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THE RELEVANCE OF WATER-SAVING TECHNOLOGY, CREATED USING *HYDROGEL* FOR IRRIGATION OF GRAIN CROPS

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ANNOTATION

Water-saving technology using a hydrogel crystal in the rate of 50 kilograms per hectare in the Bukhara oasis under winter wheat, application under the soil has positively influenced the growth and development of the growth of winter wheat. The vegetation rate of irrigation in meadow alluvial soils for watering winter wheat during the growing season was 3780 m3 / ha. The yield of winter wheat grain was 65 centners per hectare, compared to the control variant, the increase was 14.5 c / ha. Irrigation in meadow alluvial soils of a hydrogel crystal for watering winter wheat during the growing season improved the meliorative, water-physical state of the root layer of the soil.

According to the data, the drought was observed every 6-8 years until 2000, and in recent years this has been repeated every 2-3 years. This will not have a negative impact on crop yields, of course. Therefore, large-scale work on the effective use of water resources, including rainfall, and prevention of wasteful water use is being implemented in the country by introducing modern and advanced water-saving irrigation technologies.

One of the factors that currently negatively affects grain yields is water shortages during the growing season;

Part of fertilizers, weeds and insecticides applied to the soil during the irrigation of the grain are washed into the ground water, which leads to the deterioration of the environmental and land reclamation. The above reasons require the efficient use of water resources for irrigated lands, the system of agrotechnical measures that do not have a negative impact on the environmental situation, the scientific justification and implementation of irrigation methods and procedures using hydrogel artificial polymer crystals.

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Irrigation system with the introduction of high-yielding hydrogel in the winter

Wheat (Triticum L) is a plant belonging to the Poaceae Barhart family.

Wheat is the most widely cultivated and widespread plant in the world. In 2007, 607 million tons were produced worldwide. grain is grown. The area under cereal crops on irrigated lands in Uzbekistan is 221,000 hectares in 1991, with a yield of 22.2 centner / ha. In 2003, 1092,5 thousand hectares were sown with wheat, the yield of 43,9 centner / ha. Gross grain production is 4.6 million tons. This is 4 times more than in 1992.

At the same time, 3,500 tons of grain was purchased for the needs of the Republic in 1990, while some of the grain produced in 2003 was exported. In 2008, the republic sowed 1131,8 thousand hectares of wheat, 6 million 175 thousand tons. It is planned to plant more than 1 million 300 thousand hectares in 2016.

After all, raising wheat productivity and gross yield is one of the challenges facing the world community, and the development of measures to increase its productivity requires first of all the deep study of the biological characteristics of the cultivated species and varieties.

Procedures and norms for winter wheat irrigation

Wheat is a perennial plant. Its root system is poppy-root, with the bulk of it developing on the ground floor, some of its roots up to 100 cm. The stem is 40-130 cm. The transpiration coefficient of wheat is 231-557 (on average 400-500), the water requirement for grain is 60-190 m3 / h. The number of these indicators vary depending on climatic conditions, type and grade of wheat, water availability, and the amount of nutrients in the soil.

For spring wheat are required during the growing season.°C for winter wheat and at least 1300 °C. Effective temperatures of 2100 °Depending on the natural conditions of the cultivated areas, the fallow or spring species are planted on irrigated lands. Winter wheat is more frost-and drought-resistant than spring wheat, when the soil temperature is 4-5

The fields undergo certain periods (phases) during the growth and development of field crops, that is, from seeds to seeds. During the developmental stages, morphological changes occur in plants and new organs are formed. Wheat goes through the following phases: germination, spawning, tubing, germination, flowering and ripening phases.

		1st	2nd	3rd	4th	5th		
2015-2016years								
1	A field sprinkled with hydrogel compounds into the soil	26.11 1064,2	12.02 1186,3	06.04 1124,4	28.04 1143,2		1-2-1	4518,1
2	In a household environment	26.11 1064,2	12.02 1186,3	29.03 1124,4	18.04 1143,2	08.05 960,4	2-2-1	5475,5
2016-2017 years								
4	A field sprinkled with hydrogel compounds into the soil	06.12 1077,2	20.02 1132,7	15.03 1192,3	21.04 987,8		1-2-1	4390
5	In a household environment	06.12 1077,2	20.02 1132,7	15.03 1192,3	21.04 987,8	13.05 928,4	2-2-1	5318,4

4.1.5.1.- table

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Experimental view of hydrogel under laboratory conditions.

Currently, wheat in agricultural production is divided into two groups: soft and hard wheat. The demand for more soft wheat is high in flour and flour products, and soft wheat occupies a large part of the total area under cultivation in the country.

Therefore, do not be mistaken in the selection of winter wheat varieties, the timing of planting of each local variety, the soil-climatic conditions, the thickness of seedlings, mineral fertilizers and water.

It is natural that determination of the demand will be a decisive factor in the development of the grain industry in the republic and further strengthening of grain independence.

Hydrogel is an artificial polymer that absorbs water, allowing it to retain moisture for a long time. Hydrogel, which is saturated with snow or rain or irrigation water, absorbs 250 to 400 times more water than its weight by slowly passing moisture to the roots of plants. Simply put, 10 gr. The polymer can hold between 2.4 and 4 liters of water.

As for its efficiency, if used correctly, it will save 20 to 40% of irrigation water for most agricultural crops. It is well known that the water supply system is mainly divided into three systems: drinking and household water and industrial and agricultural water. It is necessary to clean the toilet before adding it to the water basins or the municipal sewage.

Water saving with hydrogel polymers is usually achieved by:

- specificity of irrigation regime (compliance of irrigation norms with plant water requirements);
- limited irrigated area (water is delivered directly to the vegetation layer);
- insufficient amount of water evaporating from the soil (due to prolonged humidity in the field);
- restriction of weed development (all water is used by crops due to lack of grass);
- water discharge from the field.

In addition to the main advantages (improvement in yield and quality, reduced labor costs and water savings), there are several advantages to irrigation systems.

There are many advantages of irrigation technology using newly created hydrogel polymer granules.

Including:

- water resources will be reduced to 25-40%;
- non-transmitters are available;
- It also absorbs rainwater
- irrigation is facilitated;
- the number of irrigation is reduced;
- the mineralization of mineral fertilizers;

In the years of the experiment, after winter wheat seeds were harvested, 700 m3 / ha of seed water was harvested per hectare due to the lack of soil moisture. The rate of irrigation was calculated by the following formula S.N.Ryzhov.

$$M = (W_{чднс} - W_x) \cdot 100 \cdot \gamma \cdot h + K, \quad M^3/ha$$

$W_{чднс}$ - field moisture capacity against soil soils, %;

W_x - pre-water soil moisture, %;

γ - weight of soil volume, gr/cm^3;

h - layer thickness, m;

K - irrigation water evaporation volume, m3 / ha (moisture deficit, 10 %).

Determining the demand for water for the winter wheat during the development period will be important in determining the weight of grain yield in the future.

Under irrigated agriculture, winter wheat yields the required amount of soil moisture, determines the timing and rates of irrigation, and high yields of the winter wheat varieties under study.

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