# Coğrafiyanın müasir problemləri: Elm və təhsilin inteqrasiyası

## Beynəlxalq elmi-praktiki konfransının Materialları

## I Cild

# Modern Problems of Geography: İntegration of Science and Education

## İnternational Scientific-Practical Conference Proceedings Book

## Volume 1

29-30 Noyabr 2022

Bakı, Azərbaycan

Minister of Science and Education of the Azerbaijan Republic

Azerbaijan Geographical Society (Azerbaijan), Institute of Geography named after H. Aliyev, ANAS, Guba branch of the Azerbaijan State Pedagogical University (Azerbaijan), Tourism and Management University (Azerbaijan), Bursa Uludag University (Turkey), Tiraspol State University (Moldova), Ministry of Education and Science of the Kyrgyz Republic (Kyrgyzstan), Jizzakh State Pedagogical Institute (Uzbekistan), Tabriz University (Iran)

# "COĞRAFİYANIN MÜASİR PROBLEMLƏRİ: ELM VƏ TƏHSİLİN İNTEQRASİYASİ "

## BEYNƏLXALQ ELMİ-PRAKTİKİ KONFRANS

CONNECTING PEOPLE

# "MODERN PROBLEMS OF GEOGRAPHY: INTEGRATION OF SCIENCE AND EDUCATION"

## INTERNATIONAL SCIENTIFIC-PRACTICAL CONFERENCE

**Cild 1 / Volume 1**

**November 29-30, 2022**
**Baku / Azerbaijan**

**Editor-in-Chief:** **Associate Prof. Zaur IMRANI**

Head of the Department of Tourism and Recreation of the Institute of Geography named after H. Aliyev, ANAS

**Editors:** **PhD Sarkhan JAFAROV**

Senior lecturer of the Guba branch of the Azerbaijan State Pedagogical University

Azərbaycan Respublikası Elm və Təhsil Nazirliyi tərəfindən həyata keçirilən tədbirlərin elmi əsaslarının hazırlanması, innovasiyasının gücləndirilməsi, təbii-coğrafi şəraitin potensialının təsərrüfata cəlb edilməsi məqsədilə Azərbaycan Milli Elmlər Akademiyası akademik H.Ə.Əliyev adına Coğrafiya İnstitutunda **29-30 noyabr 2022-ci il** tarixində **"Coğrafiyanın müasir problemləri: Elm və təhsilin inteqrasiyasi"** adlı beynəlxalq elmi-praktiki konfrans təşkil olunmuşdur.

Konfransın keçirilməsində əsas məqsəd ali təhsil müəssisələrinin təkmilləşmə və inkişaf amillərini təhlil etmək üçün alimləri, tədqiqatçıları, dövlət və özəl sektor işçilərini bir araya gətirmək, həmçinin yeni araşdırmaları, düşüncələri bölüşmək və problemlərin həlli yollarını tapmaqdan ibarətdir.

Bu konfransa ümumilikdə **14** ölkədən ***(Azərbaycan, Türkiyə, İran, Pakistan, Gürcüstan, Hindistan, Qazaxıstan, Qırğızıstan, Özbəkistan, Rusiya, Banqladeş, Avstraliya, Moldova və Yəmən)*** olmaqla 150-yə yaxın iştirakçı müraciət etmiş, göndərilən məqalələrdən 102-si elmi heyət tərəfindən konfransda məruzə edilmək üçün qəbul edilmişdir.

* * * * *

An international scientific-practical conference was organised called **"Modern problems of geography: Integration of science and education"** at Azerbaijan National Academy of Sciences academician H .A. Aliyev Institute of Geography on **November 29-30, 2022,** in order to prepare the scientific basis of the measures implemented by the Ministry of Science and Education of the Republic of Azerbaijan to strengthen innovation, to attract the potential of natural-geographical conditions to the economy.

The conference's primary purpose is to bring together scientists, researchers, and public and private sector workers to analyze the improvement and development of higher education institutions, as well as to share new research and ideas and find solutions to problems.

About 150 participants from **14** countries ***(Azerbaijan, Turkey, Iran, Pakistan, Georgia, India, Kazakhstan, Kyrgyzstan, Uzbekistan, Russia, Bangladesh, Australia, Moldova, and Yemen)*** submitted their scientific papers to this conference, 102 of the sent articles accepted by the scientific staff to be presented at the conference.

We thank the Ministry of Science and Education of the Republic of Azerbaijan for supporting the conference.

**ISBN 978-9952-435-90-0**

**HONORARY PRESIDENT OF THE CONFERENCE**

**Professor Fakhreddin Gadirov**
Full member of the Azerbaijan National Academy of Science / Azerbaijan

**ORGANIZING COMMITTEE**

**Professor Talat Kangarli**
Corresponding member of the Azerbaijan National Academy of Science / Azerbaijan

**Professor Ulanbek MAMBETAKUNOV**
Minister of Education and Science of the Kyrgyz Republic / Kyrgyzstan

**Professor Eduard COROPCEANU**
Rector of Tiraspol State University / Moldova

**Professor Salih ÇEPNİ**
Dean of the Faculty of Education of Bursa Uludagh University / Turkey

**Professor Ilham Madatov**
Rector of Azerbaijan Tourism and Management University (Azerbaijan)

**Professor Shavkat SHARIPOV**
Rector of Jizzakh State Pedagogical Institute (Uzbekistan)

**Professor Safar NASROLLAHZADEH**
Rector of Tabriz University (Iran)

**Associate Professor Zakir EMINOV**
General Director of the Institute of Geography named after H. Aliyev, ANAS / Azerbaijan

**Associate Professor Zaur IMRANI**
Head of the Department of Institute of Geography named after H. Aliyev, ANAS / Azerbaijan

**Associate Professor Yusif ALIYEV**
Director of Guba Branch of Azerbaijan State Pedagogical University

**Associate Professor Tatiana VERDES**
Lecturer of Tiraspol State University / Moldova

**Associate Professor Gulshan Agabay**
Head of the Department of Literature and Languages of Guba branch of ASPU

**PhD Sarkhan JAFAROV**
Head of the International Relations Department of Guba branch of ASPU

**MEMBERS OF THE BOARD:**

Prof. Dr. Fakhraddin GADIROV (Azerbaijan)
Prof. Dr. Talat KANGARLI (Azerbaijan)
Prof. Dr. Chingiz ISMAYILOV (Azerbaijan)
Prof. Dr. Rza MAHMUDOV (Azerbaijan)
Prof. Dr. Salih ÇEPNİ (Turkey)
Prof. Dr. Murat TAŞDAN (Turkey)
Prof. Dr. Ulanbek MAMBETAKUNOV (Kyrgyzstan)

## CONTENTS / MÜNDƏRİCAT

# COMPOSITION AND LEVEL AND TYPE OF SALINITY OF IRRIGATED MEADOW-ALLUVIAL SOILS OF BUKHARA REGION

**Hilola Salimova**
Senior lecturer
Bukhara State University, Uzbekistan
x.salimova@inbox.ru
ORCİD İD:0000-0003-2646-6995

**Abstract:** Humus, pH, mobile nutrients, mechanical composition and salinity level and type of irrigated meadow-alluvial soils of the Gijduvon district, Bukhara region, number of toxic salts and salt reserve in 100 cm layer, quantitative assessment and salinity level were studied. One of the topical issues is the determination of productivity, chemical composition, morphological characteristics, physical properties, mechanical composition, type and level of salinity and the development of scientific and innovative systems for combating the processes of degradation and prevention of irrigated soils in the desert zone. waters, ix the regime on the fields of irrigation is determined by the regime of irrigation and the technique of irrigating agricultural crops. The approach of the seepage water surface to the earth's surface leads to a sharp increase in seepage water, and this situation leads to the surface layer of the soil cracking. In brackish and highly saline irrigated soils, salt flushing is carried out according to the standard account: Salt flushing is a single, non-replaceable measure for removing excess salts from the soil. The number and frequency of salt washings are determined depending on the salt content in the saline soil, the degree of salinity, the depth of the salt washing layer, the water-physical properties of the soil, the depth of the parting waters and the degree of salinization. flat drainage.

**Keywords:** Irrigated meadow-alluvial soils, humus, mechanical composition, physical clay, mobile nutrients, mechanical composition, degree of salinity, type of salinity, toxic salts, salt reserve, quantitative assessment, degree of salinity.

Acceleration of agricultural production in our republic, rational use of land funds, production of high and quality crops from each irrigated hectare, and development of solutions to problems related to increasing its economic efficiency is the demand of the times. Maintaining soil fertility, and increasing it every year, is one of the important tasks of agriculture, especially for soil experts.
In recent years, the number of areas subjected to salinization, erosion and degradation is increasing.
In the republic, a great deal of attention is paid to the reclamation of lands used in agriculture, decisions and decrees on land design, construction and use of reclamation systems, and reclamation activities are adopted, and large state funds are allocated.

Decree No. PF-5742 of June 17, 2019, of the President of the Republic of Uzbekistan "On Measures for Effective Use of Land and Water Resources in Agriculture", Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 109 of 24.02.2020 "Irrigation and Among these are the decision on approving the regulation on the procedure for reimbursement of costs related to the construction and reconstruction of reclamation facilities" and the decision of the President of the Republic of Uzbekistan dated 10.06.2022 No.

The main reasons for the accumulation of water-soluble salts in the layers of the soil are atmospheric precipitation, mineralized seepage, soil-forming parent rocks, a slow movement of running water, and secondary salinization as a result of improper irrigation. These above factors are characteristic of dry climate regions and are widespread in desert zones in Central Asia, including Uzbekistan.

The productivity, chemical composition, morphological characteristics, physical properties, mechanical composition, salinity type, level and the development of scientific innovative systems for their prevention and degradation processes of the irrigated agricultural soils scattered in the desert zone is one of the urgent issues of Gijduvon district of Bukhara region is very complex, low and high, in some places, it is connected with small ravines, the condition of groundwater in the undulating area determines the level of its mineralization. The level of groundwater fluctuates from 1.0-2.5 meters to 4-5 meters, depending on the relief structures, and has different effects on soil formation processes. The territory of the Gijduvan district is located in a landscape zone consisting of low mountains and sub-mountain plains (hills). The complex geological, geomorphological-

lithological, and soil-climatic conditions of the region of the district have created a very complex hydrogeological situation, which is reflected in the indicators of the underground water regime and balance. Irrigation networks are extremely unevenly distributed in the region, and in the main areas of the natural and artificial low-drained plain, irrigation of land at high standards, neglecting the mechanical composition of the soil during irrigation allows groundwater to rise to the surface, which in turn causes salt accumulation and re-salination processes in the soil.

Therefore, we are studying the nutrient regime, mechanical composition, salinity level and types of irrigated meadow-alluvial soils in the conditions of the Gijduvon district of the Bukhara region.

In the conditions of meadow-alluvial soils, which have been irrigated since ancient times ("Shukur Tukhta" farm), a number 2 soil section (pit) was excavated. If the amount of humus in the highest (0-32 cm) layer of the soil section was 1.16%, as the layer deepened, its amount decreased, and it was found to be 0.11% in the lowest (163-178 cm) layer. The environmental reaction of the soil is alkaline (pH= 8.4-8.7) and belongs to the group of soils with very little and low supply of mobile nutrients. In particular, it was found that nitrogen in the form of nitrates and mobile phosphorus is very low in quantity, and potassium from the exchange is low (Table 1).

Table 1

**Humus content, amount of mobile nutrients and pH indicators in meadow-alluvial soils of Gijduvan district ("Shukur Tukhta" farm)**

| Section no | Depth, cm | Hummus, % | pH | Mobile nutrients, mg/kg | | |
|---|---|---|---|---|---|---|
| | | | | N- $NO_3$ | $P_2O_5$ | $K_2O$ |
| 2 | 0-32 | 1.16 | 8.4 | 10, 6 | 16.0 | 173.4 |
| | 33-47 | 0.52 | 8.7 | 2, 73 | 12.0 | 199.9 |
| | 48-74 | 0.22 | 8.6 | 2, 0 2 | 8.0 | 125.2 |
| | 75-96 | 0.22 | 8.7 | 1, 78 | 7.0 | 115.6 |
| | 97-162 | 0.15 | 8.6 | 1, 64 | 7.0 | 130.0 |
| | 163-178 | 0.11 | 8.6 | 1, 58 | 6.0 | 110.8 |

The next soil cross-section was dug in the conditions of irrigated meadow-alluvial soils of the "Hasan Rajabi" farm. It was found that the amount of humus in the highest (0-38 cm) layer of the soil was 1.36%, while the amount of humus decreased as the layer deepened, and it was found to be 0.02% in the lower (175-205 cm) layer. The environmental reaction of the soil is alkaline (pH= 8.96-9.20) and belongs to the group of soils with very little and low supply of mobile nutrients. In particular, it is very low in nitrogen and mobile phosphorus in the form of nitrates, and low in exchangeable potassium. (Table 2).

Table 2

**The content of humus, the number of mobile nutrients and pH indicators in meadow-alluvial soils of the Gijduvan district, ("Hasan Rajabi" farm)**

| Don't cut No | Depth, cm | Hummus, % | pH | Mobile nutrients, mg/kg | | |
|---|---|---|---|---|---|---|
| | | | | N - $NO_3$ | $P_2O_5$ | $K_2O$ |
| 3 | 0-38 | 1.36 | 9.2 | 5.93 _ | 13.0 | 183.0 |
| | 39-77 | 1.08 | 8.9 | 3.57 _ | 10.0 | 161.3 |
| | 78-134 | 0.20 | 9.0 | 1.18 | 6.0 | 153.7 |
| | 135-174 | 0.08 | 9.0 | 0, 4 6 | 3.0 | 130.2 |
| | 175-205 | 0.02 | 9.0 | 0, 10 | 2.0 | 108.6 |

Although meadow-alluvial soils are distributed in "Shukur Tukhta" and "Hasan Rajabi" farms of the Giduvan district, it was found that the humus content, the number of mobile nutrients and the pH indicators of the soils of these two areas differ from each other.

The mechanical structure of the soil is one of the most important agronomic indicators, and its physical properties directly related to the state of the structure and the physical processes taking place in it are of great importance in the water, air and heat regimes of the soil, as well as in the growth and development of plants.

The solid part of the soil is composed of particles of different sizes, the size of the largest particles 1 mm larger than the size of the smallest colloidal particles 0,0001 mm.

The physical, physical-mechanical, especially physical-chemical and chemical properties of the soil are directly related to this solid part of the soil. Therefore, an important task in learning soil properties is to determine the size and quantity of various small and large particles, which are called mechanical elements.

The mechanical components of the soil mean the relative or percentage number of particles of different sizes in it. Of the soil mechanic elements with soil ghosts or structure aggregates from each other difference do it to know the need. Structure aggregates usually different substances through mutually stuck mechanics of the elements consists of Because of this the soil mechanic content to determine preparing aggregates separately mechanic to the elements until break up for to him respectively method processing is given

A common method of analysing the mechanical composition of soil in the laboratory is the pipette method. The essence of this method is based on the relationship between the speed of particles falling in the liquid, that is, the speed of falling particles is directly proportional to their diameter.

To determine the mechanical composition of the soil, soil samples were taken and analysed in the laboratory. According to the results of the analysis, the amount of physical clay in the 0-32 cm layer of the soil of Shukur Tukhta farm is 33.9%, and it is a medium clay type. As the soil layer deepens, it was found that the mechanical composition changes from medium sand to light sand and sand. The amount of physical clay in the lowest layer is 15.6%, and it is sand by type (Table 3).

Table 3

**Mechanical composition of meadow-alluvial soils of Gijduvan district ("Shukur Tuxta" farm)**

| Section no | Depth, cm | Fractions, % | | | | | | | Amount of physical turbidity, % | Type |
|---|---|---|---|---|---|---|---|---|---|---|
| | | >0.25 | 0, 25-0, 1 | 0.1-0.05 | 0, 05-0, 01 | 0, 01-0, 005 | 0, 005-0, 001 | <0.001 | | |
| 2 | 0-32 | 5.5 | 6.1 | 15.7 | 38.8 | 22.4 | 7.2 | 4.3 | 33.9 | Medium grain |
| | 33-47 | 6.5 | 4.8 | 19.9 | 38.2 | 20.5 | 6.4 | 3.7 | 30.6 | Medium grain |
| | 48-74 | 2.5 | 3.3 | 25.8 | 42.9 | 17.3 | 5.1 | 3.1 | 25.5 | Light sand |
| | 75-96 | 3.5 | 3.1 | 28.0 | 43.1 | 15.8 | 4.3 | 2.2 | 22.3 | Light sand |
| | 97-162 | 5.4 | 2.3 | 29.1 | 45.7 | 12.5 | 3.2 | 1.8 | 17.5 | Kumok |
| | 163-178 | 3.7 | 2.4 | 29.4 | 48.9 | 12.3 | 2.1 | 1.2 | 15.6 | Kumok |

The mechanical components of the meadow-alluvial soils of Khasan Rajabi farm are 25.4% of physical clay in the uppermost layer of 0-38 cm. According to the type of mechanical components, the amount of physical clay in the 39-77 and 78-134 cm layers of the layer is light sand. increased and was found to be medium sorghum. It was observed that the further deepening of the soil layer was slightly shallower (Table 4).

Table 4

**Mechanical composition of meadow-alluvial soils of Gijduvan district ("Hasan Rajabi" farm)**

| Don't cut | Depth, cm | Fractions, % | | | | | | | Amount of physical turbidity, % | Type |
|---|---|---|---|---|---|---|---|---|---|---|
| | | >0.25 | 0, 25-0, 1 | 0.1-0.05 _ _ | 0, 05-0, 01 | 0, 01-0, 005 | 0, 005-0, 001 | <0.001 | | |
| 3 | 0-38 | 5.5 | 6.5 | 36.3 | 26.2 | 3.2 | 3.2 | 19.1 | 25.4 | Light sand |
| | 39-77 | 4.0 | 3.0 | 34.2 | 28.6 | 4.8 | 6.4 | 19.1 | 30.2 | Medium grain |
| | 78-134 | 3.0 | 2.5 | 34.9 | 27.0 | 5.6 | 5.6 | 21.5 | 32.6 | Medium grain |
| | 135-174 | 9.0 | 7.5 | 23.1 | 31.8 | 4.0 | 4.8 | 19.9 | 28.6 | Light sand |
| | 175-205 | 11.5 | 9.5 | 25.7 | 25.4 | 3.2 | 4.8 | 19.9 | 27.8 | Light corn |

Soil productivity reducing negative factors one is this salinity is considered to Take it went studies as a result according to, less salted lands to main village economy crops of productivity significant level decrease observed. Increase in saline areas future village economy crops for invalid become take coming can _

Currently, the total area of irrigated areas of the Gijduvon district of Bukhara region is 20032.0 hectares, of which 10041.0 ha is low salinity, 2485.4 ha is medium salinity, and 582.7 ha is strongly saline land.

The amount of dry residue in the soil, and the number of cations and anions, were determined by water absorption analysis. The amount of dry residue in the topmost layer of the soil was 0.41%. With the deepening of the soil layer, the amount of dry residue decreased in the next layers, and increased slightly as it deepened, the lowest 163-18 cm It was found that 0.48% was in the layer with (Table 5)

According to salinity level, all soil layers are weakly saline.

Table 5

**Analysis of water absorption of the meadow-alluvial soils of the Gijduvan district ("Shukur Tuxta" farm)**

| Don't cut No | depth, cm | Dry balance, % | 100 g. in soil, % / mg/Equiv. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $HCO_3^-$ | $Cl^-$ | $SO_4^{2-}$ | $Ca^{2+}$ | $Mg^{2+}$ | $Na^+ + K^+$ |
| 2 | 0-32 | 0.416 | 0.03 | 0.13 | 0.18 | 0.07 | 0.01 | 0.08 |
| | | | 0.43 | 3.61 | 3.79 | 3.59 | 0.66 | 3.57 |
| | 33-47 | 0.386 | 0.03 | 0.12 | 0.15 | 0.08 | 0.01 | 0.06 |
| | | | 0.48 | 3.50 | 3.08 | 3.94 | 0.49 | 2.62 |
| | 48-74 | 0.396 | 0.02 | 0.13 | 0.15 | 0.08 | 0.01 | 0.06 |
| | | | 0.39 | 3.72 | 3.14 | 4.19 | 0.41 | 2.66 |
| | 75-96 | 0.428 | 0.02 | 0.14 | 0.16 | 0.10 | 0.00 | 0.05 |
| | | | 0.38 | 3.98 | 3.31 | 5.04 | 0.33 | 2.29 |
| | 97-162 | 0.448 | 0.03 | 0.15 | 0.16 | 0.11 | 0.00 | 0.06 |
| | | | 0.46 | 4.18 | 3.39 | 5.29 | 0.25 | 2.49 |
| | 163-178 | 0.480 | 0.02 | 0.16 | 0.17 | 0.12 | 0.00 | 0.05 |
| | | | 0.39 | 4.57 | 3.58 | 5.99 | 0.16 | 2.39 |

The salinity of the soil samples taken in the area of Khasan Rajabi farm differed slightly according to the soil section, for example, the amount of dry residue in the 0-38 cm layer was 0.37%, and the amount of dry residue increased as the layer deepened. It was found that it was 0.61% in the lowest 174-205 cm layer. The layer up to 174 cm of the section is less saline, and the lowest layer belongs to the group of moderately saline soils (Table 6).

Table 6

**Analysis of water absorption of the meadow-alluvial soils of the Gijduvan district ("Hasan Rajabi " farm)**

| Don't cut No | depth, cm | Dry balance, % | 100 g. in soil, % / mg / eq. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $HCO_3^-$ | $Cl^-$ | $SO_4^{2-}$ | $Ca^{2+}$ | $Mg^{2+}$ | $Na^+ + K^+$ |
| 3 | 0-38 | 0,37 | 0,030 | 0,110 | 0,130 | 0,089 | 0,011 | 0,025 |
| | | | 0,492 | 2,289 | 3,667 | 4,441 | 0,905 | 1,102 |
| | 3 8 -77 | 0,38 | 0,045 | 0,103 | 0,125 | 0,09 | 0,018 | 0,010 |
| | | | 0,738 | 2,143 | 3,526 | 4,491 | 1,481 | 0,435 |
| | 7 7 -134 | 0,47 | 0,073 | 0,119 | 0,149 | 0,116 | 0,009 | 0,031 |
| | | | 1,196 | 2,476 | 4,203 | 5,788 | 0,741 | 1,347 |
| | 13 4 -174 | 0,54 | 0,097 | 0,128 | 0,153 | 0,128 | 0,007 | 0,037 |
| | | | 1,590 | 2,664 | 4,316 | 6,387 | 0,576 | 1,606 |
| | 17 4 -205 | 0,61 | 0,126 | 0,148 | 0,172 | 0,141 | 0,005 | 0,059 |
| | | | 2,065 | 3,080 | 4,852 | 7,036 | 0,411 | 2,550 |

Meadow-alluvial soils of the Gijduvan district of the Bukhara region were found to be chloride-sulphate.

affects crops differently. A relatively high amount of some salts hurts plants does not show, the presence of some salts in a very small amount also causes the death of plants. This, in turn, indicates that the degree of salinity of the soil with toxic salts is different.

important to determine the number of toxic salts from the total amount of water-soluble salts in the soil. Soils rated as moderately saline, strongly saline, and saline may belong to non-saline or weakly saline soils in terms of toxicity, or the opposite. This requires a proper assessment of the soil in the current market conditions and water scarcity.

To determine the reserves of toxic salts in the soil, calculate the reserves of total salts using the formula, that is, from the sum of total salts calculated % number of toxic salts, volume mass and thickness of that layer should be calculated by multiplication.

A national equivalent amount of sodium ($Na^{+)}$ and magnesium ($Mg^{++}$) ions in an aqueous solution was determined using the empirical formula of N.I.Bazilevich and E.I.Pankova, by adding and 15 dividing it.

Toxic salt reserves of the soil according to determining the degree of salinity It was evaluated using the scale developed by the State Institute of Soil Science and Agrochemistry (A.U. Akhmedov, M.I. Ruzmetov).

The obtained results show that the amount of salt in the 1-meter layer of Shukur Tukhta farm soil is 25.52 t /ha, it is weakly saline in terms of salinity and it is low in terms of its quantitative value (Table 7).

Table 7

**Assessment of soil salinity by toxic salt reserves ("Shukur Tuxta" farm)**

| Section no | Depth, cm | residue of toxic salts, % | reserve in the 1-meter layer, t /ha | Quantitative assessment | Salinity level |
|---|---|---|---|---|---|
| 2 | 0-32 | 0.28 | 25.52 | Low | Lightly salted |
| | 33-47 | 0.21 | | | |
| | 48-74 | 0.2 | | | |
| | 75-96 | 0.18 | | | |
| | 97-100 | 0.17 | | | |

Amount of salt in the 1-meter layer of the soil of Khasan Rajabi farm is 18.5 t /ha, it is weakly saline in terms of salinity, and it is low in terms of its quantitative value (table 8).

Table 8

**Assessment of soil salinity by toxic salt reserves ("Hasan Rajabi" farm)**

| Section no | depth, cm | residue of toxic salts, % | reserve in the 1-meter layer, t /ha | Quantitative assessment | Salinity level |
|---|---|---|---|---|---|
| 3 | 0-38 | 0.14 | 18.5 | Very low | Unsalted |
| | 38-77 | 0.13 | | | |
| | 77-100 | 0.14 | | | |

In conclusion, the irrigated meadow-alluvial soils of the Gijduvon district of the Bukhara region are very little and poorly supplied with humus and nutrients, and it was determined that the mechanical components are medium and light sand, and some layers are sandy loam. According to soil salinity, it belongs to the group of weakly and moderately saline soils, and according to toxic salts, it was determined that it is not saline and weakly saline. These two farm soils are the same type, as they differ sharply from one another in terms of composition and salinity. One of the main reasons for this is the impact of farming, cultivation, crop rotation, irrigation, fertilization and other anthropogenic factors.

## References


1. Артикова Х. Бухоро воҳаси тупроқларининг морфологик тузилиши // Ўзбекистон қишлоқ хўжалиги журнали. - Тошкент, - 2017. - №5. - Б.43.
2. Артикова Ҳ.Т., Каримов Э.Қ., Назарова С.М. Салимова Ҳ.Ҳ. Бухоро воҳаси шўрланган тупроқлари ва уларнинг ҳолатини яхшилаш. “Хоразм Маъмун Академияси ахборотномаси”. Журнал. №3/2017 (сентябр) б.7- 10.
3. Артикова Ҳ.Т., Юнусов Р. “Тупроқ унумдорлигини ошириш, сақлаш, муҳофазалаш ва қайта тиклашдаги муаммолар ва ечимлар”. Республика илмий-амалий анжуман.- Бухоро, 2018 йил 5-6 апрель, б 252.
4. Рахмонов Р, Тохиров Б, Бегимқулова Н. Бухоро вилояти тупроқларининг табиий иқлим шароитлари. “Ўзбекистон тупроқларининг унумдорлик ҳолати, муҳофазаси ва улардан самарали фойдаланиш масалалари. Республика илмий-амалий конференцияси материаллари. Тошкент – 2013. –Б. 39-42.
5. Tojiyev U., X.Namozov, Sh. Nafetdinov, K.Umarov. O’zbekiston tuproqlari. O’quv qo’llanma. “O’zbekiston milliy ensiklopediyasi davlat milliy ensiklopediyasi” nashriyoti. Toshkent-2004. – Б. 73 - 74.
6. Ўзбекистон суғориладиган ерларининг мелиоратив ҳолати ва уларни яхшилаш ҳолати. Ўзбекистон Республикаси ер ресурслари, геодезия, картография ва давлат кадастри давлат қўмитаси. Илмий тавсиянома. Тошкент, 2018 й. –Б. 189-202.