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Changes In The Physical Properties Of Previously Irrigated Light Sandy Meadows And Newly Irrigated Soils Of Mirzachol Under The Influence Of Deflation

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Annotations
The article presents changes in the physical properties of old-irrigated light sandy meadows of Mirzachul and newly irrigated soils under the influence of deflation, the results of monitoring various deflationary processes on irrigated lands. Experiments were carried out. It is recommended to plant strip crops as agricultural crops to restore, increase and protect the fertility of wind-eroded soils.
Keyword. Moisture retention and water content of soil, wind erosion, strip crops, soil fertility, resistivity, viscosity, experimental plot.

Log in. Today, according to the analysis of scientists of the world, the land damaged by soil erosion and water erosion, which is one of the global problems, is 10.9 million / ha (56%), the land damaged by wind - 5.5 million / ha (28%), the land that has undergone chemical degradation (reduced humus and biogenic substances, saline, polluted, etc.) - 2.4 million / ha (12%), physically degraded (dense, swamped, sinked, etc.) land is 0.8 mln/ha (4%) with a total area of 19.6 million hectares. Also, according to the International Organization FAO, "Today, one-third of the world's soil cover is degraded to varying degrees, with 10 hectares of soil being degraded every minute worldwide, with 23 hectares being degraded."[1]

Therefore, preservation and improvement of the reclamation status of land areas in the countries of the world that have been degraded under the influence of natural and anthropogenic factors are among the urgent issues.

In this regard, the Action Strategy, developed on the initiative of the President of the Republic of Uzbekistan Shavkat Mirziyoyev, logically brings the agricultural sector of the country and its structural changes to a new level [1].

In connection with the rapid development of science and technology in the world, there is a deterioration of soil grain with the increasing use of natural reserves for agricultural purposes, the emptying of land, the formation of quarries, deforestation, the use of machetes from water in order to obtain more yields from agricultural crops, the incalculable introduction of heavy machinery in crop fields [3].

At present, all types of erosion are common in the territory of our country, of which more than 2 million hectares of irrigated land are lost. more than a hectare have been subjected to soil deflation. Studying the status of deflation-prone wetlands, assessing them, and developing erosion control measures is one of the most pressing issues in agriculture at the moment.

On wind-eroded lands, it is necessary to carry out complex organizational, economic, agrotechnical, forestry-reclamation activities. At the same time, the essence of the wind erosion

[1]https://fao.org

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control measure is to properly organize erosion control measures, taking into account the soil relief and the specifics of agricultural crop ripening.

According to the analysis, freshly irrigated meadow soils with sandy and light sandy meadows are relatively slightly saline and have good water permeability. Such soils are widespread mainly in Mirzachol, Friendship and Pakhtakor districts. Our observations showed that the water permeability of these soils was 1.3-1.5 mm/min in the first hours, with the 6-hour average varying in the range of 0.56-0.61 mm/min. The average daily absorption of water is 250-380mm, and this figure speaks of good water permeability of soils.

Soils with a relatively heavy mechanical composition, moderately and severely deflationary have an unsatisfactory water permeability property. Such soils are especially common in Zafarabad and Arnasay districts. The rate of water absorption in these soils is low, not exceeding 0.41-0.89 mm/min during the first first hour. Accordingly, the average water conductivity for 6 hours is not higher than 0.21-0.45 mm/min. The average water permeability per day is 0.18-0.24 mm, and soils are characterized by unsatisfactory water permeability.

The mechanical composition of the soil affects its properties: physical, physico-chemical, physico-mechanical, chemical and biological. The ability of the soil to hold water and bear water, temperature arrangement, physicomechanical properties, specific resistance, viscosity, foam will directly depend on the mechanical composition.

The analysis shows that in all irrigated soils of Mirzachol, the amount of water-resistant microaggregates is low, but the soils are well microaggregated, which demonstrates high fertility, good water mobility and availability of nutrients. The soils of the algae fields are distinguished by good microaggregation

Research methods. Research was carried out in field and laboratory conditions. At the same time, "Methods of agrochemical analysis of soils and plants", "Methods of agrophysical studies" were carried out on the basis of methodological manuals. Humus in the soil was determined by the method of I.V. Tyurin, total nitrogen - by the method of Keldal, total phosphorus and potassium - by the method of E.M. Shcheglova and V.V. Wulfius, mobile phosphorus and potassium in the soil - in a solution of 1% carbon ammonium salt by the method of B.P. Machigin and P.V. Protasov.

Research results and their analysis. The soils of the Mirzadesert region consist of various mechanical compositions related to the genesis of soil-forming rocks and human irrigation and economic activity. In the mechanical composition of soils it occurs from heavy sands to sandstones. Diversity of mechanical composition is observed at the boundary of each soil section.

Mechanical composition of meadow soils of Mirzachol is characterized by the richness of large dust fractions (particles of 0.05-0.01 mm). In the high, one-meter layer of other cuts except incision No. 19, its amount varies from 41 to 63%. It should be noted that in the central part of Mirzachol (Trudyabad district, Pakhtakor company) there is a high (from 47 to 67%) of fine sand particles (0.25-0.05 mm li) and uniform distribution [9, 12,13,14,15].

The amount of microaggregates is very low from 35-46% to 27-32% for irrigated light-sandy meadows, newly irrigated light sandy meadows, newly irrigated light sandy meadows according to the N.A.Kachinsky method [4], very low 35-46% to 27-32%, freshly irrigated light sandy meadowsAs for meadow, sandy meadow soils, the top is observed in the range of 54-59 to 82-86%.

A great role is played by field-protective croplands in complex measures to combat wind erosion.

At the same time, culis croplands have a direct impact on the wind regime, as a result of changes in the wind regime, changes in the temperature and air humidity in the surface layer of the earth, the process of evaporation of moisture from the soil and evaporation from plants, the distribution of snow, the water regime of the soil, as well as changes in the level of grunt waters are noticeable. Especially in the warm period, the influence of kulis crop strips on air humidity is strongly manifested. Also, cully crop floors affect soil moisture and protect the surface fertile layer of the soil from defoliation.

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Wind-powered cultivated crop strips have an additional effect on the water balance of protected crops, which means that in summer they weaken drought tolerance and, at the same time, help to use moisture accumulated in the soil more efficiently by plants. Cultivated crops simultaneously dramatically weaken wind power, dust storms, and their effects on cotton and other crops.

Culis crop floors protect soil and goose crops at almost the same distance from wind erosion, regardless of the number of rows, with the highest impact distance not exceeding the height of the crops. From this it follows that the width of the fields in which wind erosion exists should not exceed 150-160 m, and in length it is possible up to 100 m or more. It is necessary to carry out agrotechnical or chemical measures against wind erosion until kulis crop poles reach a certain height and are able to protect the soil from wind erosion.

Conclusions, suggestions and recommendations.

1. Autumn wheat, corn, corn, Sudanese grass and other fast-growing crops can be used from kulis crops to form protective crops. At the same time, the distance between protective crops should not exceed 15-25 m, and their width should not exceed 2-2.5 m.
2. Sowing winter wheat and rye is carried out in the fall, and the spacing between the rows is pre-loosened at a depth of 7-9 cm in the softening device. Wheat should be watered 2-3 times until the end of the growing season, in order to accelerate its growth, it is recommended to add ammonium nitrate at the rate of 100 kg / ha of pure nitrogen per hectare.
3. In order to prevent the process of soil deflation of forest floors and ichota crops (1-3 years), the use of chemical preparations K-9, TNM-1 and bentonite can be used.The use of these drugs increases the ability to produce deflationary soils with a low content of humus and nutrients.

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