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Implementation of Water-Saving Irrigation Technologies Agricultural Crop Productivity Guarantee

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Annotation: In the conditions of water shortage due to global climate changes in Uzbekistan, in order to obtain a high yield from agricultural crops and to provide the population with food products, it is important to use the existing water resources effectively and to widely introduce cost-effective irrigation technologies. have In our country, large-scale works on efficient and targeted use of water are being carried out. In particular, more than 5,000 kilometers of irrigation, 12,000 kilometers of collector-drainage, and 50,000 kilometers of canal networks are being cleaned every year. More than 200 kilometers of canals, 530 kilometers of channel and collector networks, more than 400 hydrotechnical structures and many other objects are being reconstructed and built.
Key words: water saving, climate, technology, film, arrow, egate, sprinkler, filtration, irrigation.

Several types of water-saving technologies are used in our country. Irrigation by laying a film on the ground, using flexible pipes instead of ditches, using the technology of irrigation under the soil, sprinkler irrigation, and drip irrigation are among them. For example, drip irrigation saves 20 to 60 percent of water compared to other methods.

To set up a drip irrigation system, you need a water pump, a filter pond-clarifier, a fertilizer device, main and distribution pipes, irrigation hoses and auxiliary parts. Now, most of these devices and equipment are produced in our country. The water pump is produced at the "Suvmash" plant, the filter, plastic pipes of different diameters, hoses, auxiliary and connecting parts are produced at "Shortangazkimyo", "Makhsuspolimer", "Jizzakhplastmassa" and other enterprises. The decision of the President of April 19, 2013 "On measures to further improve the reclamation of irrigated lands and rational use of water resources in the period of 2013-2017" is an important factor in increasing the efficiency of water use. According to it, in 2013-2017, drip irrigation system was installed on 25,000 hectares, film irrigation method on 45,600 hectares, and portable instead of arrow ditches on 34,000 hectares. It is planned to introduce irrigation methods using flexible pipes. Property owners who implement drip irrigation systems and other water-saving irrigation technologies are given the right to grow other agricultural crops on fields freed from grain crops. According to the amendments made to the Tax Code in 2014, legal entities using drip irrigation on any part of the plot of land will be exempted from paying a single land tax for a period of five years from the month of introduction of the drip irrigation system for that area. was released. In order to introduce drip irrigation and other water-saving irrigation technologies by the Council of Ministers of the Republic of Karakalpakstan and regional working groups in 2015, the introduction of irrigation methods using drip irrigation, laying a film on the edge and portable flexible pipes a regional program was developed. 10 billion soums were allocated from the credit line of the Irrigated Lands Improvement Fund to the landowners who implemented the drip irrigation technology introduction projects included in it. These investments are offered through commercial banks with an annual discount of 6 percent. This year, it is planned to introduce drip irrigation on more than 5 thousand 340 hectares of land, on 11 thousand 293 hectares, on 11 thousand 293 hectares, and on nearly 7 thousand 630 hectares of portable flexible pipes. As a result, it is possible to deliver water to consumers on time. Reduction of technical water loss and filtration in irrigation networks is being achieved. In particular, thanks to reforms in the direction of economical use of water resources, the total amount of water used has been reduced by 20%. 10-15 years ago, 18,000 cubic meters of water was used for 1 hectare of irrigated land, but today this figure has decreased by 40%. Agriculture remains the most important sector in the economy of Uzbekistan and accounts for 17% of the gross domestic product. In order to satisfy the country's demand for food, it is important to provide employment in agriculture and rural population and increase their income. The changing climate, irregular rainfall, cold winter and dry heat of summer have a negative effect on the steady increase in crop productivity. Another factor affecting the decrease in crop productivity in agriculture is the unwise use of land and water. Relatively low effective use of irrigation networks and non-operation of large-scale irrigation systems lead to deterioration of land reclamation and inefficient use of water.

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Implementation of irrigation technologies for water management and efficient use in farms using different water sources (precipitation, additional water and alternative water sources), maintenance and future increase of nutrients and soil fertility for main crops the joint implementation of work on the diversity of crops (crop diversification) causes a certain increase in crop productivity. In order to implement the tasks defined in the decision of the President of Uzbekistan on December 29, 2015 "On measures for the further reform and development of agriculture in 2016-2020" and other regulatory and legal documents related to this activity, The area of spring and winter wheat will be reduced to 220,000 hectares, and it is planned to plant vegetables, sugarcane, fodder crops and intensive fruit trees on the vacated lands.Food and Agriculture Organization of the United Nations (FAO) Since 2004, these projects serve to a certain extent the implementation of the tasks defined in the decree and other regulatory legal documents on the productive use of soil and water and the diversity of crops. increasing crop productivity while solving land and water use problems aimed at maintaining soil fertility in the farm, increasing the efficient use of nutrients and water. The obtained results show that thanks to the newly demonstrated improved technologies, it is possible to increase the productivity of crops due to the use of land and water. ensured the incomes and food security of the rural population, preserved the region's natural resources, and led to the stabilization of agriculture. FAO has focused on increasing the income of farmers in dryland and irrigated lands, i.e., steadily increasing the productivity of crops grown in agricultural production. The recommended technologies are accepted by farmers and introduced to large areas with their participation. In addition, the "Diversification and Intensification of Agricultural Crops" project, launched by FAO in March 2017, aims to continue the work started above. Despite the fact that agrotechnical measures of agriculture, based on overturning and traditional deep plowing, have led to the deterioration of soil conditions, there is a concept in agriculture, based on which deep plowing with overturning plowing is considered a guarantee of high productivity. However, it is worth noting that it is time to think about not spending a lot of money to get a little profit, but to get a lot of profit with a little expense. In world practice, the number of regions that get high yields from agricultural crops while saving resources is increasing year by year. In Uzbekistan, the technology of direct planting can be used instead of the technology of planting wheat by preparing the ground with a cultivator or disc between the rows of cotton. At present, wheat planting rate is much higher (250 kg/ha) in the fields cultivated with cultivator. In various projects implemented by FAO, several studies have been conducted to reduce the rate of planting and increase the economy of farmers. In cotton fields, where cotton has been harvested two or three times, direct seeding in seed drills gives higher yields than traditional sowing methods, and also brings additional income. A direct sowing seeder was used to plant a number of agricultural crops such as winter wheat, sunflower, sesame, and cotton. The performance and economic indicators of the imported direct seed drills are compared with the indicators of the old (SZ-3,6) drill and are shown in the table below. If these agricultural machines (direct seed drills) were produced in Uzbekistan, farmers would get more profit from growing crops. If several technological processes such as ploughing, grinding, chiseling and planting are performed in the traditional seeder method, and 7,360 liters of fuel and lubricants were consumed for 100 hectares of cultivated area when grain was planted with a SZ-3.6 type seeder, and when wheat is planted with the new seeder that allows direct sowing, one hectar 860 liters (10 times less) of fuel and lubricants were used at the expense of the cultivated area. That is, the amount of oil products saved at the expense of 100 hectares of cultivated land was 6500 liters. If we add to the saved oil products, in addition to the cost of wages and depreciation of tractors, it can be seen that the amount of profit that the farmer receives from one hectare of land in terms of savings will be quite significant. Also, due to the decrease in the number of tractors entering the crop field for soil cultivation, the process of soil compaction will be much delayed, and in addition, it means that the yield of crops will increase. Similar results were obtained with winter wheat planted in a paddock, with a 50 percent reduction in seed use and a 30 percent reduction in water use. According to the results of the experiment, it was found that the water consumption (water use is a very important factor in Uzbekistan) in corn planted with a cotton seeder is reduced by 32%. The technology of planting cotton has been tested on winter wheat, corn, corn and other crops, and the obtained results encourage us to look to the future with confidence. If cotton seeders were developed in Uzbekistan, it would increase the area of its introduction.

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