

IT IS A WATER-SAVING TECHNOLOGY CREATED WITH THE POWERFUL SWELLING “HYDROGEL”

Sadullaev Azamat Nafiddinovich

Bukhara national research management institute researcher-teacher

Ergashev Mirsharif G‘anijon ugli

Bukhara national research management institute researcher-student

ABSTRACT

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.

Keywords: Hydrogel, Polymer, Irrigation, Granular, Dry Land, Wastewater, Resource Management.

To date, the available and limited water resources in the region have been fully distributed and utilized among the countries. In the existing conditions, the growing demands for water in the region can be met mainly due to the rational use of existing water resources and finding internal reserves of water resources. Therefore, scientists are paying close attention to the development of water-saving technologies.

The decision of the President of the Republic of Uzbekistan dated December 27, 2018 “On urgent measures to create favorable conditions for the widespread use of drip irrigation technologies in the cultivation of cotton raw materials” paves the way for the solution of such economic issues in the introduction of a new method. In order to achieve the expected results of water saving in economic sectors, especially in agriculture, along with the use of modern irrigation techniques that allow a sharp reduction in inefficient water consumption, the development and improvement of relatively cheap and simple non-traditional irrigation technologies and methods is one of the urgent problems of great scientific and practical importance. . One such method

is to create cost-effective irrigation technologies based on the use of strong swelling polymer hydrogels.

Hydrogel is a highly absorbent artificial polymer that can retain soil moisture for a long time. A hydrogel saturated with snow, rain or irrigation water gradually transfers moisture to the roots of plants and absorbs 250-400 times more water than its own weight. Simply put, 10 gr. The polymer can hold up to 2.4-4 liters of water. As for its efficiency, it can save 20-40 percent of water used for irrigation of most agricultural crops when used correctly. It is known that water supply is mainly divided into three systems: water used for drinking and household use, and water used for production and agriculture. Toxic wastewater must be treated before it is added to water bodies or municipal wastewater supplies.

Hydrogel can be widely used in the cultivation of all types of crops in irrigated areas, as well as in low-water and dry lands, in planting horticultural and forestry seedlings (saxovul, various trees), in landscaping - in planting lawn flowers and similar ornamental crops. Hydrogel granules should be stored in a dry place, away from moisture, in waterproof polyethylene bags. Many studies have been conducted to study the water requirement of grain in different soil and climate conditions and different conclusions have been reached.

Water savings in hydrogel polymer irrigation are typically achieved by:

- the specificity of the irrigation regime (compliance of the irrigation rate with the water demand of the plant);
- limitation of the irrigated (moistened) area (water is delivered directly to the layer where the root of the plant develops);
- low amount of water evaporated from the soil (the field is long wet due to time lag);
- limiting the development of weeds (due to the absence of these weeds, all the water is used by crops);
- not to throw water from the field.

Water savings in hydrogel polymer irrigation are typically achieved by:

- the specificity of the irrigation regime (compliance of the irrigation rate with the water demand of the plant);
- limitation of the irrigated (moistened) area (water is delivered directly to the layer where the root of the plant develops);
- low amount of water evaporated from the soil (the field is long wet due to time lag);
- limiting the development of weeds (due to the absence of these weeds, all the water is used by crops);
- not to throw water from the field.

Applying this newly created strong swelling polymer hydrogel irrigation technique to irrigation of agricultural crops grown in different climatic, soil, hydrological and melioration conditions of our Republic, and studying and improving new irrigation technique elements for each type of crop under certain conditions is an urgent issue.

REFERENCES:

1. Agaltseva N. The impact of climate change on the water resources of Uzbekistan. Uzhydromet. Tashkent. 2019.
2. Khamidov M., Khamraev K. Water-saving technologies of cotton irrigation in the conditions of global climate change and shortage of water resources. IOP Conference Series: Materials Science and Engineering, 2020, 883(1), 012077
3. Methods of conducting field experiments. O'zpit, Tashkent, 2007, 146 p
4. The method of agrochemical and agrophysical research in irrigated cotton areas. Note: 1962. - 440 P.
5. Daspeksav B.A. Methodology of field experience. Moscow. Agropromizdat, 1985.351 P.
6. Zhuraev U. A., Atamurodov B. N., Sabirov K. S. and Najmiddinov M. M. (2022). Technology of irrigation of agricultural crops with water of various quality. American Journal of Social and Humanitarian Studies, 3(7), 45-49
7. Zhuraev A. K., Zhuraev U. A., Atamurodov B. N., Sabirov K. S. and Najmiddinov M. M. (2022). THE EFFECTIVENESS OF INTENSIVE POTATO CULTIVATION IN SALINE SOILS. Scientist's website: International Journal of Scientific Research, 3(6), 1853-1859.
8. Zhuraev A. K., Zhuraev U. A., Atamurodov B. N., Sabirov K. S. and Najmiddinov M. M. (2022). THEY WATER THEIR CROPS WITH WATER OF DIFFERENT QUALITY. Eastern Renaissance: innovation, education, natural and social sciences, 2 (6), 1251-1257.
9. Khamidov M. H., & Zhuraev U. A. (2012). The effect of phytoremediation on soil salts of plants. Innovative technologies in the water management complex.- Ukraine, Rivne, 32-34. 10. Mountain B., Hamidov A., Muhammad Khan K. and Juraev U. Improving the quality of drainage waters by biological methods: practical work carried out in the Bukhara region of Uzbekistan. European Scientific Review.- Austria, Vienna.-2016.- September-October production.(05.00. 00. № 3).
11. Zhuraev A. K., Zhuraev U. A., Atamurodov B. N., Sabirov K. S. and Najmiddinov M. M. (2022). THEY WATER THEIR CROPS WITH WATER OF DIFFERENT QUALITY. The Eastern Renaissance: Innovation, Education, Natural and Social Sciences, 2(6), 1251-1257.

12. The drip irrigation method is a guarantee of high yields JA Dustov, NS Xusanbayeva, MM Radjabova - IOP Conference Series: Earth and Environmental ..., 2022
13. НАУЧНЫЕ ОСНОВЫ ВЛИЯНИЯ ПОДЗЕМНЫХ ИСТОЧНИКОВ НА ГОДОВОЙ ПРИРОСТ РАСТЕНИЙ В СОВРЕМЕННЫХ ПРИРОДНЫХ УСЛОВИЯХ ШР Ахмедов, ИН Турсунов, ММ Ражабова - Экономика и социум, 2022
14. Sugʻorishda yer osti suvlaridan ratsional va ekologik xavfsiz foydalanishning ilmiy asoslari (kungaboqar misolida)SR Axmedov, IN Tursunov, MM Rajabova, SH Hakimov - Science and Education, 2022
15. Scientific basis of rational and ecologically safe use of groundwater in irrigation (in the case of sunflower) SR Akhmedov, IN Tursunov, MM Rajabova... - Global Scientific Review, 2022
16. Scientific basis of the effect of groundwater sources on annual plant growth in current natural conditions SR Akhmedov, XT Tuxtaeva, ZU Amanova... - IOP Conference Series: Earth and Environmental ..., 2023
17. Application of drip irrigation technology for growing cotton in Bukhara region В Matyakubov, D Nurov, M Radjabova, S Fozilov - AIP Conference Proceedings, 2023
18. СИСТЕМА ПЕДАГОГИЧЕСКОЙ ПОДГОТОВКИ ОБЕСПЕЧЕНИЯ БЕЗОПАСНОСТИ РАБОТНИКОВ ПРИ ПРОИЗВОДСТВЕННОМ ПРОЦЕССЕ ММ Раджабова, ХХ Ниязов, С Улмасов, А Зулфиев - Scientific Impulse, 2023
19. ANTHROPOGENIC LANDSCAPES AND PROSPECTS OF ECOTOURISM IN THE AREA OF THE BURGUNDY RESERVOIR. ММ Radjabova, NR Davitov, AA Zulfiyev, S Shodiyev - Finland International Scientific Journal of Education ..., 2023
20. Scientific basis of the effect of groundwater sources on annual plant growth in current natural conditions SR Akhmedov, XT Tuxtaeva, ZU Amanova... - IOP Conference Series: Earth and Environmental ..., 2023
<https://iopscience.iop.org/article/10.1088/1755-1315/1138/1/012034/meta>
21. ЗАПАСЫ ПОДЗЕМНЫХ ВОД БУХАРСКОЙ ОБЛАСТИ И ИХ ЭФФЕКТИВНОЕ ИСПОЛЬЗОВАНИЕ ММ Раджабова, А Зулфиев, М Эргашев - СОВРЕМЕННАЯ НАУКА И ОБРАЗОВАНИЕ ..., 2023
22. НАУЧНЫЕ ОСНОВЫ ВЛИЯНИЯ ПОДЗЕМНЫХ ИСТОЧНИКОВ НА ГОДОВОЙ ПРИРОСТ РАСТЕНИЙ В СОВРЕМЕННЫХ ПРИРОДНЫХ УСЛОВИЯХ ШР Ахмедов, ИН Турсунов, ММ Ражабова - Экономика и социум, 2022