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EFFICIENCY OF DRIP IRRIGATION IN THE CULTIVATION OF WINTER WHEAT IN THE CONDITIONS OF BARREN SOILS

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ANNOTATION

The article discusses the advantages of drip irrigation in the cultivation of winter wheat in the conditions of bald meadow soils of Surkhandarya region, moistening of the furrowed and subsoil layers of the soil with scattered roots, water consumption is reduced by 45-50% of the number of irrigations and seasonal water consumption, and nitrogen mineral fertilizers by 20-25%, and the yield of winter wheat grain increased by 4.9-6.5 ts.

Keywords: bald meadow soils, autumn wheat, poplar roots, drip irrigation, irrigation through furrows, water consumption, irrigation technology.

Аннотация: В статье рассмотрены преимущества капельного орошения при возделывании озимой пшеницы в условиях лысых луговых почв Сурхандарьинской области, увлажнение бороздчатого и подпочвенного слоев почвы разрозненными корнями, водопотребление сокращается на 45-50% от количества поливов и сезонного водопотребления, азотных минеральных удобрений на 20-25%, а урожайность зерна озимой пшеницы увеличивается на 4,9-6,5 ц.

Ключевые слова: луговые лысые почвы, озимая пшеница, корни тополя, капельный полив, полив по бороздам, водопотребление, технология полива.

INTRODUCTION

According to the analysis, 6.5-7.0 million tons of grain per year will be needed to provide the population of the Republic with grain and grain products. Taking into account that in recent years more than 1 million 80 thousand hectares of irrigated, 290 thousand hectares of arable land have been allocated for grain growing in order to fully provide the population of the country with domestically grown grain products. In order to fully meet the needs of the population, it will be necessary to achieve an average grain yield of 60-70 quintals per hectare per year in these areas. Scientific research conducted by scientists, the experience of advanced farms and farmers show that there are opportunities to increase the average grain yield in the irrigated areas of the country to 60-70 quintals.

High-quality and abundant harvest of cereals, the correct selection of varieties by region, the correct organization of the seed system, the timely and quality implementation of agro-technical measures, irrigation regime requires the effective use of modern technological methods of

irrigation. The agrotechnology of mass sowing and care of autumn grain crops is not yet well studied in our irrigated agriculture.

The topical issue of the day is the inclusion of cereals in the cotton complex, the study of its cultivation and the development of agro-technical measures. Among the agro-technical measures, especially the methods, procedures and technology of mineral feeding and irrigation of winter wheat have not yet been well studied.

According to the goals and objectives of the research, in the experiment devoted to the improvement of elements of agrotechnology of winter wheat cultivation in the irrigation and mineral nutrition of winter wheat, the effect of drip irrigation of mineral fertilizers by dissolving them in water on the growth, development and yield of winter wheat was analyzed. The object of research was the study of winter wheat varieties "Polovchanka".

The order and timing of irrigation of autumn cereals, the number of irrigations, irrigation rates are determined by the climate of the region, soil and hydrogeological conditions, as well as the biological characteristics of the variety and the applied agro-technical measures.

Irrigation timing, norms and application of water-saving technologies for winter wheat prevented wastage of water in the current period of water scarcity. The washing of the soil and the waste of mineral fertilizers are prevented from polluting the environment.

In order to develop scientifically based technologies to ensure high yields of winter wheat on irrigated lands, it is important to develop the order and technology of irrigation of winter wheat in the conditions of barren grasslands, which cover about 70% of the Surkhan-Sherabad oasis. Field experience In the fields of the scientific production farm "Olimjon" in Qizirik district was carried out on the variety of winter wheat "Palovchanka" in the following system.

The experimental field is barren-grassland, and the groundwater level varies from 1.5 to 2.0 meters in spring and 1.0 to 1.5 meters in autumn. The experiment consisted of 6 variants and was placed in 4 repetitions. The area of the experimental springs is 240 sq.m. m. from, the length of the edge is 50 meters, (width of the edge is 60 cm) consists of 8 rows.

The study of irrigation patterns and irrigation technologies in field experiments and their impact on the growth, development and yield of winter wheat was carried out on the basis of methodological guidelines developed by the Uzbek Research Institute of Cotton, Cereals and Plant Breeding.

EXPERIMENTAL SYSTEM, (in winter wheat) Table 1

Option mode	Irrigation method	Soil moisture before irrigation, % Of CHDNS	Soil layer to be taken into account, cm	The norm of mineral fertilizers, kg/hec		
				Atype	Phosphorus	Potassium
1	Irrigation by Egat	75-75-75	0-30	250	175	125
2	-//-	75-75-75	0-50	250	175	125
3	-//-	75-75-75	0-70	250	175	125
4	-//-	75-75-75	0-100	250	175	125
5	Dissolve nitrogen fertilizers in water and drip irrigation with ordinary water	75-75-75	0-30	250	175	125
6	Dissolve nitrogen fertilizers in water and drip irrigation with ordinary water	75-75-75	0-50	250	175	125

The drip irrigation system in the experimental field under study is based on the SANIIRI IICHB project. The water is pumped to the filters and pipes in the distributor.

Polyethylene with a diameter of 110 mm and a length of 190 m to the experimental plot for water supply by means of humidifiers in drip irrigation, the main pipe is 270 m at a depth of 70 cm, the water is passed through a built-in main water purifier and water meters, which are transmitted by a pump with water pipes installed and fed to the field, the water is distributed from the pipe to the 16 mm humidifiers by means of spherical taps with a diameter of 20 mm through a 50 mm distribution tap.

The water meter takes into account the amount of water being sent to each option. Drops are placed every 30 cm along the humidifiers, with holes with a diameter of 1.2 mm.

Nitrogen fertilizers are water-soluble and in other seasonal irrigation options, each is irrigated separately according to the experimental system. Water consumption and duration were irrigated based on the pre-designed soil layer and its moisture content.

Traditionally irrigated by furrows from 1st to 4th variant 3-2-1 order 6 times a season, irrigation consumption 0-30 cm in the calculated soil layer 800-900 m^3/hec, 850-900 m in the calculated layer of 0-50cm^3/hec, 870-1000 m layer in the 0-70 cm^3/hec and 0-100 cm, in the soil layer 945-1025 m^3/The period between irrigations is 18-20 days, the seasonal norm of irrigation is 0-30 cm in the soil layer 5085-5175 m^3/hec In the 0-50 cm layered variant 5430-5440 m^3/hec, 0-70cm 5680-5700 m^3/hec and 5950-6025 m in a 0-100 cm soil layer^3/hec formed. In the variants using drip irrigation technology, the field often had to be irrigated at lower rates than the calculated layers.

In drip-irrigated variants 5-6, seasonal irrigation is carried out 10 times in 4-4-2 order, water consumption for one irrigation is 250-300 m once when the calculated norms of irrigation are 0-30 cm^3 gani, when the seasonal irrigation consumption was 2725-2745 m^3, the one-time irrigation norm was 260-310 m^3 when the wetting soil layer was 0-50 cm^3, and the seasonal water consumption was 2835-2850 m^3, or 45 percent less than in the 1-4 option irrigated by the egat, and 3 times less water used in production.

In the variants irrigated during the development period, winter wheat was irrigated 3 times during the harvesting period, 2 times during the germination period and 1 time during the ripening period. In the drip irrigation option, it is watered 4 times during the harvesting period, 4 times during the drip irrigation period and 2 times during the ripening period.

In our observations, it was noted that the water use coefficient was high up to 0.95% due to the fact that the drip irrigation system does not leak water and is not wasted in the deep layer. Our observations show that as the pre-irrigation soil layer increases in both irrigation methods, the consumption of seasonal irrigation norms increases.

It should be noted that due to the fact that the root system of winter wheat does not go into the bud and deep layer, it is water and resource-efficient to drip irrigation by 0-30 and 30-50 cm according to the developmental phases of winter wheat, especially water-soluble nitrogen fertilizers were found to be intensively assimilated by the plant root system as a result of not being washed into the effluent and substrates.

Soil moisture received before irrigation to determine the timing and rate of irrigation, as the irrigation period approached, soil moisture was determined using a neutron moisture meter

VNP-1 and a tensiometer. Yields in irrigated 1-4 variants are 63.2 ts, 62.2 ts, 61.1 ts per hectare and 60.5 quintals, while in drip-irrigated 5-6 variants it was 67.9 quintals, 67.0 quintals. The following conclusions can be drawn about the effectiveness of drip and drip irrigation of winter wheat in different wetland soils.

1. In recent years, when there is a shortage of water, the widespread introduction of drip irrigation and the use of its various elements for the cultivation of high and quality crops and great economic efficiency on farms that grow crops in the cotton complex was determined as a result of research conducted under production conditions.

2. In the case of winter wheat irrigated in the order of 3-2-1 in the variants irrigated by simple sowing, the water consumption is 800-900 m when the calculated layer of 0-30 cm is moistened^3/hec, 850-950 m in 0-50 cm layer^3/hec, 870-1000 m in the 0-70 cm layer^3/hec and 0-100 cm in the soil layer 945-1025 m^3/hec water consumption, the period between irrigations is 18-20 days, the general irrigation norms are 0-30 cm in the calculated layer 5085-5175 m^3/hec, 0-50 cm 5430-5440 m^3/hec, 0-70 cm 5680-5700 m^3/га ва 0-100 см. тупроқ қатламида 5950-6025 м^3/hec was found to have a high water consumption.

3. The calculated wetting layers of the soil in drip irrigation 0-30 and 0-50 cm prevent water wastage in the irrigation of autumn wheat, the field is often irrigated at low rates, seasonal irrigation is carried out 10 times in 4-4-2 order 0-30 cm in the soil layer 250 -300 m^3/hec, 260-310 m layer in 0-50 cm^3/hec, 2725-2745 for seasonal irrigation; 2835-2850 m^3/hec water consumption was found to be 40-45% less than conventional irrigation.

4. Due to the improvement of water and nutrient regime in drip irrigation technology, nitrogen fertilizers were dissolved in water compared to traditional drip irrigation, and 4.7-4.8 t / ha of additional grain yield was obtained from drip irrigation.

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