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The Factors Of Formation Of Soil In Gijduvan District Of Bukhara Oasis, Climate, Physical-Mechanical Properties Of Irrigated Soils.

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Abstract: The article provides information on factors of soil formation, climatic conditions and general physic- mechanical composition of irrigated meadow-alluvial soils in Gijduvan district of Bukhara oasis. Also, recommendations are made taking into account the climatic conditions and physical-mechanical properties of the region.

Keywords: climate, sharply continental, relative humidity, native rock, organic matter, soil structure, soil profile, deflation, condensation, full wet capacity, compared weight.

1. INTRODUCTION

It is known that the transformation of soil-forming rock (native rock) into a soil with a certain name and a different degree of fertility, in which it is directly related to the accumulation of organic matter in this or that amount and quality. The abundant accumulation of humus (organic substance) in the soil determines its fertility level. Because, the more organic matter accumulates in the soil, the more it has a positive effect on its basic texture and properties. There is a decrease in the content of humus (organic fashion) in the soil, a violation of the soil structure (granularity), a condensation of the root layer of plants, an increase in the number of pathogens-pathogens-that cause diseases to crops in the soil, contamination of the soil with poisonous and radionuclide substances, secondary salinity, erosion, deflation and other negative consequences. Based on this, we can say that in the irrigated region there is a tendency to decrease the fertility of soils on a global scale.

As a result of a sharp change in the water-salt regime in the irrigated areas of the Republic, there is an increase in the salinity of the lands. Usually saline soils are characterized by discomfort of water-physical properties. This is caused by an increase in the amount of sodium exchanged in the TSK. The use of lignin, which is considered a production waste in the assimilation of melioratively unfavorable and strongly saline soils, gives a good effect. Due to the fact that the substance of magnesium in this has the property of neutralizing the alkaline environment according to its composition, sorghum has a good effect on the assimilation of soils.

Factors of soil formation of the Gijduvan district

These massive soils were selected as research objects for the study of agrophysical and agrochemical properties of Mehnatabad massif soils of Gijduvan district. This mass consists of

Meadow-alluvial soils, which are located in the old irrigated part of the old Village of Gijduvan. Meadow alluvial soils absolute is a representative of the group of alluvial soils that has matured from a young point of view. These soils are divided into complete genetic layers, which have common morphological signs. The vertical lithological structure of the profile in connection with the activity of the rivers at first can be the same mechanical composition in the profile, weighing down or up-a sedimentary and rigid mechanical composition. This property is considered to be a morpholitogenetic character characteristic of alluvial soils.

The evolution of alluvial soils described above, along with its long duration, depends on the activity of the river on many sides, in other words, depends on the abundance of river waters, on the speed of its leakage and the slope of the source of the influx. Gijduvan district is located on the north-eastern edge of the region and has its own natural and climatic conditions. The selected mass soil-climatic conditions have indicators characteristic of the ancient irrigated Meadow-alluvial soils.

Climatic conditions of Gijduvan district

The climate of Bukhara region is sharply continental: summer is hot, long, dry, the average temperature in July is 28-290, in the sands it rises to 60-700. The average temperature of January is from 00 to -20. Precipitation falls on 90-150 mm per year, mainly in spring and winter.

The climate of the Gijduvan district has sharply continental with subtropical signs. Soil temperature (in the hay layer) in winter, on average in January $–2,0^0$ the surface of the soil freezes, which makes it difficult to plough and wash the soil.

The temperature on the surface of the soil during the year is high in the Gijduvon district. Freezing of deep layers from 10 cm is repeated 3-4 times every 10 years. This situation falls on December, February. It lasts up to 3-7 days every month. The absolute humidity of the air in July, including in the summer, when the air temperature rises every month is 15,2-17 mm, in the deserts it is about 10,0-11,2 mm. Relative humidity increases in the cool period of the year, especially in December and January to 74-76%. The most reduced relative humidity to the air temperature is due to June-July, this figure will be equal to 31-39%.

The speed of the Garmsel wind is 15-20 meters per minute, from which the dark, hot dust-moth rises. If the number of cloudless open days in the region reaches 160-170, then on average in Bukhara it rains in the region equal to 161, and in winter. The most rainy month in the year is March. Hail falls low in the region. And the snow layer is not kept for a long time.

Here the spring is usually wet and warm, but according to some places it begins later. According to many years of data, the fall was observed in the spring black cold March.

In the summer period, the relative humidity of the air is up to 26% in the non-irrigated lands of the Gijduvan district, and in the land near the previously irrigated drained waters, its amount is large. Also the movement of soil on irrigated lands is lower to $7\text{-}8^0$ C than on non-irrigated areas.

The relative humidity of the air is not high, in June-August the air will have a minimum humidity, while the annual average air humidity is about 28-36%. The rise in air temperature in the summer months leads to a greater evaporation of moisture, which in turn is much higher than the annual average norm of atmospheric precipitation. This appearance of nature leads to the salinity of the soil and an increase in the demand for water for crops. Despite such negative manifestations of the weather, the territory of Bukhara region agrarian landscape is considered favorable for the cultivation of almost all agricultural crops.Meadow-alluvial soils, irrigated from ancient times, are characteristic soils for the Gijduvan district.

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The total irrigated area of Gijduvan district is 20032,0 ha, of which the weakly saline areas are up to 10041,0, the average saline area is up to 2485,4 ha, the strongly saline Area is up to 582,7 ha. The district is located in the ancient irrigated Meadow-alluvial soils region. Due to the fact that it was watered in ancient times, these soils are more humus than non-irrigated soils, but the humus horizon is much less elongated [7,10]. The state of such humus stretching is associated with the thickness of the agroirrating layers in them. The mechanical composition of these soils is light and medium-caliber, and the low regions of the farmland their mechanical composition is aggravated (Table 1). Apart from it, the channels and ditches are prone to coarse soils of mechanical composition on soils that are in front or around them, since as a result of irrigation on these lands their composition is brought with irrigation water, it is added with light particles of agroirrigating substances. Alluvial Meadow soils irrigated from ancient times, together with unfertilized fields, are also three [2,3], among which different levels of saline soils.

The main indicator that affects the nutrient, water and –air and heat regime of the soil is its mechanical composition. Although there is no very variable indicator, such as mechanical composition, soil humus, nutrient elements, it can be slightly altered in the initial stages of assimilation, and then under the influence of various agro irrigational deposits.

Medium and light coarse soils have favorable water-physical and agronomic properties. Since they are light in comparison with heavy coarse and clay soils, melioration is easy to obtain. Of the particles that make up the mechanical composition, fine sand (0,1-0,05 mm) and large dust (0,05-0,01 mm) are the main part, the amount of which is in the middle of 40-60%.

The mechanical composition of the meadow-alluvial soils in the ancient irrigated lands of Mekhnatobod massiv of Gijduvan district. Sketch –SH-1, in %

Figure-1

№	Depth sm)	Size of fractions (mm)							Physical mud
		0.25	0.25-0.1	0.1-0.05	0.05-0.01	0.01-0.005	0.005-0.001	<0,001	
1	0-16	0.50	0.80	16.71	29.88	15.48	28.73	10.72	51.98
2	16-30	0.51	0.82	4.31	34.58	14.38	24.73	20.20	59.78
3	40-50	0.37	0.69	5.35	32.92	19.10	22.90	18.66	60.66
4	70-80	0.42	0.77	4.29	26.06	17.26	29.34	21.86	63.46
5	130	0.31	3.01	14-16	47.26	8.80	13.14	13.38	35.42

The amount of large particles from 0,25 mm is about 0,50-031 percent. The amount of particles with 0,25-0,1 mm is 0,89-3,1 percent. The amount of granules with 0,1-0,05 mm is not distributed around 16,71-16,0 percent.

U.Tojiev and others [1] determined that the physical properties of the soil vary according to the duration of irrigation. In the studies, the total porosity in 0-30 cm layer of newly assimilated Meadow soils was 51-58 foizni. In the former irrigated soils, however, it decreased by 47-51 percent.

General physical properties of Mehnatabad Massif in Gijduvan district soils

Figure-2

Figure/ №	Depth, cm	Compared nass, cm^3	Volume nass, cm^3	Porosity %
SH-01	0-16	2,60	1,31	49,1
	16-30	2,61	1,41	47,2
	40-80	2,60	1,33	50,0
	120-130	2,59	1,37	48,6
SH-02	0-16	2,60	1,32	49,6
	16-30	2,59	1,42	47,0
	40-80	2,60	1,33	50,1
	120-130	2,60	1,36	49,8

According to the data obtained, as a result of irrigation, the soils are washed downwards of the particles in the upper layer in some cross-sectional profiles. The elimination of the mechanical composition of the upper layer of irrigated Meadow soils leads to a decrease in productivity.

The general physical properties of the soils of the district were determined by the comparative and bulk weight of the soil solid body, the total porosity of the soil was calculated. The comparative weight of the soil varies from 2,59-2,61 g/cm3 (Table 2). The comparative weight of the soil is due to its mechanical, mineralogical composition and the amount of humus [4]. Such a change in comparative weight is observed mainly in the middle part of the soil profiles. The main reason for this-is the formation of compounds on the basis of such as iron, aluminum, manganese, which is the main sign of the account of internal weathering and Meadow soil occurring in the soil under conditions where there is a lot of moisture. In general, the comparative weight of the soil is almost the same amount that can not be changed (in the long term).

In the soils of the studied area, the total porosity is 49.1-49.6 percent in the tillage layers and 47.0-47.2 percent in the tillage layer and 49.8-50.1 percent in the subsequent layers.

The subsoil layer of the land used for long-term irrigation and farming is equal to the weight of the largest volume. There have been numerous studies on the occurrence of “Plowing underground dense layer”, most of which have been shown to be caused by long-term irrigation and heavy-weight techniques.

Such a change in the weight of the volume leads to a decrease in the total porosity, which in turn leads to a deterioration in its water permeability property and a decrease in the total water reserve. For example, if the water permeability in the hay layer is good, that is, the average water consumption in an hour is about 40-45 mm, then in the hay layer this indicator sharply decreases and does not exceed 15-20 mm per hour. As a result, after each watering on the ground layer of densified Hay, the accumulation of valuable water for Agriculture of local

importance leads to the decay of the roots of cultural crops. In addition, due to the fact that this layer has the ability to waterproofing, the quality negatively affects the conduct of autumn-winter salt washing.

The fact that irrigation and melioration activities are not conducted on time also has a negative impact on the fertility of the Earth. When anti-salinity measures are not carried out,less than 4-4, 5 quintals of cotton is grown per hectare. Only the holistic implementation of all measures related to farming can improve the land reclamation situation, compensate for the money spent on evacuation and get a high yield [8,9].

Another of the agrophysical indicators of the soil is its water-physical properties. Field wet capacity is difficult to calculate the norm of irrigation of plants without determining its indicator, expressing the condition after wetting the limit of more or less stable humidity. The size of the field wet capacity depends on the mechanical composition of the soil and grinds, the amount of humus, density, porosity character, etc. The greatest influence on the wet capacity is the mechanical composition of the soil.

The wet capacity of the soil is inextricably linked with the density of the soil. Capillary wet capacity SH-01-at a depth of 0-16 CM of the incision is 30.6%, at 15-30 cm is 25.8 foizni, at SH-02-at the cross section respectively 33.2 and 27.7 full wet capacity is around 33.4 percent in the upper layer (0-16 CM), slightly decreased in the 15-30 cm layer and increased

Capillar and full wet capacity of soils of Mehnatabad Massif in Gijduvan district
Figure-3

Sketch №	Depth, sm	Volume of capillary wet	Full wet volume
SH-01	0-16	30,6	33,2
	16-30	25,8	27,7
	30-40	33,2	40,2
SH-02	0-16	32,2	33,4
	16-30	27,6	32,1
	30-40	28,2	30,3

2. RESULTS.

The practical importance of determining the wet capacity of the field plays an important role in determining the norm of irrigation. The wet capacity of the field depends, first of all, on the mechanical composition of the soil, its density, the amount of humus, micro and macrostructure, porosity, salinity. In the upper layers of the studied area, the wet capacity of the field is 21.6-24.2 percent.

The study of the agrophysical properties of soil is important in determining the norm, duration of irrigation, methods of soil processing. In agriculture, little attention is paid to the texture and properties of soils when watering during the growth period of plants. At the same time, its water-physical properties, the growth and yield of plants, too, are not taken into account. In order to increase soil fertility and make effective use of irrigation water, it is necessary to take into account the amount of water supplied to each hectare of irrigated land.

3. CONCLUSION.

Their effective productivity is not high due to the fact that the land used in agriculture is not at the required level of the land reclamation and ecological situation. From year to year, there is a decrease in salinity, erosion, deflation processes in irrigated lands. There are object and sub-object reasons for this. But it's a mistake to say so everywhere. It is observed that in farmer farms, where Ilmu relies on science-based recommendations, thousands of years of peasant experience, soil fertility does not decrease, but rather increases.

Therefore, in the development of agriculture, it is necessary to organize land formation correctly and perfectly. Bunda detallashgan soil maps, soil chemical, physical, agronomic properties of the mapping and scientific documents will be the basis. On the basis of these documents, the ratio of crops to be sown, their selection, placement, crop rotation, measures against erosion and deflation, melioration and agrotechnical methods, the norm and composition of fertilizers, prospects for increasing the yield are determined. All these measures should be aimed at increasing soil fertility and should be based on environmentally friendly technologies that do not pollute the environment without the waste of agricultural production.

In most scientific works on the physico-mechanical properties of the soils of the studied area, it is noted that with the assimilation of soils, their texture and properties have changed. This process can be either negative or positive for the soil.

The soil of the Gijduvan district Mehnatabad Massif is made up of light and medium coarse soils, which indicates that it has a favorable mechanical composition for agricultural crops. To improve the physico-mechanical properties of the soil, it is recommended to use intermediate crops.

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