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FEATURES OF APPLICATION OF FERTILIZERS IN DRY IRRIGATION

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Annotation. In this article, the development of innovative irrigation technology and technical means of a low-pressure drip irrigation system of domestic production, aimed at creating favorable conditions for the growth and development of crops, increasing the productivity of irrigated land, irrigation water, increasing the value of KIV, CWI, efficiency of on-farm irrigation systems is the task which allows solving the issues of sustainable primary economic growth of agriculture and water management in our country.

Keywords.drip irrigation, low-pressure drop system, irrigated land, irrigation water, agricultural crops.

INTRODUCTION. At present, due to the scarcity of water resources, it is extremely important to create innovative methods of irrigation techniques and technology for agricultural crops of on-farm irrigation systems of a new generation, to modernize the exploitation of the technology of irrigation of agricultural crops. The Cabinet of Ministers of the Republic of Uzbekistan has developed a long-term program for the introduction of drip irrigation systems, designed for 2009-2020. President of the Republic of Uzbekistan Sh. Mirziyoyev pays great attention to the use of innovative methods of establishing resource-saving techniques and technology of irrigation of the garden and other crops on the irrigated lands of the Republic of Uzbekistan. At the same time with the organization of domestic production of the corresponding equipment systems. The Government's decision is aimed at rational and economical use of water resources. As a result of this project, annual savings in water resources should be at least 2-2.5 thousand cubic meters per hectare.

Drip irrigation allows to receive a high crop of agricultural crops with saving up to 40-50% of irrigation water and a significant reduction in labor costs for irrigation and crop processing in comparison with traditional methods.

However, the introduction in farming and other farms is constrained by the very high price of the imported drip system, mainly of Israeli production. Joint Uzbek-Israeli (SANINPLAST), as well as

products of Shurtangaz (Kashkadarya region), Pipetechnologies, Agroplast, Saniplast, Mahsuspolimer and others.

LITERATURE REVIEW. There are many scientific achievements in the field of the development of various designs and technologies for drip irrigation in the United States, Israel, Russia and other countries, but studies to determine technical parameters and irrigation technology based on the domestic low-pressure drop system are performed for the first time in the Tashkent region.

Scientific basis and parameters of drip irrigation of other agricultural crops in different years were proposed by scientists from Israel, the United States, Russia and other countries. However, these developments are applicable to specific systems and are not universal.

The links of this work with the approved plans of research work were carried out in accordance with the economic agreement No. 23/2005 "Development of new drop tubes with the introduction of them in drip irrigation systems" concluded with the Ministry of Agriculture and Water Management of the Republic of Uzbekistan, and also on the state budget research work No. 7.5 "Development and phased introduction of modern water-saving technologies in the Educational and Scientific Center of the Tashkent Institute of Irrigation and Land Reclamation" for the period 2008-2015.

METHODS. Studies were carried out on the crops of the beetroot of the Ronda F1 hybrid. The relief, soil, and hydrological conditions were identical when laying field experiments. In order to eliminate the effect of soil differences, the experiments were carried out in four replicates by the method of split plots.

Experimental studies were carried out in a two-factor field experiment in table beet crops: - Factor A - soil water regime; - Factor B - the level of mineral nutrition, directed to achieve different levels of planned yield of table beets. The scheme of the experiment on the water regime of the soil (factor A) included three variants of the soil moisture threshold with the use of drip irrigation: A1 - maintaining the threshold of the preliminarily moist soil in a moisturized layer of 0.4 m at a level of 70% HB during the vegetation period of table beet; A2 - at the level of 80% HB during the growing season of table beet; A3 - at the level of 90% HB.

According to the regime of mineral nutrition of table beet (factor B) cultivation, three variants of introducing fertilizer doses calculated for obtaining three different levels of yield of table beet were studied: B1 - mineral fertilizer application with a dose of N30P70K0 per 50 tons / ha of beet root crops; B2 - N80P110K90 - 70 t / ha; B3 - N130P150K180 - 90 t / ha. Studies were carried out on the crops of the beetroot of the Ronda F1 hybrid. The soils of this subzone appear as medium- and heavy-loamy.

For the studied soil cover 0.0-0.5 m, the addition density is 1.30 t / m3, the lowest moisture capacity is 24.2% of the dry soil mass. In the root zone, low humus predominates within the limits of the arable layer from 2.25 to 0.88%.

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Provision of the soil of the experimental area with readily hydrolyzable nitrogen and mobile phosphorus is low (40 mg / kg soil), exchange potassium - average (100 mg / kg soil), this is typical of this type of soil. The total area of the site where the research was conducted was 2 hectares. The area of the irrigation regime is 0.25 hectares, according to mineral nutrition, the area of the registered plots is 80 m2 [3, 7, 11, 14]. In the cultivation of table beet, a 4-line tape scheme was used to plant plants with a planting of 550,000 seeds / ha.

RESULT AND DISCUSSION. The system of fertilizers with the use of drip irrigation is largely similar to fertilizer systems used for other methods of irrigation, but also has some features. The main goal in the development of an environmentally safe system of fertilizing vegetable and gardening crops with drip irrigation is to satisfy the needs of plants to obtain the desired yield and not harm the environment.

To determine the needs of plants in fertilizers, there is a huge number of calculation methods. These are balance methods, determination of fertilizer rates for crop increment, determination of fertilizer rates with the use of balance factors for the use of nutrients, determination of fertilizer rates for fertilizer reimbursement with nutrient yields depending on their content in the soil,

Initially, the number of nutrients required for plants is determined, which depends mainly on the plant species and the planned yield. Next, determine the availability of soil available batteries. For drip irrigation, it should be borne in mind that the volume that will occupy the roots is reduced, hence, and they will consume nutrients from a smaller volume. This fact should be taken into account when calculating the number of nutrients coming from the soil. After determining the needs of plants and the possibilities of the soil, it is necessary to compare the necessary and available quantity of nutrients. If the nutrient content in the soil does not allow achieving the planned yield, additional nutrients-fertilizers are added to the soil.

The next step in the calculation is to plan the separation of fertilizer rates for the main application and by means of fertigation. For the main application, you can use any fertilizer, including cheap, low-soluble fertilizers. For fertigation, only fully soluble fertilizers should be used. Planning for the main application of fertilizers and fertigation depends on the mechanical composition of the soil and the supply of nutrients to it.

According to Ovchinnikov, when using drip irrigation, the presowing application of 20-30% of the total norm of nitrogen, 50-70% of phosphorus, 30-50% of potassium is considered to be rational. The rest of the nutrients are given with top dressing.

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Table 1

Planning the separation of the norms of fertilizers for the main application and in the supplementary feeding (according to AS Ovchinnikov)

Mechanicalcompositionofsoil	**Nutrientsupply**		
	low	medium	high
Easy	F	F	F
Mediumloamy	OF	F	F
Heavy	OF	OF	F
Note: O is the main entry; F - fertigation			

Fig. 1. Type of fluorometer N-tester

The decision on the need for fertigation and fertilizer rates should be made based on the results of the analysis of plant tissues. Such analyzes can be carried out using traditional methods and with the use of new devices for express diagnostics of plants.

Portable laboratory of functional diagnostics "Aquadonis".

Fig. 2. Instruments for the rapid diagnosis of the need for plants in nutrients

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CONCLUSION. Scientific and technological progress and the experience of developed countries The United States, Israel, France, Canada, Russia, China and others require a new approach and improvement of the design of drip irrigation systems in the natural and economic conditions of the Tashkent region. Innovative design should be more economical, convenient for their operation and resource-saving water, land, financial, material, labor and others.

Based on the theoretical and for the selection of the study of the innovative method of drip irrigation of the garden (Golden apple apple), the irrigation regimes determined according to the method of A.M. and S.M. Alpatyev, based on the use of a simplified formula.Ivanova. From the foreign methods of determining evaporation (potential evapotranspiration), we have adopted the computational models of Kh. Penman, L. Türk, H.F. Blaney and V.D. Kriddla, ensuring the receipt of planned crops provided for in the business plan of farms.

Based on the analysis of the results of the theoretical study of the technical characteristics of the existing in the countries of the world: the United States, Israel, France, Russia, China, Moldova and others, their advantages and disadvantages are established. In the TIIMSH, B. Usmanaliev and others developed a principled low-pressure system for the drop irrigation of agricultural crops.

Research of irrigation regimes of the garden under irrigation by a low-pressure drip irrigation system under the conditions of the natural environment of the Tashkent region was carried out in the years of various aridity, which made it possible to take fuller account of global changes in climatic, soil and economic conditions and recommend a method for determining irrigation regimes when operating a low-pressure drip irrigation system.

The scientific methods of establishing the total water consumption of the garden during drip irrigation with the help of a low-pressure system (NNS) are grounded in the conditions of the farm of the Sredne-Chirchik district of the Tashkent region.

When choosing innovative water-saving equipment and technology, we adopted the basis block diagram developed by Academician Shumakov BB. The most economical for the condition of the Tashkent region is drip irrigation.

On the basis of theoretical research, a schematic diagram of the modular section of the drip irrigation system is defined. To determine the effectiveness of drip irrigation of the garden Dubenok NN, Eremin EV in his studies in the central non-black soil of Russia, MS. Grigorov, AS Ovchinnikov, N.N. Azaryev in the conditions of the Volgograd region of Russia showed that with drip irrigation with irrigation norm m = 190 m3 / ha the yield of agricultural crops increased by 58-75%.

According to A.S. Ovchinnikov in the case of drip irrigation is considered prudent introduction of 20-30% of the total norm of nitrogen, 50-70% phosphorus, 30-50% potassium, the rest of the nutrients are given with top dressing.

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