THE IMPORTANCE OF WATER IN PRODUCING PLENTY AND QUALITY CROP HARVESTS IN THE GRAY SOIL TYPE AREA

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Abstract: *This article shows how important water is in plant life, which is currently in short supply, and the importance of water in obtaining abundant and high-quality crops through proper irrigation of crops in the region of gray soils.*

Key words: *soil, abundance, limit, quality, cotton, crop, physiological, water, fertile, irrigation, crop, watering, cotton, optimal*

In order to obtain abundant and high-quality crops from crops, it is necessary to pay attention to the accumulation of sufficient water in the soil. It is known that due to the fact that Uzbekistan is located in a rather dry zone in terms of climate, the amount of annual precipitation is very low, therefore, the natural moisture in the soil is not enough to get the desired harvest from cultivated crops. Consequently, high yields of cotton and other types of crops are mainly carried out by irrigation. In irrigated lands, it is impossible to create a variety of soil moisture that meets the needs of plants. The moisture regime created by irrigation is called the irrigation water regime. Cotton, like all plants, needs adequate moisture at all times for a high yield. If there is a lack of moisture in the soil, the passage of water to the plant slows down, the activity of physiological processes in it decreases, and the yield of cotton significantly decreases.

In order to ensure optimal soil moisture during the cotton growing period, it is necessary to determine the maximum moisture before watering. This humidity should not affect the yield of cotton and should correspond to the lower limit of the optimal humidity in the soil. The upper limit of optimal humidity is determined by the moisture capacity of the soil.

Some scientists consider the lower limit of optimal moisture to be equal to the wilting moisture of the plant. S. N. Rizhov (1948) proved the inaccuracy of this theory, which is related to the determination of water norms for irrigation time. He determined that the upper limit of optimal humidity is equal to 70-75% of the moisture capacity of the soil field. Soil moisture in the 0-100 cm layer before irrigation is 70-75% less or more than the field moisture capacity, regardless of various agrotechnical measures, whether the soil is saline or not, soil fertility and other means. cannot be p. One of the most important factors of obtaining a high yield is determining the number of irrigations during the cotton growth period depending on the period of seeding.

When there is enough moisture and heat in the soil, the seed begins to germinate after 8-10 days. If there is not enough moisture, the germination of the seed will be delayed. This causes the seedlings to grow unevenly and the cotton to develop unevenly.

According to the information of S. N. Rizhov, the upper limit of moisture required for full and high-quality seed germination is 70% of the moisture in the soil compared to the field moisture capacity. When the humidity is less than this, the water retention capacity of the soil increases, as a result, the flow of moisture to the seeds and roots slows down. The minimum amount of moisture required for full seed germination varies depending on the composition of the soil.

As a result of the observations, it was found that if the soil moisture decreases from the above level, the germination of the seed will be delayed. At such times, cotton can be recovered by providing seed water. The period of the first watering of cotton should be determined depending on the amount of moisture in the soil and the condition of the plant. Applying the first water before or after the norm has a negative effect on cotton productivity.

Timely watering of cotton before flowering accelerates its growth, development and opening of buds.

That is why it is important to determine the optimal period of the first watering. Waterlogging of cotton during this period slows down the growth and development of the plant, affects the late harvest and the quality of the product. In the pre-flowering period, watering more than the norm leads to compaction and cooling of the soil, weak and slow development of seedlings.

The total amount of water used by the crop in a cotton field (not including the water used in the root layer) consists of water used by the plant and water evaporated from the soil. If we take the total water consumption of the field as 100%, then 60-80% of it is consumed by plants, and the remaining 20-40% evaporates from the soil. The better the soil is cultivated, the higher the quality of agrotechnical activities, the less water evaporates from the soil, and the plant uses it very well.

During the growing period of cotton, the daily water consumption of the fields is different. Water consumption is low at the beginning, and then increases, usually cotton consumes the most water during the period when the boll ends. Later, the amount of water used in the field will be much reduced. For example, the average amount of water consumed by a cotton field per day when the yield per hectare is 30-35 s in typical gray soils with deep seepage water: if it is 18-20 m3 during cotton picking, 50-55 m3 when flowering, 85-90 m3 when the crop is ripening, 45-50 m3 when the crop begins to ripen, 25-30 m3 when it is fully ripe.

This regularity in the change of the amount of water consumption in cotton fields is also noted in different soil climate and land reclamation conditions.

The climatic conditions of the cotton-growing regions of our republic are not the same. In this regard, the amount of rainfall in these regions, the level of soil moisture, the amount of water consumed from it, and x. k. will change. For example, the average annual temperature in the Karakalpakstan ASSR is 10°C, in Tashkent it is 13.5°C, in Termiz it is -17°C. Therefore, in such conditions, the degree of heating of the soil and the

amount of water consumed from it will not have the same indicator. Based on this information, cotton-growing regions of Uzbekistan are divided into 3 zones: northern regions, including Karakalpakstan ASSR, Khorezm region; central zone - Tashkent, Fergana Valley Samarkand, Jizzakh, Syrdarya regions; the southern zone includes the regions of Bukhara, Navoi, Surkhandarya, Kashkadarya, and the following coefficients are adopted when determining the irrigation norm for these zones: 0.8 for the northern zone; central zone- 1.0; southern zone-1,2. For example, if the annual Irrigation rate of cotton for the Central zone areas is set as 5000 m3, this norm is 5000x0.8=4000 m3 for the northern zone areas, and 5000x1.2=6000 m3 for the southern zone areas. is In fact, since the climate is somewhat cool and humid in the northern growing regions, cotton's need for water is much less than in the central and especially the southern regions.

The mode and quantity of cotton irrigation depends on the physical properties of soil water. For example, in places where there is a layer of gravel or sand on the surface (at a depth of 30-50 cm), cotton should be watered frequently with a small amount. Cotton can be watered less often in places with a deep layer of gravel or sand. Irrigation norms are divided according to the mechanical composition of the soil: 600-700 m3 of water is used for light soils, 700-900 m3 for medium soils, 900-1100 m3 for heavy soils.

The level of tillage and the fertility of the soil have a great influence on the irrigation regime. The more fertile the land, the greater the yield, which means that the total amount of water used during the growing season (irrigation rate) will also be greater for growing cotton. But in this case, the relative consumption of water to produce the weight of the product (for example, each centner of cotton) is always small.

Cotton Irrigation norms and its seasonal distribution pay great attention to the hydrogeological conditions of the place (the level of seepage waters).

Soils are divided into the following groups depending on the level of groundwater:

1. Automorphic soils in areas with deep (below 4 m) water bodies. In this case, seepage water almost does not participate in the process of soil formation, especially in the upper part of the soil where the roots are spread. 100% of water supply to cotton comes from irrigation water.

2. Semi-hydromorphic (semi-hydromorphic) soils in the area where seepage waters are located at a depth of 2-4 m. The water used in cotton vegetation from seepage water is 10% of the total water consumption.

3. Hydromorphic soils in the area located at a depth of 1-2 m from the flowing water. 30% of the water consumed from seepage in cotton vegetation is 30%.

4. Wetlands in the area where seepage waters are at a depth of 0.5-1 m. In this case, almost 50% of water participates in cotton vegetation due to seepage.

For example, in the zone of typical gray soils (1), the annual norm for cotton irrigation is 6,000 cubic meters, and in the utkinchi topros of this zone (2), the annual irrigation norm is 6,000x0.9 ==5,400 m3, for hydromorphic soils (3) it is 6000x0.7=42000 m3, for marshy soils (4) it is 6000x0.5=3000 m3.

Such stratification of the irrigation rate, in turn, saves running water and brings great economic benefits.

The level of salinity of the soil also has a great influence on cotton irrigation. Cotton, which begins to suffer from the accumulated salts in the soil at a young age, needs to be irrigated earlier and spend a lot of water during the season than in the lands where the water is at the same depth, but not saline.

When determining the irrigation regime of cotton, the flatness of the fields, the level of moisture before seeding, irrigation methods, as well as irrigation sources, mode, and water supply of the irrigated lands are taken into account.

Before sowing, it is necessary to level the land well, to have an optimal moisture reserve that ensures the uniform growth of seeds in the soil under the influence of rainfall or rainwater. In such fields, the usual irrigation works start later. Progressive methods of cotton irrigation should be used depending on the structure of the earth's relief, the level of seepage waters and their mineralization, the mode of water sources and the level of water supply of the irrigated lands. For example, if the seepage water is located at a depth of 1-2 meters, it is recommended to water the cotton artificially (by rain), etc. k.

Therefore, soil, climate and other economic factors should be taken into account when producing crops, including cotton. The main task is to create a water regime that ensures good development of cultivated plants and high yield in the soil.

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