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**РАЗРАБОТКА РЕСУРСОСБЕРЕГАЮЩИХ ИРРИГАЦИОННЫХ ТЕХНОЛОГИЙ ПРИ
ОРОШЕНИИ ПОЛЕЙ ГУЗЫ В БУХАРСКОЙ ОБЛАСТИ, ЭКОНОМИЯ ВОДНЫХ
РЕСУРСОВ НА ГИДРОГЕЛЕ**

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Аннотация. Достижение равномерного увлажнения активных слоев почвы, распределенных по корневой системе сельскохозяйственных культур, путем применения капельного, дождевого и подземного орошения сельскохозяйственных культур на основе передовых водо-и энергосберегающих технологий в странах-производителях сельскохозяйственных культур по всему миру, предотвращение высокой фильтрации, истощение сточных вод, снижение физического испарения за счет экономии воды и других ресурсов при сезонном орошении сельскохозяйственных культур. в настоящее время ведутся научные исследования. Важной задачей является получение высоких и качественных урожаев сельскохозяйственных культур за счет совершенствования новейших инновационных водосберегающих технологий в мире, а также разработка передовых методов орошения и их широкомасштабное использование в условиях глобального изменения климата.

Ключевые слова: ресурс, вода, капля, гуз, качественный урожай

"Wide use of available water resources, water saving, widespread implementation of cost-effective innovative technologies of irrigation are gaining importance around the world. 2.0% of the available water resources on Earth are fresh water reserves, 79% of which are permanent glaciers, 20% are groundwater and 1.0% are lakes and rivers, which are very scarce for human needs» [1]. In cotton care, the use of liquid fertilizers in drip irrigation and the use of mineral fertilizers by dissolving them in water, as well as saving their consumption, increasing the yield and improving the quality of crops are urgent tasks. In the cotton-growing countries of the world, based on water and resource-saving advanced technologies, the crop root system of the soil has been spread by using drip, rain and underground irrigation methods of cotton and cotton-complex crops. scientific researches are being

carried out to achieve uniform wetting of active layers, to prevent high filtration, waste to sewage, to reduce physical evaporation and to save water and other resources in seasonal irrigation of crops. In the world, it is important to get a high and high-quality harvest from crops due to the improvement of new modern innovative water-saving technologies, and it is important to develop advanced methods of irrigation and use them on a large scale in the face of global climate change. Currently, one of the factors negatively affecting the increase in cotton productivity is the water shortage that occurs during the growing season, and the second is the local soil and hydrogeological conditions when irrigating cotton in most farms. Is the failure to take into account the real requirements for water during the transition phases of growth and development.

Part of the fertilizers applied to the soil during the irrigation process, the toxic chemicals used against weeds and insects are leached into the underground waters, which leads to the deterioration of their ecological and meliorative condition. The above-mentioned reasons require the effective use of water resources allocated to irrigated lands, the system of agro-technological activities that do not negatively affect the ecological situation, the scientific justification and implementation of irrigation methods and procedures. Most of the agricultural regions are located in arid climates, evaporation is very high there. The solution was found locally, now it is possible to save liters of irrigation water per centimeter of soil! This miracle agent was hydrogel. Hydrogel is designed to retain moisture and slowly release it where it is useful for agricultural, ornamental horticultural purposes and to prevent waterlogging. This is a modern polymer material in the form of granules that actively absorb water. When moistening hydrogel balls or powders, the substances absorb water very quickly, turning into jelly-like grains with a diameter of 0.7 to 1.5 cm, they retain their shape, but can lose it with the slightest movement. Plant roots easily absorb the moisture in the gel. As a result of excessive precipitation and snowmelt, soil waterlogging does not occur. When the place where the root lives is saturated with water, all of it is collected by the hydrogel. The main property of hydrogel is its ability to retain water. It is able to collect 300 ml of water along with 1 g of dissolved substances. When the surface layer dries, the particles return to the form of granules and remain active for at least 5 years. Aquagel does not harm the environment. The tool serves on time and separates the soil into simple substances that are common in nature: water; carbon dioxide; ammonium.

When slowly applied to the soil, the drug becomes an additional source of nitrogen for plants, and during the formation of crops, it turns into carbon dioxide, which is necessary for their carbon nutrition. At home, used balls can be disposed of in the usual way, they can be thrown into the garbage. Hydrogel - This is an artificial moisture-absorbing material that contributes to the accumulation and storage of moisture. in the soil or in the substrate containing the hydrogel, near-ideal conditions for plants are created. In addition, hydrogel can be used independently as a uniform soil for plants. In our republic, special attention is paid to the development of new water-saving technologies

that can ensure the production of crops that meet world standards due to the rational and efficient use of land and water resources. In paragraph 3.3 of the Action Strategy for the Development of the Republic of Uzbekistan for 2017-2021, special attention is paid to "the introduction of modern agro-technologies that save water and other resources in agriculture"². For this reason, in the current conditions where water resources are becoming scarce, it is necessary to develop non-traditional drip irrigation and other water-saving technologies of crop irrigation in order to reduce water seepage into the ground and waste, and to increase the efficiency of irrigation water use. requires output and input. Decision of the President of the Republic of Uzbekistan No. PQ-4087 of December 27, 2018 "On wide use of drip irrigation technologies in the cultivation of raw cotton" and No. PF-6024 of July 10, 2020 "Water supply in the Republic of Uzbekistan It is defined in the decree "On approval of the concept of urban development for 2020-2030" and the regulatory legal documents related to this activity. Scientific research aimed at the development of modern technologies for irrigation of agricultural crops is carried out in the world's leading scientific centers and higher education institutions, such as the United States Department of Agriculture (USA), the University of Cordoba (Spain), the St. Petersburg State Scientific Center named after Kirov (Russia), Israel State Scientific Center and (Israel), Central Institute for Cotton Research (India) and PSUEAITI (Uzbekistan). In the scientific studies conducted in the developed countries of the world to improve the methods of economical irrigation of agricultural crops, the seasonal water consumption was twice saved in the drip irrigation of cotton and its related crops (United States Department of Agriculture, USA); plant uptake of soil nutrients increased during drip irrigation (University of Cordoba, Spain); when irrigation water is activated, biochemical processes in the plant are accelerated (St. Petersburg State Scientific Center named after Kirov, Russia); the technology of using nitrogenous fertilizers in drip irrigation was developed (State Scientific Center of Israel); the effect of mineral fertilizers on soil improvement in the drip irrigation system was studied (Central Institute for Cotton Research, India); economical technologies of irrigation of new and promising cotton varieties: film irrigation, irrigation through flexible pipes, discrete irrigation, drip and rain irrigation technologies have been developed. Today, in the world, research is being carried out in the following priority directions on the use of various elements of irrigation methods: water and resource-efficient drip irrigation in cotton and related crops, drip and rain irrigation in soils with varying degrees of salinity. to determine the impact of irrigation on soil desalination, to reduce the costs of introduction and use of the drip irrigation system, to improve the elements of drip irrigation technology suitable for different cotton varieties and soil and climatic conditions, seed It is urgent to study the effectiveness of drip irrigation in cultivation, to carry out research on the wide introduction of cotton drip irrigation technology. Scientists from all over the world have been struggling with the problem of saving fresh water for agriculture for a long time are coming, because in many regions there is a high shortage of this resource. The main property of



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Summary. The role of water in plant life and the importance of water in growth and development in our republic and in the world is explained in detail. It is explained how much water is needed in each phase of plant development and how much it affects plant productivity, leaf area, and transpiration productivity. The scientific research results of leading scientists in the world and our republic and the rational use of water resources are described in this article. In this case, a resource-saving method of cotton, i.e., hydrogel methods, which retain moisture for a long time, were used. In the irrigation of cotton, the rate of irrigation in each growth period, as well as the number of irrigations are given. The effect of fertilizers in the growth phase is presented. The importance of NPKs in the formation of crop elements for plant life, productivity, duration of growth phases was analyzed in detail.

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