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IRRIGATED HYDROMORPHIC SOILS OF THE SOKH FUNE OF THE FERGANA VALLEY

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Annotation
The article describes the agrochemical state of meadow alluvial and meadow saz soils irrigated by the Sokh river basin from the mountain rivers of the Fergana Valley. According to them, the content of humus in soils ranges from 0.6 to 1.2%, nitrogen - 0.03-0.11%. The content of phosphorus is 0.10-0.13%, potassium 1.70-2.10%.

Keywords: irrigated meadow saz-alluvial soils, humus, mechanical composition, carbonates.

Introduction and rationale for the study

The Fergana Valley, stretching from west to east and from north to south, covers all the diversity of landscapes found on the territory of Uzbekistan. Mountain systems, piedmont-piedmont undulating and alluvial-deltaic plains are characterized by different geological structure, heterogeneity of soil-forming rocks and hydrogeological conditions, as well as various hydrothermal resources, which determined the formation and development of a wide genetic diversity of hydromorphic soils in the valley. In this regard, some negative processes have appeared that affect the basic properties of irrigated soils.

Object and methods of research

The object of the study is irrigated hydromorphic soils in the southern part of the Fergana Valley or the Fergana region. The territory of the region occupies the southern and southwestern part of the Fergana Valley (1).

The research is based on the comparative geographic method, which makes it possible to study the genesis of soils, establish both genetic relationships between the components of the soil cover, as well as the main directions of the soil formation process (2). Also, morphological methods were used in the studies, which ensure the

reliability and validity of field diagnostics of soils, the characteristics of the main morphogenetic properties of soils (3). Chemical analyzes of soil samples were carried out in the analytical center of the Research Institute of Soil Science and Agrochemistry according to generally accepted methods (4).

The results of the study and their discussion

Fergana region occupies the southern part of the Fergana Valley. Its area is 675.9 thousand hectares, which is 1.6% of the total area of Uzbekistan. Taking into account the geological structure, relief, history of development and relief-forming factors, the territory of the Fergana region can be divided into five large geomorphological regions, differing primarily in the type of relief: mountainous, foothill, adirs, flat (valley) and desert (5; 6; 7) .

In this regard, the formation of soils proceeds against the background of diverse lithological-geomorphological and climatic conditions. Irrigated agriculture has a certain influence on the processes of soil formation (8).

Irrigated meadow soils are the most common soils in the irrigated land fund of the region. In the belt of typical and light serozems, they form against the background of the saz moistening regime, in the desert zone - saz-alluvial. In both cases, an anthropogenic irrigation regime is imposed on them, causing a stable occurrence of groundwater at a depth of 1-2 m.

Old-irrigated meadow alluvial soils occupy an ancient alluvial plain, closed with the periphery of merged alluvial cones of rivers flowing into the valley from the south. They are formed when the groundwater depth is 1-2 m. In places, soils within the upper meter are underlain by pebbles. The carbonate content of soils is generally low (7-8% CO2), but in some soils in the lower horizons there is an increased carbonation, leading to the formation of schoch.

The content of humus in soils ranges from 0.6 to 1.2%, nitrogen - 0.03-0.11%. Gross phosphorus - 0.10-0.13%, potassium - 1.70-2.10%. Soil absorption capacity is low - 8-13 m/q per 100 g of soil. Calcium predominates in the composition of the absorbed bases (62-73% of the total). Meadow saz-alluvial soils, formed at close occurrence of mineralized groundwater, are prone to salinization. Along with non-saline soils, there are weakly and moderately saline soils.

Old-irrigated meadow saz soils occupy the most flattened areas in the relief on the piedmont plains and alluvial fans. Long-term irrigation of soils with turbid irrigation waters leads to the formation of an agro-irrigation horizon, the thickness of which,

depending on the duration of land use, reaches 0.5-1 m. It has a relatively uniform composition and mechanical composition, most often represented by medium and heavy loams. Sometimes soils at a depth of 1-2 m are underlain by pebbles. The content of humus in meadow saz soils is relatively high and ranges from 0.8 to 2.0%, gross nitrogen - from 0.03 to 0.10%. The ratio of organic carbon to nitrogen is wider (8-10) than in other meadow soils, which indicates a weak enrichment of saz soils with nitrogen. The content of gross phosphorus in these soils ranges from 0.11 to 0.14%, gross potassium - from 1.4 to 2.0%. The carbonate content of these soils is somewhat higher than that of alluvial soils. The amount of carbonates along the profile varies from 8 to 10% CO2. Soil salinization here is weak and not everywhere.

Conclusion

Based on the above data on the state of meadow saz-alluvial soils, it can be stated that the results of the last survey of irrigated soils with the previous ones indicate a deterioration in the quality of the land. This is due to the increasing processes of soil salinization, groundwater rise, development of irrigation erosion, which together leads to soil degradation.

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