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CHANGES IN THE MORPHOLOGICAL INDICATIONS OF GRAY SOILS UNDER EFFECTS OF IRRIGATION EROSION

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Annotation. Under the influence of strong winds, the top fertile fine particles of the soil are partially blown away and disappear. Along with the soil, all the macro and micro nutrients in it are washed away. As a result, soils with different fertility and other properties appear on the sloping lands. The article discusses the impact of irrigation erosion on the morphological characteristics of irrigated gray soils.

Keywords: Erosion, humus, geomorphology, phosphorus, carbonates, fertilizers, agrotechnology, salinization.

It is well known that land and water resources in the Republic of Uzbekistan are limited. Therefore, increasing crop yields depends primarily on the rational use of water and fertilizer resources per hectare, as well as the creation of early maturing and high-yielding varieties, the use of advanced agricultural technologies, measures to combat salinization and wind erosion, as well as soil fertility. Erosion is basically of two types: water erosion and wind erosion. Soil erosion protection is a pressing issue for many countries in the arid climate of the world, especially for irrigated lands, including the territory of Uzbekistan.

722,000 hectares of land in the country are affected by irrigation erosion, 1,812,000 hectares by wind erosion (in arable lands), and 1,929,000 hectares by sudden water and wind erosion. Therefore, prevention of erosion processes, maintenance and increase of soil fertility, obtaining high and quality crops from crops are the most pressing issues. Due to irrigation erosion alone, 450-500 thousand tons of cotton will be lost in the country. Depending on the degree of erosion in these areas, the cotton yield is up to 40% lower than in non-eroded areas.

In general, irrigation erosion is a type of water erosion. Irrigation (irrigation) erosion refers to the erosion of the top fertile fine-grained part of the soil as a result of an increase in the velocity of water distributed to the edges when irrigating sloping lands. Along with the soil, all the macro and micro nutrients in it are washed away. As a result, soils with different fertility and other properties appear on the sloping lands. In such lands, crop yields and quality are reduced, especially cotton and wheat, which are more susceptible to this condition. Irrigation erosion is caused by the slope of the arable land, as well as the granularity of the soil, the amount of water distributed in the field, and a number of other factors.

The steeper the slope of the land, the faster the flow of water increases and the greater the washing of the soil. Too little leaching of the soil depends on the slope of the crop area, the amount of water flowing from the field, the flow rate, and can go

from 15-20t to 25-30t per hectare and exceed it at each irrigation. The fertility of the soil decreases as the nutrients in the soil are washed away. According to research data, on average, more than 100 t of soil per hectare is washed away by 100-200 kg / ha of nitrogen and 75-100 kg / ha of phosphorus.[1]

According to the data, the humus layer on the uneroded plain was 60-70 cm, and when the humus in the topsoil was 1.2-1.5 cm, the cotton yield was 25-30 ts per hectare. The fiber quality was 5.2g and the weight of 1000 seeds was 127g. The humus layer of the soil is moderately eroded, the middle part of the slope is 3.5-50 slopes, the humus layer is 30-40 cm, the humus in the topsoil layer is 0.6-0.7%, in this subdivision the yield is 16-20 ts / ha. The fiber quality was 4.7 g and the weight of 1000 seeds was 130.1 g.

The fertility of the soil accumulated in the muddy wash increases, the capacity of the soil where moisture is stored is good, the fertility of the soil where nutrients are accumulated is high, but the opening of the pods is delayed. Therefore, the crop is harvested later when it gets cold. The quality of cotton grown will be low. Due to irrigation erosion, the annual yield of more than 200,000 tons of cotton and other agricultural products in the country is declining. [2]

In the study of the impact of irrigation erosion on the properties of typical gray soils in the region, stationary (continuous monitoring) areas are selected and soil sections are made along the slope at different levels (2-50) according to the geomorphological profile. In this case, the upper flat part of the slope is separated by water - 1.5-20 in the first part of the slope of uneroded soil, weakly eroded and in the middle part of the slope (3-4.50), medium and strongly eroded soils and the lower part of the slope (0.5- 10) was divided into "washed and collected" soils. The following factors are used to determine the degree of soil erosion when recording the morphogenetic parameters of soil sections: soil color humus layer thickness (A + B_j + B_2), layer thickness 62 cm, 52 cm in low eroded soil, 39 cm in moderately eroded soil, plowed layer 28cm in strongly eroded soil, where the A + B_j layers are washed away and the excavated layer is formed due to the B_2 layer. Therefore, as the erosion process intensifies, the concrete rises to the surface of the carbonate. In non-eroded soils, the range of carbonates in the form of arrow molds is 16-20 cm, concreted carbonates are 62 cm in soil cross-section, indistinguishable in low eroded soils, concretes 52cm, average 8-10cm, in some cases strong on the surface, and often concretes are observed on the surface.

In summary, the morphogenetic characteristics of soils in different elements of the slope are not the same due to irrigation erosion. These indicators emphasize that the general structure of the soil profile, the thickness of the humus layer A + B + B_2, the structure, color, mechanical composition and the depth of placement of carbonates in the form of white mold and concretes are not the same.

These indicators suggest that improper irrigation of human agricultural crops, including cotton, cereals, improperly irrigated sloping lands, will result in three categories of soil fertility, ie 3 different points of quality. Of course, the owners of such lands, first of all, it is necessary to improve soil fertility, to take measures to prevent erosion.

Conclusion: Our field studies of gray soils in the foothills show that the color of eroded soils is darker than that of non-eroded and “washed away” soils as a result of erosion. At the bottom of the slope, erosion has resulted in the formation of new “washed-out” soils, which have a much longer cross-section (more than 100 cm) and a darker soil color. Accumulation of carbonate and gypsum is not observed at the boundary of the soil section.

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