

Agro physical features of gray soils in dry land that are exposed to erosion

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Abstract: It is important to study the effect of erosion processes on the agro physical features of the soil in efficient use of dry land, preserving and enhancing fertility, higher yield and high-quality crops, application of different agrotechnology's. This article describes a change of general physical features of typical gray soils in dry land under the influence of erosion processes.

Key words; Typical gray soil, erosion, volume weight, specific weight, porosity, soil cultivation, agrotechnology.

Enter. The physical properties of the soil are important in determining its productivity, allowing to determine the description of the most important processes taking place in typical gray soils. Deterioration of physical properties of the soil under the influence of erosion makes it difficult to supply plants with water, nutrients and air, as well as soil cultivation processes.

S.N. Ryzhov, V.B. Gussak, M. Umarov, B.V. Gorbunov, M.A. Pankov, G'. Otaboev, V. Korobov, S.M. .Mamaniyazov, A.S. Miloserdova, Kh. Yusupov and others studied.

Research object and methodology. The researches were carried out in the soils of selected key areas in the conditions of typical gray soils of Gallaorol district. The volume weight of the soil was measured by the method of N.A. Kachinsky (using a V-100 cm³ cylinder), the specific weight of the soil was measured by the pycnometer method, and the soil porosity was calculated.

Research results. As the degree of erosion of the physical properties of dry gray soils increases, the density of the soil increases, and this can be attributed to a decrease in the amount of humus and a decrease in plant biomass. It was observed that the volume weight increases from the upper layer of the soil towards the lower layer.

It was 1.28-1.42 g/cm³ in non-eroded typical gray soils, 1.32-1.44 g/cm³ in moderately eroded northern exposure soils, and 1.33-1.44 g/cm³ in moderately eroded southern exposure soils. .

According to the results of the conducted research, the bulk density of typical dry gray soils varies depending on the exposure of the location and the degree of slope. As a result of increased soil density, air and water permeability deteriorates, which in turn prevents the supply of water and air to plants. Depletion of water and air in the soil slows down chemical processes.

Total porosity was 50.4% in non-eroded loamy typical gray soils and 46.3-49.2% in moderately eroded soils. The specific gravity of the studied soils was 2.58-2.67 g/cm³.

Changes of some agrophysical properties of typical gray soils under the influence of agrotechnological activities were studied in the field of rotation. The density of wheat-planted soils in the 1st year after clean plowing was 1.22 g/cm³ in its furrow layer (0-20 cm), and 1.26-1.36 g/cm³ in the sub-furrow layers where the soil was compacted. The density of wheat-planted soils in the 2nd year after clean plowing was 1.27 g/cm³ in the tillage layer (0-22 cm), and 1.29-1.37 g/cm³ in the sub-tillage layers.

In grain plow rotation schemes, the specific weight of the soil in the section planted with wheat in the 1st year after clean plowing is 2.56-2.60 g/cm³, and the total porosity is 52.3% in the driving layer, 47.7-51.0% in the lower layers. organized. These parameters are 2.60-2.65 g/cm³ specific gravity and 51.2% total porosity in the plowed layer and 48.3-50.8% in the sub-ploughed soil in the 2nd year of crop rotation after clean plowing. did

The agrophysical properties of the soil in the conditions of typical wet gray soils varied depending on the farming system, i.e., the predecessors in the crop rotation scheme.

In unexploited reserve soils, the volume weight of the soil is 1.29 g/cm³ in the turf layer, 1.34-1.39 g/cm³ in the lower layers, the specific gravity is 2.62-2.70 g/cm³, and the total porosity is 48.5 -52.7%.

Summary.

1. It has been observed that the general physical properties of soils are changed under the influence of erosion processes, which affects soil fertility and agronomic properties. Depending on the slope exposure and slope, the specific gravity varies along the profile in the range of 2.56-2.70 g/cm³, and the volume weight varies between 1.18-1.44 g/cm³. Porosity was observed to vary from 45.9% to 54.4% on a weight-by-volume basis.

2. The density of the soil planted with wheat in the 1st year after clean plowing is 1.22 g/cm³ in its plow layer (0-20 cm), porosity is 52.3%, and 1.26-1.36 g/cm³ in the sub-plough layers where the soil is compacted. cm³, the porosity is 47.7-51.0%, the density of the soil planted with wheat in the 2nd year after plowing is 1.27 g/cm³, the porosity is 51.2%, under the plow and in layers it was 1.29-1.37 g/cm³ and 48.3-50.8%, respectively.

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