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EVOLUTION OF SAZ SOILS OF CENTRAL FERGHANA GRASSLAND

U.B.Mirzaev
Researcher, Fergana state university, Uzbekistan

Z.Azimov
Researcher, Fergana state university, Uzbekistan

A.Tojimatov
Researcher, Fergana state university, Uzbekistan

Abstract
In article addresses the role of the anthropogenic factor in the process of modern evolutionary development of irrigated meadow saz soils in Central Fergana.

Keywords Anthropogenic factor, morphology, evolutionary development, arzik, shokh, gypsum, carbonate, easily soluble salts.

INTRODUCTION

The soils of the Central Fergana desert, developed in the 1930s-1950s, have undergone significant changes under the direct influence of the human factor, and their morphogenetic structure, as well as other properties, have acquired a unique appearance compared to their appearance. It was formed during the stagnant period.

In the studies on the genesis and gradual development of soils formed in the area during the past time, it was noted that these soils are formed and developed under the influence of specific factors [2,83-110 b, 4, 77 b]. Now, an approach with sufficient emphasis on the leading influence of the anthropogenic factor in the changes in the cross-section of soils may allow to further illuminate the process of their gradual development.

METHODS

The object of the research is the meadow saz soils formed in Central Fergana. The method of placing the soil sections along the geochemical-geographic section was used in the field research. “Methodical recommendations” of the Institute of Soil Science named after V.V. Dokuchaev [3] were also used.

RESULTS

The change in ecological conditions changes the geochemical properties of the soil, thereby shifting it to the stage of gradual development [5, 34-37p], and as a result, the genetic layers in the soil section, its natural properties and characteristics begin to change and lead to an increase in the level of natural fertility. The gradual development of soils is understood as the change of already developed full-profile soils in connection with the evolution of the entire natural environment. In this case, one genetic type or type of soil can pass to another genetic type or type. In the soil profile, features characteristic of the previous stage of soil formation gradually fade or transform, and new features are formed corresponding to the new

stage of soil formation.

The irrigated soils of Central Fergana, selected for the study of changes in the genetic layers of soils, are mainly rich meadow saz soils, which were developed after the 1930s and 1950s, separated at the type level. This section of soils differs from the section of meadow saz soils in the region by the formation of specific layers, gypsum, arzic, chalky, gypsum-rich, and arzyc-rich layers.

At the end of the 70s of the last century, protected arable soils were located in the north-western parts of the Isfayram-Shahimardonsoy contiguous spreading cones and in small areas within the irrigated lands of the lake-proluvial plain and in salt marsh complexes of sandy valleys (2, 83-110 p). At present, almost all areas with rich soils have been brought under irrigation farming. The eco-ameliorative state and structure of the soil cross-section of the reclaimed rich soil lands in the study area varied widely depending on the length of the irrigation period, the complex of applied meliorative measures, the intensity of farming, etc.

According to the researches of M.A. Pankov [2, 84-85 p] in 1949, the lower regions of the cone spread and its flanks, as well as the lake-proluvial plain, meadow scarp, swamp scarp, soft and rough scarp and sand complexes . Soft sedges, like all other sedges, are characterized by a soil cross section that is not stratified into genetic strata. The uppermost layer of the section is a soft, soft salt layer, its thickness is 1-10 cm and more. This layer consists of small crystals of Na_2SO_4, $Na_2SO_4 \cdot 10H_2O$ salts mixed with the soil mass. Beneath the soft layer lie unstratified deposits. In their section, a large amount of salt accumulations in the form of spots, thin veins, salt separations in the form of crystals of different sizes, and sometimes druses and insect nests and veins formed by the adhesion of gypsum crystals to each other are clearly expressed. Often there are signs of waterlogging in the form of yellow, rust and brown-blue spots along the section. These soils usually belong to the hydromorphic group, being strongly plastered under the soft layer.

Humus staining of the upper layers is poorly expressed. Soft salt marshes are found in the form of spots in the fields near the cultural oases, among the saline meadow soils, and in the lands where the mineralized seepage waters are located close to the earth's surface. They are more widespread along the outer border of the Margilan oasis, that is, the desert part, than in other cone-shaped areas of the valley.

Coarse-soft salt marshes occupied higher areas with deeper seepage waters. The morphology of dense-soft cones is distinguished by the following characteristics: on the surface of the soil there is an uneven, rough, brittle, 1-5 cm thick, spongy porous, light brown layer. Lime, gypsum, and sodium chloride salt are the majority of the aggregate. A layer consisting of small crystals of Na_2SO_4-predominant salts, mixed with soft, fine soil rock of a light color or oozing color, with a thickness of 1-2 cm to 15-30 cm lies under the thicket. Beneath the soft layer is a salty crust that adheres tightly to the soil.

At the base of the salt layers, the gypsum bedrocks, which are completely undifferentiated into genetic layers, begin. From the top of the section, the bedrock has rust and bluish stains, which increase in quantity downwards. The amount and distribution of new saline wounds depends on the mechanical composition, the water properties of the subsoil and the regime of seepage. A large amount of salts, often accumulated at the junction of layers with different mechanical composition, broken capillary paths.

In the researches, they were analyzed as simple slags, paying attention to the amount of gypsum and carbonates in the sections of the separated soils. Later, highly saline soils and salt marshes with a large amount of gypsum and carbonate layers in the cross-section were separated as a separate type - the type of salt marshes. However, in the beginning of the 80s of the 20th century, they were preserved in the form of spots in small areas within the reclaimed soil [1,42-83 p]. Along with them, there was a lot of land that was prepared for development and was in preparation for reclamation, as well as abandoned due to the ineffectiveness of the efforts made for development. These soils are characterized by heavy mechanical composition throughout the cross section, strong salinity, gypsum and

carbonation, and a very dense joint.

The above-described soft, soft-soft, and hard sorghums and their rich analogues are of scientific-historical importance in the study of past and ongoing evolutionary processes in these soils, because at present these soils are not found in the Central Fergana region without reserve, the areas where they are spread are used for irrigated agriculture. Only irrigation and other anthropogenic activities have had different effects on the morphology and other properties of fertile soils.

It has been 50-70 years since the exploitation of fertile soils began, and 35-40 years since its completion. As part of the above-mentioned influence of the anthropogenic factor, depending on the length of the development period, as well as the applied system of activities, the soil section underwent extensive changes.

The rate of change has now slowed down, and is now undergoing irrigation-induced changes that are more rapid than those in reserve soils, but slower than those in the early stages of development. The scale of changes over the next 30-40 years is reflected in changes in the shape of some components in the cross-sectional structure, their quantitative changes along the cross-sectional layers, and again in the chemical composition of the soil.

In particular, as a result of the research, a strong complexity appeared in the soils, depending on the thickness of the soil layer and the depth of the gypsum layer. It was mentioned above that the reason for this is land leveling. The effect of watering on plaster forms is clearly expressed. Gypsum layer consisting of fine and small crystals of gypsum and their derivatives (gypsum can also be amorphous), usually located near the earth's surface. The size of the crystals increases in the deep layers of the section, they enter rhombic, rhombohedral and coin-shaped forms. In gypsum layers, the phenomenon of suffosis, which indicates the washing of gypsum, is clearly expressed. This phenomenon may increase over time.

A fine crystalline gypsum layer naturally contains a lot of gypsum and is white in color. During the irrigation process, irrigation water moving from top to bottom drains the mass of fine-grained soil from the arable layer into the gypsum layer and deposits them in the spaces between the gypsum crystals. From the gypsum layer, it partially melts the gypsum crystals and washes the small crystals down. The longer the duration of irrigation, the more clearly the result of this process will appear. As a result of these processes, the white gypsum layer has turned into a mixed layer of fine rock-gypsum clay-soil with a cloudy gray color.

The arable layer of soils has become homogeneous under the influence of irrigation, cultivation and other activities. Gypsum and arzic wounds were partially washed away, the remaining crystals became smaller in size, mixed with the soil and became indistinguishable. The amount of organic residue has also increased. As a result, the roots penetrated into the subsoil layer. They are more abundant in the upper part of the layer and sharply decrease towards the bottom. There are small roots in the cracks between the pieces of the structure. In this layer, the phenomenon of leaching of salts is more strongly expressed. Cavities, waterways and funnels are found in the area, formed by the washing of gypsum. They are filled with loose soil mass. Plant roots are well developed in them. In the lower layers of the sections, the results of the suffocation processes can also be observed, but they are weakly expressed and not everywhere.

CONCLUSION

According to the above, in the course of changes in the soil of the research object, the anthropogenic factor activates a stagnant period in the gradual development of the soil, and actively changes other factors (parent rock, relief, flora and fauna) without being able to show the effect on some factors of soil formation and development (climate, age of the country). it acquires its uniqueness by appearing as a controlling factor. Now, the movement of this factor in the right directions can serve as a solution to all issues related to soil in the region.

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