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ZAMONAVIY SUV TEJAMKOR SUG`ORISH TEXNOLOGIYALARIGA O`TISH- ZAMON TALABI

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Anotatsiya. Ushbu maqolada zamonaviy, innovatsion sug`orish tehnologiyalarining ahamiyati, ulardan foydalanish samaradorligining qishloq xo`jaligi ekinlari rivojiga ta`siri va ilmiy asoslarga tayanib takliflar bayon etilgan.

Kalit so'zlar. Zamonaviy sug'orish texnologiyasi, tomchilatib sug'orish,suv tejalishi,suvni iqtisod qilish.

ПЕРЕХОД НА СОВРЕМЕННЫЕ ВОДОСБЕРЕГАЮЩИЕ ТЕХНОЛОГИИ ОРОШЕНИЯ – ТРЕБОВАНИЕ ВРЕМЕНИ

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Аннотация. В данной статье описывается важность современных инновационных технологий орошения, влияние их использования на развитие сельскохозяйственных культур, а также предложения, основанные на научных принципах.

Ключевые слова. Современные технологии орошения, капельное орошение, водосбережение, водосбережение.

TRANSITION TO MODERN WATER-SAVING IRRIGATION TECHNOLOGIES - THE NEED OF THE TIME

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Annotation. This article describes the importance of modern, innovative irrigation technologies, the effect of their use on the development of agricultural crops, and suggestions based on scientific principles.

Key words. Modern irrigation technology, drip irrigation, water conservation, water economy

Introduction. Up to the present time, the water resources necessary for agriculture in our country are becoming scarce every year. This, in turn, requires the rational use of water resources, the involvement of modern, innovative irrigation technologies in the field. If we look at concrete facts, in 1990, our Republic used 64 billion m3 of water resources, but by 2018, this figure has decreased to 46.8 billion m3. It is noteworthy that the population of our Republic has increased from 16 million to 33.4 million people during this period, which shows the importance of the task before us.

According to the President's decision No. 3823 dated July 2, 2018 "Measures to increase the efficiency of water resources use" and "On measures to further improve the water resources management system" dated October 9, 2019 Resolution No. PQ-4486 aims to further improve the system of water resources management and the use of water management facilities, to introduce market principles and mechanisms in the field of water management, as well as to develop science in this field.

To ensure the implementation of these decisions, the Ministry of Water Management is tasked with developing a concept for 2020-2030 and putting it into practice. From this we can see that effective and rational use of water resources is one of the priority directions under the control of our head of state.

The use of modern irrigation technologies not only saves water resources, but also increases economic efficiency. If we consider drip irrigation, this irrigation method is an engineering technique designed to deliver the appropriate amount of water to the root layer of the crop using hoses. is a method of irrigation.

During drip irrigation, the water is delivered not to the entire field, but to the part of the field where crops are grown, to the root layer of the crop. Along with water, nutrients are also given in a dissolved state. In such conditions, the water reaches the crops completely without wasting nutrients.

In all parts of the field, the crop develops uniformly and gives a stable yield. When the crops are irrigated by drip, water is not absorbed into the soil in vain, and water is not released from the field. As a result, a large part of the water planned for irrigation is saved.

During drip irrigation, water is saved due to:

- The amount of water for irrigation (irrigation rate) is adapted to the daily water demand of the crop (irrigation rate and duration are determined based on the calculation of actual evaporation and transpiration);

- As water is given directly to the layer where the root of the plant develops, the wetted area decreases;

- Water evaporation from the soil surface is reduced due to the large part of the crop field remaining dry;

- Due to the reduced development of weeds in the field, only the crop receives all the water given for irrigation; -

The absorption of water for irrigation into the soil is reduced;

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- Water does not come out of the field.

In drip irrigation, only the part of the field where the crop is planted is irrigated, not the field, but the crop. For example: 30-65 m3/ha (on average 50-55 m3/ha) of water is used to irrigate 1 hectare of garden 1 time. During the whole season, the garden is irrigated 55-70 times, which means drip irrigation 2 times less water than usual is used when harvesting. As a result, drip irrigation saves 25% to 50% of water depending on the type of crop compared to other irrigation methods.

Fig. 1.. Drip irrigation method.

Figure 2. Irrigation of agricultural crops.

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In the method of sprinkler irrigation, water is transformed from runoff into a droplet state with the help of a special machine, device or aggregates, and sprinkled on the soil surface and plants as artificial rain. Features of the sprinkler irrigation method include moistening of the soil, plant and surface air layer, the soil moisture layer is not very deep, frequent irrigation with small irrigation rates and irrigation field. it is possible to evenly distribute water along

3 – picture. Sprinkler irrigation method.

Irrigation is the transfer of water from the state of flow to the state of soil moisture. The main essence of irrigation is to provide the necessary moisture for agricultural crops, to ensure and control the water, nutrient, air and heat regimes of the soil necessary for crops, as well as the optimal microclimate conditions in the irrigated area. Irrigation is divided into regular and one-time irrigation.

In regular irrigation, based on the natural and climatic conditions of the region and the water demand of the plant, the soil is regularly moistened and irrigated during the vegetation period. In one-time irrigation, the soil is watered once a year: in spring or autumn, moisture-accumulating irrigation is carried out with the help of ports. Crop irrigation is the irrigation of all crops used in arid regions. Selective irrigation is the irrigation of certain water-demanding and economically important crops (for example, vegetable crops in the crop rotation system) in arid and unstable regions.

Major irrigation is a large irrigation system implemented at the expense of the state budget. Small irrigation means areas irrigated using small (limited) water sources at the expense of water consumers. Depending on the duration of irrigation, it is divided into vegetation and non-vegetation irrigation. Vegetation irrigation is to ensure the water requirements of crops during the growing season. According to their function, they are moisturizing, nourishing, aerosol and

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warming. No-vegetation irrigations are moisture-accumulating, plowing and pre-sowing irrigations, salt washing and provocation irrigations - weeding irrigations.

Irrigation water is used to form the dry mass of the plant during its growth. The rest is spent on evaporation through the leaves and trunk of the plant - transpiration.

Transpiration is the evaporation of water from the leaves of plants. The transpiration coefficient is the amount of water used to form one unit of dry mass of the plant.

Improper irrigation destroys the soil structure, the air and nutrient regime is disrupted, nutrients are washed down from the active layer where the root is located, the level of seepage water rises, waterlogging and salinity occur, plant productivity decreases, soil lead to leaching and environmental pollution.

Under the influence of irrigation, there are significant changes in the agronomic properties of the soil, water-weather, heat, nutrient regimes, microbiological activity of the soil, and the microclimate of the irrigated area. Irrigation changes the forces that hold soil particles together. Irrigation - has a great influence on the microclimate of the regions - the temperature and humidity of the surface part of the atmosphere and the upper layers of the soil change, water is stored in the body and leaves of plants, lowers their temperature, they develop better, the shade expands, and the thermal regime of the soil improves.

Irrigation affects the process of soil formation, its salt and air regime, chemical and microbiological processes, the accumulation and decay of organic matter. As a result, a fertile layer is formed. Water dissolves nutrients in the soil and improves plant nutrition. As a result of irrigation, microbiological processes in the soil are activated: as a result of ammonification and nitrification (activity of nitrogen-producing bacteria), nitrogen nutrition of plants improves.

Due to the strong development of the root part of the plant as a result of irrigation, the soil is enriched with its residues - organic substances. Irrigation provides plants with a large leaf surface, a strong root system, and a large vegetative mass, leading to an increase in its yield and quality of the crop.

Irrigation with short hoses

When watering with short cans:

-the amount of waste water is reduced by 16-20%,

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- cans are evenly moistened along their entire length.

Figure 4. Watering with a short cans

Based on the above, if only 1% of the irrigated area of our country is specialized for drip irrigation, then according to the tasks of the head of state, it is tasked to increase this indicator to 50% by 2030.

In conclusion, switching to modern water-saving irrigation is the most optimal solution in the current shortage of water resources. As a result of this, a lot of labor force, water resources, fuel and lubricant products are saved, and it also leads to high economic efficiency. In addition, it has been scientifically proven that an increase in productivity has been achieved during irrigation with the help of these methods.

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