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IMPROVEMENT OF MELIORATION OF MEADOW SAZ SOILS

U. B. Mirzaev
FSU., Associate Professor of the Department of Soil Science

G. Madalieva
FSU, Student

Abstract
Most of the irrigated soils of our republic were developed in the last century and included in the list of soils used in agriculture.
In the majority of reclaimed soils, the effects of natural factors that continuously create and develop salinity, such as the composition of the soil-forming parent rock, the shallow location and mineralization of seepage waters, increase their tendency to re-salinization, and the issues of improving the land reclamation and increasing the effective productivity of these soils are still relevant.

Introduction

According to data (M.A. Pankov, 1957), at the beginning of development work, i.e. in 1930, 126 thousand hectares of Central Fergana were occupied by saline soils, 36 thousand hectares by strongly saline soils, 4 thousand hectares by moderately saline soils, and 29 thousand hectares by weakly saline soils. According to data by M.A. Pankov (1957), in the 1930s and 1940s, the soils of the conical expanses were characterized by a high content of easily soluble salts in water. The dry residue content in the weakly saline soils of the region was 0.7-1.0% and even more, and their maximum quantitative indicators fell on the upper layers of the soil. Also, such soils were mainly distributed in the middle and central parts of the Isfayram and Shahimardonsay and Sokh River conical expanses.

In the 1950s, intensive development of the lands of Central Fergana for agricultural use began. In 1930, irrigated land amounted to only 16,452 hectares. In 1949, the Isfairam-Margilan oasis alone had 36,918 hectares. As a result of extensive development work, by 1975 this area had increased to 105,615 hectares (A. Maksudov, 1979).

Irrigation and reclamation constructions, applied agro-reclamation and agro-technical measures had a strong impact on land reclamation, morphological structure of soils, chemical composition of salts. The state of land reclamation has changed in a positive direction. Non-saline and weakly saline soils were replaced by saline and strongly saline soils. According to A. Maqsudov (1979), by 1975, saline soils were 68,972 ha, highly saline soils were 35,340 ha, moderately saline soils were 39,740 ha, and desalinated soils were 6,820 ha.

In practice, despite the consistent application of measures to improve the condition of soils, the level of salinity in most of the region's soils remained high even in the 1970s, and according to the results of studies conducted in this regard (O.K. Komilov, V.Yu. Isakov, 1978), it was shown that the salinity of soils depends on many factors (mechanical composition, location of layers,

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composition, etc.), as well as on the presence of gypsum and arable-shoddy layers in the soil section, which contain a large amount of gypsum and carbonates. The lower parts of the cone-shaped plateaus are located directly in the Central Fergana Desert, and the share of such soils among the region's soils is high - about 150 thousand hectares.

Our study area - irrigated gypsum-rich meadow peat soils widespread in the eastern and central parts of the conical outcrops, according to data from 1975-78, are saline and saline-limestone, with a degree of salinity from weak to strong. The amount of salts in the section is associated with gypsum, therefore they are mainly concentrated in gypsum and rich layers. They decrease towards the lower, more fertile part of the section (Fig. 1, sections 8 and 82). Our results from 2003 (section 8) show that the effect of 25 years of irrigation on the distribution of salts in the soil is weak. Salinity is preserved throughout the soil section. In some layers, both the total amount of salts and the amount of toxic salts have increased. The type of salinity has not changed - sulfate-calcium. According to the results of our research in 2015 (Fig. 1, section 1), no significant changes were noted in the compositional and quantitative indicators of water-soluble salts. The redistribution of salts along the cross-section is observed in all three periods, and their relative accumulation in the surface layers in 2003 and in the middle layers in 2015 is noticeable.

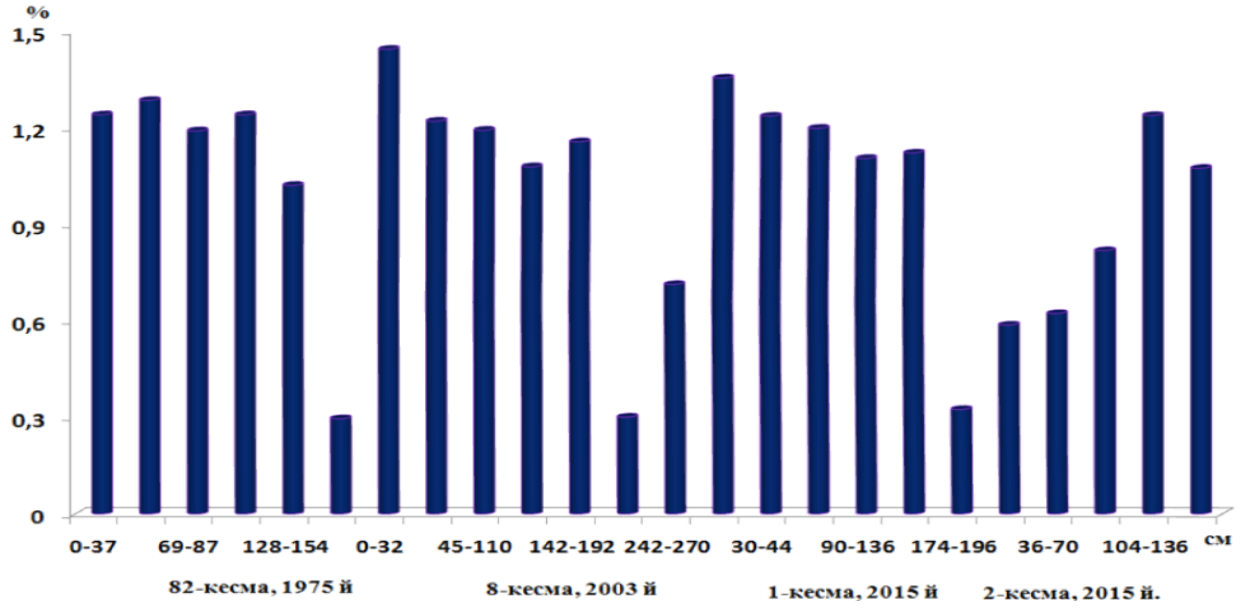

Figure 1. The content of easily soluble salts in water (based on dry residue) in the study area (sections 82, 8 and 1) and regional hydromorphic soils (section 2) in 1975, 2003 and 2015, %

In the cross-section of soils without nutrient-rich layers or with such layers located under the soil (Fig. 1, cross-section 2), as we have already noted, the progressive changes taking place continue, and even now their cross-section has become weakly saline and non-saline, it is noticeable that the content of easily soluble salts in water has slightly decreased in relation to the amount of dry residue, and the accumulation of salts along the cross-section in layers that are actively affected by seepage water (at the upper limits of the capillary rim).

Changes in the quantitative parameters of these soils under the influence of irrigated agriculture, changes in the redistribution along the cross-section occur in a unique way under the influence of

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a number of factors - irrigation, saline washing waters, the mechanical composition of the soil and, of course, the activity of collectors.

In the case of a low relief slope (0.002) in the conical plains, where the natural drainage of the area is poor and the flow of seepage water is not controlled, irrigation water dissolves salts from the soil layers and carries them down, but after irrigation, the salts are carried up again with moisture rising from the capillaries. Soils with high-density layers in the cross section, soils with a multi-layered mechanical composition in the cross section, and soils with a heavy mechanical composition in the cross section are characterized by poor water permeability, and therefore the above process is actively taking place in them, and re-salination actively develops. In regional normal soils, leaching processes prevail.

The main factors that cause salinity levels to drop to a certain level and then stop or cause re-salinity are the performance of the collector-sewage system and its incomplete supply.

The deterioration of the functioning of collector-drainage systems leads to the accumulation of rainwater, irrigation water, and groundwater that enter them under conditions where the flow of groundwater is naturally slow due to the relief, and their rise to the soil surface. Under such conditions, salinization occurs rapidly, especially in fertile soils with low water permeability.

According to the above, in the process of soil desalination in the Isfayram-Shohimardonsoy cone plains, the correct direction of the movement of irrigation, salt washing and seepage waters, their general flow in the direction of moving from top to bottom, depending on the slope of the area, in the direction of discharge into the collectors-zovors, constant maintenance of the activity of this process is the main factor that activates the desalination process. is considered

This process is one of the important measures to prevent re-salination of desalinated soils formed in place of previously saline soils, and it is necessary to develop a system of additional measures to these measures in fertile soils and to apply them together.

References

1. Kamilov O.K., Isakov V.Yu. Genezis i svoystva okarbonachenno-zagipsovannyx pochv Tsentralnoy Fergany. - Tashkent.: Science. 1992.

2. Pankov M.A. Pochvy Ferganskoy oblast. -V kn: "Pochvy Uzbekskoy SSR", T.P. Tashkent: Izd-vo AN UzSSR, 1957.

3. Maksudov A. Pochvy Tsentralnoy Fergany i ix izmeneniya v svyazi s orosheniem. -Tashkent: Science, 1979.

4. Mirzaev U.B., Umarkulova B. Vliyanie anthropogennogo factora na evolyutsiyu oroshaemyx arzyk-shohovyx pochv. Nauchnoe obozrenie. Biological science. 2020. No. 1. St. 5-9.

5. Mirzaev U.B., Yuldashev G'. Evolution of irrigated fertile soils under the influence of anthropogenic factors. FDU scientific news. 2018 No. 5. 40-43 p.

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