

DEVELOPMENT OF MEASURES TO IMPROVE THE EFFICIENCY OF IRRIGATION TECHNOLOGY FOR GRAIN FIELDS ON FARMS IN THE BUKHARA REGION

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ABSTRACT

In this article, when increasing the efficiency of sprinkler irrigation systems in agricultural fields, the method of grain irrigation, water-physical properties of the soil, salt regime, changes in the level and mineralization of groundwater, grain growth, development, productivity and various methods for determining water consumption of grain, soil salinity, primary and secondary salinization, natural and artificial factors causing salinity to obtain high yields in agriculture.

Key words: *grain, sprinkling, water flow, sprinkler, relief, crop rotation, coupling, nozzle, adapter, nipple, triple, elbow.*

Enter. We all know that today the world population is more than 7 billion people. The number of people on earth is increasing more and more. Such a situation, in turn, is considered as the main issue of providing the population with natural, clean, high-quality and cheap food rich in vitamins. Therefore, in the following years, measures taken in our country to reform the agrarian sector, to further increase the production and processing of agricultural products, including fruits and vegetables, and to increase the volume of exports are bearing great results. According to the Ministry of Finance, in 2020, about 240 mln. more than soums were spent. Taking this into account, in the course of applying modern methods of irrigation in the Republic, we will consider the rain irrigation method as a good example.

The main part. The advantage of sprinkler irrigation:

•*Reliefs, irrigation efficiency* – It can be widely used for growing different types of plants in any large area and in areas with unfavorable topography. Also, there are opportunities to save water, increase productivity, effective irrigation and, in addition, to plant row crops such as wheat. *Reduce deadlines* – Mechanization of agricultural works in short periods creates sufficient conditions for their accurate implementation. Wide range - a sprinkler with a wide range makes irrigation processes and water distribution easier, and their management is more convenient. Water consumption - allows you to determine the water consumption for each area. *Increases the coefficient of land use* – The ability to easily move irrigation systems from one place to another can be easily adapted to any irrigation system, and in areas where surface washing is required, soil washing can be carried out. *Intensive watering* – It can distribute the exact and uniform water consumption throughout the field, in which the same amount of water reaches each plant. *Fertilization* – it is convenient to mix fertilizers with water. *Crop rotation* – Crop rotation can be done using a specific part of the header and pipes of the drip irrigation system, in which cotton, wheat and other crops can be planted in rotation.

During the period of water shortage in our republic, in the context of efficient use of irrigation water in irrigated areas and elimination of water-related problems, the introduction of advanced resource-efficient irrigation technologies during the growing season in Bukhara region is a priority issue. Consistent measures to radically reform the mechanisms of water resources use in our country, to ensure their rational and efficient use, to support and encourage the introduction of water-saving technologies in economic sectors, as well as to improve the reclamation of irrigated lands. activities are being carried out. The implemented measures, as well as the mechanisms of state support, made it possible to ensure the introduction of water-saving irrigation technologies on an additional 33.2 thousand hectares in 2019 alone, which will allow such technologies to be implemented. The cultivated land made up 44% of the total area.

However, the fact that the total area where water-saving irrigation technologies are used is only 75 thousand hectares or 1.7% of the total irrigated land areas, measures aimed at expanding the use of water-saving technologies in agriculture and ensuring the efficiency of water resources use calls for the need to further activate the activities. **Sprinkler Irrigation (components and parts)**. A sprinkler irrigation system includes: a pump unit, a water supply pipe, distribution pipes, a triple connecting pipes, elbows and transitions, a water transfer hose, a sprinkler and its holding steel adapters and couplings that connect the mast, sprinkler and hose together, take plugs attached to the end of the distribution pipe.

Pumping device - takes the specified amount of water to the irrigation system

*under the necessary pressure from the water source and delivers it to the water supply pipe. The water supply pipe (main pipe) delivers water from the pressure pipe of the pumping system to the distribution pipes. **Water supply pipe (main pipe)** - it is usually made of high-pressure polyethylene, and its diameter is 75 mm, and its wall thickness is 4.5 mm.*

***Distribution pipes** - serves to deliver water from the main pipe to sprinkler hoses. Distribution pipes are also made of high-pressure polyethylene, and sprinkler irrigation systems use a pipe with a diameter of 50 mm and a wall thickness of 3.0 mm. **Interconnecting parts of the main and distribution pipes** - consists of a tee, elbow, adapter and transitions. **Water hoses** - designed to deliver water from the distribution pipe to the sprinkler. They are made of high-pressure polyethylene and usually have a diameter of 16-20 mm and a wall thickness of 2.0 mm. The water transfer hose is connected to the distribution pipe using a nipple.*

Sprinklers are designed to sprinkle water on the field as rain. The sprinkler has the feature of pulsating movement. Each sprinkler has the ability to moisten an area with a radius of 10-15 meters. In order to ensure complete wetting of the fields, the wetting radius of a sprinkler is usually chosen to be 1.5 times less than its maximum value. The average water consumption of one sprinkler is 0.5-0.7 l/s. Impulse sprinklers have two drainage holes, their diameter is usually 4-6 mm and 2-2.5 mm. A small-diameter sprinkler sprinkles water in a circle at a short distance, while a large-diameter sprinkler sprinkles water in a radius of 10-15 meters. The diameter of the threaded part of the sprinkler fitting to the coupling is usually 15-20 mm. The sprinklers are attached to a metal pole 1.5 meters high, which is installed next to the distribution pipe, with the help of a retaining coupling (diameter 20 mm). The metal column is made of steel reinforcement with a diameter of 12-14 mm. Its total height is usually 2 meters, of which 1.5 meters is above the ground, and 0.5 meters is placed underground. In the upper part of the metal column, a threaded bolt is installed, which holds the sprinkler coupling.

The coupling holding the sprinkler is made of a metal pipe (diameter 20 mm) and a sprinkler is installed on one (upper) side of it, and an adapter made of polyethylene is installed on the other (lower) side. The adapter serves to connect the water hose to the sprinkler. The length of the clutch is usually 5-6 cm. The ends of the sprinkler irrigation pipes are closed with plugs. We recommend the following regarding the application of the sprinkler irrigation system: The unique feature of this irrigation method is that it allows to significantly increase the productivity, irrigation is mechanized and the land is very flat. not required. Productivity provides an opportunity to preserve the top layer without disturbing the soil composition.

CONCLUSIONS AND RECOMMENDATIONS

In short, the water consumption per hectare decreases by 40-50% during rain irrigation. Increasing the efficiency of relief irrigation, reducing the duration of mechanization of agricultural work in short periods, the location of sprinklers in a wide range facilitates irrigation processes. Allowable water consumption per area. The coefficient of land use is increased, the exact and uniform water consumption is distributed throughout the field, in which the same amount of water is delivered to each plant.

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