chernezomov privoljskoy lesostepi, sformirovannyx na raznyx pochvoobrazuyushchix porodax // Pochvovedenie, 2003, №12, -C.1431-1439.
4. Sorokina O.A., Zarubina N.V. - Content of chemical elements in alluvial soils and donnox otlojeniyax rivers Urkan (basin rivers Amur) // Soil, №6, 2013.-C.681-690
5. Artemeva Z.S. Organic substances and granulometric system of soil. M .: GEOS, 2010.-240p.
6. Ortikov TK, Artikova HT, Umarov OR, Bafoeva ZH Formation of humus soils of Bukhara region at different levels and types of zasolennosti // Journal of Agriculture of Uzbekistan - Tashkent, 2019. - №11-B.44.
7. Saidova M.E., Davletmurodov M.M. "Distribution of humus content in alluvial soils of irrigated grasslands along the Aral Sea" // Bulletin of Agrarian Science of Uzbekistan, №1, 2019. -B. 101-109
8. Artikova X.T., Ortikov T.K., Umarov O.R., Bafoeva Z.X. Salt regime of soils of Bukhara district and ways to improve it Bulletin of the National University of Uzbekistan - Tashkent, 2019. - № [3/2] -P.130-132.
9. Umarov O.R., Bafoeva Z.X., Artikova X.T., Ortikov T.K. Reclamation of soils of Bukhara oasis and ways to improve it // Bulletin of the National University of Uzbekistan - Tashkent, 2019. - № [3/2] -P.183-185.
10. Ortikov T.K., Artikova X.T., Umarov O.R., Bafoeva Z.X. Gumusnoe sostoyanie lugovo-alluvialnych pochv Buxarskogo oazisa pri raznyx stepenyax i tipax zasoleniya // Khorezm mamun akademiyasi informacnomasi - Khorezm, 2020. - №8-B.219-222.
11. Ortikov T.K., Umarov O.R. Changes in the agrochemical and microbiological properties of grassy alluvial soils of the Bukhara oasis under the influence of salinity // Integration of science, education and production in the sustainable development of the agricultural sector, III - distance of professors and young scientists dedicated to "2020 - Year of Science and Digital Economy" Proceedings of the scientific-practical conference. Tashkent, 2020.-P.1163-1165.
12. Kh.Kh.Salimova, Kh.T.Artikova, Sh.Sh.Nafetdinov. Improving the productivity of irrigated soils of Gijduvan district and their rational use. International scientific-practical

online conference "Innovative ideas, developments into practice: problems and solutions". Andijan, 2020 100-101 pp.

13. H.H.Salimova. Condition of soils of Bukhara Oasis (on the example of Gijduvan district). Journal of Agro Processing. Volume 3, ISSUE 2. Tashkent, 2020 y. 29-33 pp. ISSN 2181-9904, Doi Journal 10.26739 / 2181-9904

14. Sh.K.Egamberdiev, H.H.Salimova, I.N.Bobekov, Sh.Sh.Nafetdinov, M.M.Sattorova. Effect Of Siderates On Soil Agrochemical Properties. International Journal of Advanced Science and Technology. Volume 29, No.8 (2020), pp.3337-3341. ISSN: 2005-4238 IJAST.

15. M.M.Sattorova, N.N.Turayeva. Reasons for soil erosion and its prevention measures. 11th International Conference "Science and Practice: a new level of integration in the modern world". Conference Proceedings September, 10-November, 30, 2020. Sheffield, UK. 20-22 pp.

16. M.Sattorova. Fertility of irrigated soils and its modulation. Agro processing process. Special issue. B.119-124. ISSN 2181-9904, Doi Journal 10.26739 / 2181-9904.

17. Sattorova M.M., Tolipova G.X. Meliorativno-ekologicheskoe sostoyanie pochv na oroshaemyx zemlyax. Academy nauchno-metodicheskiy journal meliorativno-ekologicheskoe sostoyanie pochv na oroshaemyx zemlyax
№ 6 (57), 2020. ISSN 2412-8236 (Print) ISSN 2542-0755 (Online).

18. F.Jumaev. The role of soybean in increasing soil fertility. Agroilm, magazine. - Tashkent, No. 2, 2018, pp. 93-94.