

## WATER-PHYSICAL PROPERTIES OF IRRIGATED MEADOW-ALLUVIAL SOIL

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The mechanical composition of soils and other water-physical properties were studied by S.N.Ryzhov, B.Gussak, M.Umarov, B.V.Gorbunov, M.A.Pankov [4], M.Mamaniyazov, A.S.Miloserdova [3], I.Turapov [5] and others. During numerous studies, it has been proven that the physical properties of soils are one of the leading factors determining their productivity [1,2,6]. These studies are devoted to determining the agrophysical, water-physical, physico-chemical and thermal properties of soils distributed in the territory of Uzbekistan.

Water properties are one of the most important factors that determine the productivity of the irrigated meadow-alluvial soils of the Nukus district, to create the conditions of land reclamation and irrigation standards.

The field moisture capacity represents the more or less stable moisture limit after strong wetting, and its size depends on the mechanical composition of the soil, the amount of humus, density, macro-micro aggregates, porosity, etc.

Our results show that in the upper 0-50 cm layer of the meadow-alluvial soils of the Nukus massif, the field moisture capacity is on average 19.3-24.4%, while in light sandy areas it is 20.8-23.1%, 21.6-24.4% and in medium and heavy sandy sediments it is 21.5-23.2%, respectively, equal to 19.3-23.5% in light clay sediments. At the same time, meadow-alluvial soils with a heavy mechanical composition have a slightly higher water capacity than medium and light sands. Due to the different mechanical composition and salinity of individual layers, the water capacity is also different.

According to our data on the capillary moisture capacity of meadow-alluvial soils of the Nukus massif, its indicators in the 0-70 cm layer were 32.6-34.5% in 2020, while the capillary moisture capacity in the sub-plot layers of the soil was found to be slightly lower than in the upper layers. It is related to the degree of compaction and mechanical composition of soils.

Soil permeability is one of the most important water-physical properties. Water permeability is of great importance in the agronomic and reclamation description of soils, through which water regime, irrigation techniques, salt washing, erosion processes and other measures are determined.

Effective use of irrigation water, study of water permeability of soils is important in irrigated agriculture of meadow-alluvial soils of Nukus massif. The soils of the region are distinguished by their specific characteristics, that is, they have different

mechanical composition, are multi-layered, have varying degrees of salinity and compaction, and their water permeability is also different. High water permeability is due to the lightness of the mechanical composition of the soil, the abundance of water-resistant aggregates in the upper layers and lack of compaction.

We studied water permeability in light sandy, medium sandy, heavy sandy and light clay soils of irrigated meadow-alluvial soils of the studied Nukus massif. It was observed that the water permeability is high in sections with a light mechanical composition, because the aggregates are dispersed (spread) and the density of the soil becomes a whole mass as a result of the transfer of water-soluble salts to the soil solution in different amounts and washing into the deep layers, and the exit of the salt from the upper layers.

It was 0.021 mm/day in the light loam soils, 0.015 mm/day in the medium loam soils, 0.0088 mm/day in the heavy loam soils and 0.0059 mm/day in light clayey soils of Nukus massif irrigated meadow-alluvial soils.

In conclusion, we found that water permeability is high in light and moderate mechanical composition, and relatively low in heavy mechanical composition and light clay.

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