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WATER CONDUCTIVITY OF MEADOW-GRAY SOILS OF OKDARYA DISTRICT, SAMARKAND REGION

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ABSTRACT

It aims to study the influence of soil water permeability and soil agrophysical properties, as well as fertility characteristics and the growth, development and yield of corn, in the cultivation of corn as a repeated crop in the areas freed from grain.

Water in the soil is extremely important and diverse, it is one of the most important and necessary factors determining soil fertility and plant productivity. The growth and development of plants, the activity of microorganisms, all chemical, physical and chemical processes in the soil, as well as the production activities of people targeted at increasing the yield of crops and soil fertility, are determined by the amount and quality of water in the soil. Only when the tissues of plants are sufficiently saturated with water, the processes necessary for their life take place in a normal manner. In dry land, seeds do not germinate, if there is not enough water in the soil, plants develop poorly and produce less.

Different plants consume different amounts of water during their life. For example, millet, corn, potatoes require up to 500 kg of water to produce 1 kg of dry matter, while wheat, flax, cotton, beets and other crops require two or even three times more, it consumes water. The amount of water consumed by a plant depends on its type, variety, air temperature, and the amount of water-soluble nutrients in the soil. The more nutrients there are, the less water the plant spends on evaporation. Thus, crops consume less water in the well-fertilized fields. So, learning the water properties and regimes of the soil and being able to manage it is one of the important conditions for obtaining a high and stable crop yield.

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M.Umarov, in the study of the water properties and regimes of water and soil in the soil and the laws of direct connection between plants and soil. L.T. Tursunov, I.T. The services of Turopov and others were great.

The ability of the soil to receive water and pass it from top to bottom is called water permeability. Water permeability mainly consists of two stages: seepage and filtration (seepage). First, water seeps and saturates the soil, and then water seeps into the lower part of the soil layer at a certain speed. When the soil is completely saturated with water, the downward movement of water under the influence of gravity and pressure gradient is called filtration. Water permeability is measured by the volume of water absorbed by a certain area of the soil surface at a certain time and is usually expressed in mm/hour. Water permeability depends on the total porosity of the soil and its size. For example, since there are many large pores in soils with a light mechanical composition, water permeability is always high. Water permeability is low in soils with heavy mechanical composition and coarse dust structure. The scale recommended by N.A. Kachinsky can be used to assess the water permeability of the soil. Accordingly, at a temperature of 10 0C and a water pressure of 5 cm, the water permeability of the soil is estimated as follows: if more than 1000 mm of water passes in the first hour of observation, the water permeability of the soil is destructive, 500 out of 1000 mm - extremely (excessively) high, 500-100 mm - best, 100-70 - good, from 70 to 30 satisfactory, less than 30 mm - unsatisfactory.

Soil water permeability consists of water absorption, soil wetting and water filtration. The water permeability of the soil depends on its mechanical composition, volume mass, porosity, structure, micro-aggregate composition, density, humus content of the soil and the content of absorbed cations. Factors affecting these properties significantly change soil water permeability. In the conditions of irrigated meadow-grey soils, the use of methods that have a positive effect on the water transfer properties of the soil is of great practical importance. Mulching cotton fields with glossy polyethylene film irrigated meadow soils (Kholikulov, 1976), irrigated light meadow-gray (Ochilov, 1992), typical meadow-boz z soils (Turopov, 1994), old irrigated and newly irrigated meadow-gray-meadow soils (Kurvontoyev, 2000) were studied and the positive effect of this method on soil water transfer properties determined.

Determination of the water permeability of the lands of the TDAU Samarkand Branch experimental site in the Akdarya district of Samarkand region is presented in the table below.

According to the data of the table, the difference in water permeability of the soil in one experimental plot was not almost noticeable. As a result, the difference between the options was compared to very small differences. In each of the options, the level of water absorption was high in the first minutes of the first hour and decreased over time. For example, in the irrigated agricultural land, the rate of water absorption in the first 10 minutes was 2.10 mm per minute, and the total amount of water absorbed was 21.0 mm. In the second ten minutes, the rate of

water absorption decreased by 1.7 mm per minute.

table

Water permeability of the lands of Okdarya district of Samarkand region

interval	Water absorption rate, mm/min	The total amount of absorbed water, mm	Average speed of water absorption, mm/h
1st 10 minutes	2,10	21,0	
2nd 10 minutes	1,7	17,0	
3rd 10 minutes	1,0	10,0	
4th 10 minutes	0,9	9,0	
5th 10 minutes	0,7	7,0	
6th 10 minutes	0,6	6,0	
in the 1st hour	1,17	70,0	70,0
in the 2nd hour	0,50	100,0	50,0
in the 3rd hour	0,39	123,4	41,13
in the 4th hour	0,31	142,0	35,5
in the 5th hour	0,24	156,4	31,28
in the 6th hour	0,21	169,0	28,17

In a six-hour experiment, the rate of instantaneous absorption of water decreased sharply from the first hour to the following hours. A large amount of water consumption in the first 10 minutes and hours is explained by a large amount of water going to moisten the soil. In the next minutes and hours, the soil is saturated with water and water absorption will slow down. In addition, in the following hours, water absorption and filtration move to the lower layers. This resulted in the decrease of water permeability in the following hours. Because the volume mass of the soil in the lower layers is large and the porosity is small, the water permeability also diminishes. At the same time, the soil structure, micro-aggregate condition, density, mineral and chemical composition, and the amount of humus are different in the lower layers. This also affects the level of water permeability. In general, the water permeability of the soil of the experimental field was high. The reason for this is the depth of the seepage waters and the light mechanical composition of the lower layers.

The main means of agricultural intensification is land reclamation. Reclamation improves the condition of the soil, increases its productivity. The types of water regimes of the soil must be taken into account during the implementation of land reclamation projects. A number of complex measures are taken to improve the conditions of water supply of plants. As a result of artificially changing the soil water balance, the input and especially the consumption part, it is possible to drastically affect the amount of total and effective water reserves in the soil. This, in turn, ensures a high and stable yield of agricultural crops. Measures to regulate the soil water regime are based on the climate and soil conditions of the place, as well as

the water demand of the crops being grown. In order to create optimal conditions for the growth of plants, it is necessary to equalize the amount of moisture accumulated in the soil with its expenditure on transpiration and physical evaporation, that is, the value of the moisture coefficient should be close to one. We can plan the measures to regulate the water regime of the soil as the followings. All soil cultivation activities, including the creation of a deep plowed layer of the soil, improving its structural condition, increasing the total porosity, loosening the dense layer under the plow, increase the moisture capacity of the soil and create and maintain more effective water reserves in the layer where the roots of plants spread, which allows you to continue your action. In regions with unstable moisture and drought the measurements of regulating the water regime of the soil are targeted to collecting more moisture on the ground and using it efficiently. Field hedgerows play an extremely important role in maintaining soil moisture. A clean plow, especially a black plow, has a great role in improving the water regime of the soil. In the spring, the action of closing the moisture by loosening the surface of the soil or by airing saves the moisture from the useless physical evaporation.

In the repeated cultivation of corn using resource-saving technology, in order to accumulate more moisture in the soil, using various materials, mainly on the land empty of grain, together with the straw stalk, the seed is planted at the same time. In the fall, organic fertilizers and mulching are widely used. In order to prevent re-salination of the soil in the irrigated fields, it is necessary to take measures against the inefficient loss of water spreading to the field.

Regular improvement of the physical properties and structural condition of the soil also plays an important role in the complex system of measures to improve the moisture supply of plants in different natural zones.

Conclusion: All the things considered , the water permeability depends more on the mechanical composition and fertility of the soil.

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