



## A STUDY ANALYSIS OF THE FEATURES AND ADVANTAGES OF THE DRIP IRRIGATION METHOD

Normamatov Boymat Bekmatovich

Assistant: Termiz Institute of Engineering and Technology

### Abstract

In this article, the methods, features and advantages of irrigation of field crops, drip irrigation in water-scarce areas are studied.

**Keywords:** irrigation, drip, egat, soil, moisture, plant, layer, root, crop.

Drip irrigation is a relatively new crop irrigation method and its peculiarity is that it delivers water under pressure to the plant is determined by.

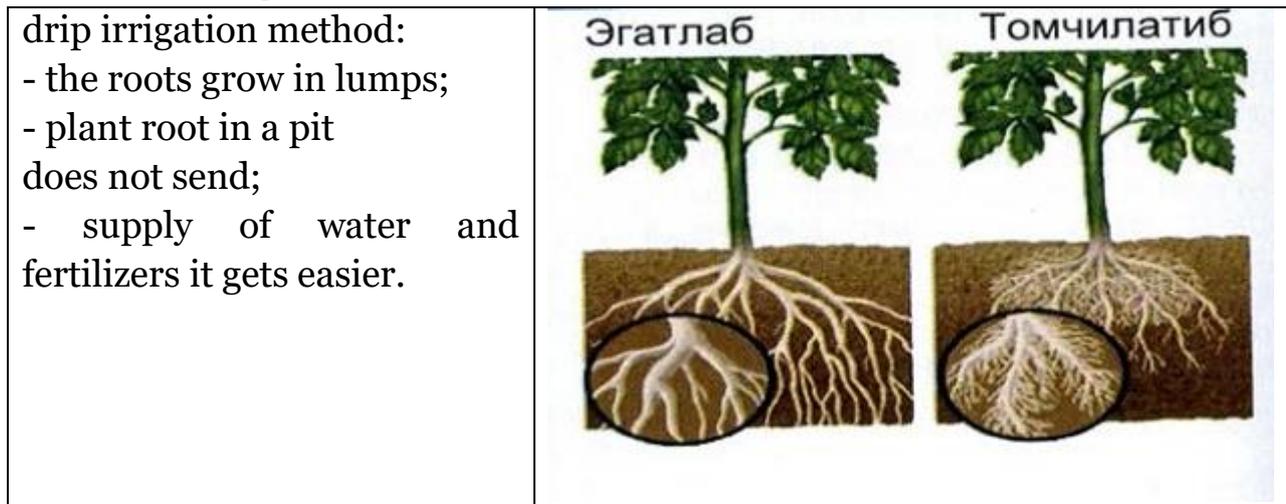
Drip irrigation is equal to the plant's water needs to supply the amount of water to its root layer in the necessary period consists of a permanent water distribution network. The difference between drip irrigation and other irrigation methods that is, in this method of irrigation, the moisture of the soil and the water used to create it are controlled.

In the usual method of irrigation, after the water has been drained into the field, the field if the soil moisture in one part is too high, the water in the other part is good due to lack of drainage, the soil is not well moistened. If the crop is waterlogged due to the excessive increase in moisture in the soil after irrigation, the soil dries out due to the long time between waterings, leaving the plant without water.

In the next irrigation, the crop is watered again, and then again without water remains, i.e. the state of stress. As a result, the plant spends its energy on this stress is forced to spend to overcome situations and cannot develop evenly.

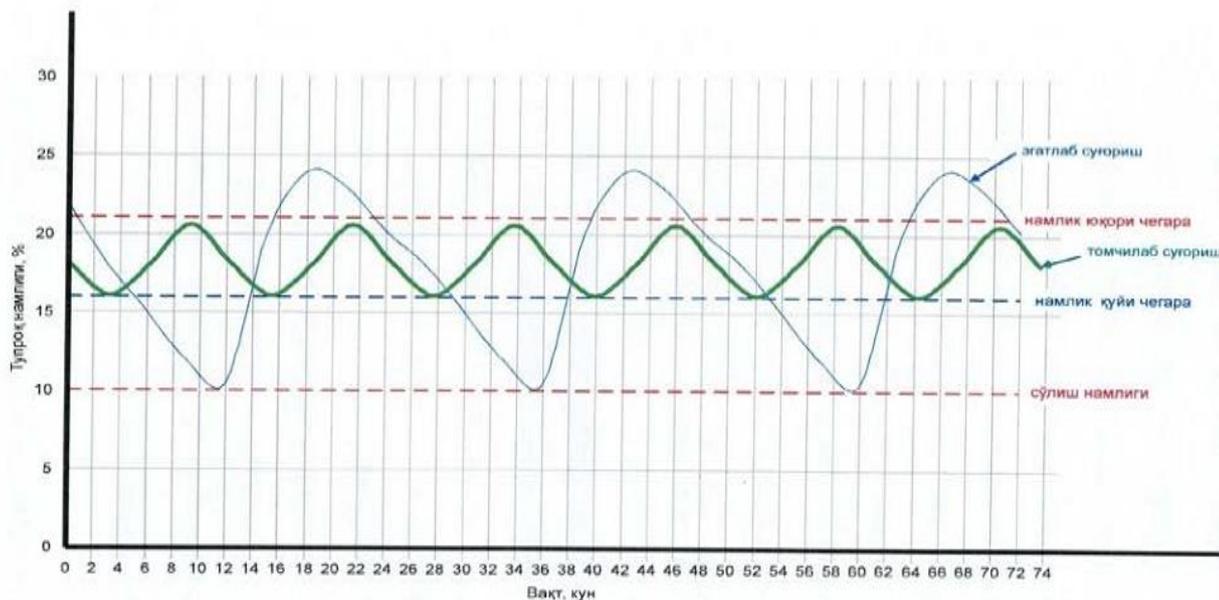
In the drip irrigation method, the water is for a specific period of each crop It is spread evenly along the field according to the need. So go ahead crop lands are evenly moistened. Excess moisture in the soil will not be allowed to come.





**Figure 1. Drip irrigation method**

In the soil layer where the root of the crop develops in the drip irrigation method the water-physical regime of the soil, which is optimal for the plant, is created.



**Figure 2. Changes in soil moisture during drip irrigation**

- \_\_\_\_\_ - oddiy (egatlab) sug'orishda tuproq namligining o'zgarishi;
- \_\_\_\_\_ - tomchilatib sug'orishda tuproq namligining o'zgarishi

Conditions for using the drip irrigation method. Drip irrigation method can be used everywhere, even in conditions where other irrigation methods cannot be used and irrigation is not effective. For this purpose, it is necessary to choose the type of drip irrigation that is suitable for the specific conditions of a certain region and the type of crops grown.



Drip irrigation method is especially complex terrain and large slope in plots, in extremely dry and windy areas, in areas with thin soil and high water absorption, in areas where irrigation water supply is expensive (water is pumped using pumps), Application is very effective in cases where treated waste water is used for irrigation. In intensive technologies of agricultural crop cultivation, i.e., in conditions where the size and quality of the crop depend on the accuracy of moisture and nutrition regime, the use of drip irrigation is very effective.

Advantages of drip irrigation. The method of drip irrigation is different has a number of advantages over irrigation methods, the main of which are as an increase in crop yield and improvement of crop quality, saving of water resources, reduction of material and labor resources used for agrotechnical activities, reduction of the amount of fertilizers used for feeding the crop, complete elimination of soil leaching can be singled out.

Advantage 1: increased crop yield and improved crop quality. Unlike other irrigation methods, in drip irrigation the crop roots water-physical environment that is optimal for the plant in the developing soil layer is created.

Water and nutrients to the crop are small according to its needs is often given in large quantities. Optimum humidity is created in the root layer of the plant. In this case, the soil is excessively waterlogged or dry cases are completely eliminated. Water and food when the plant needs it takes substances. A plant that is not in various stressful situations spends its energy only on development and harvesting. As a result, due to optimal irrigation and nutrition, productivity in orchards and vineyards increases up to 40-60%, and in annual crops such as cotton and vegetables, it increases up to 80%. The ripening of the cotton crop takes 10-15 days.

When the vegetable fields were drip-irrigated, the crop died under the water the phenomenon of being will be completely eliminated.



**Figure 3. In apple orchards maintained by drip irrigation samples of cultivated crops**



Advantage 2: saving water resources used for crop irrigation.

In drip irrigation: the watering mode depends on the water demand of the plant compatibility, direct supply of water to the plant root layer, low water evaporation from the soil, absence of weeds, all water belongs only to the crop, water is in the field water is saved due to the fact that it does not spread along and does not soak into the soil, and does not throw water into the trash.

As a result of drip irrigation, compared to other irrigation methods, 20% to 80% of water is saved.



**Figure 4. In drip irrigation, the cultivated crop is irrigated, not the field.**

Advantage 3: labor and material resource consumption is reduced. Drop by drop during irrigation, only the part of the field where the crops are located is moistened, as the water is supplied to the plant by means of hoses. In this case, the soil of the field does not harden, as a result, there is no need to soften the soil (cultivation) and take a ditch. At the end of the season, the field that has not hardened the soil is easily plowed. Since the fertilizer is added together with water, use equipment for fertilizing the need disappears. As a result, labor and fuel-lubricating materials are saved. There is a need for watermen to carry a hoe and cut ditches in the field does not remain, that is, manual labor in irrigation is sharply reduced.

In drip irrigation, only because the root area of the plant is wet, the efficiency of irrigation is 90-95%. Other irrigation methods (including sprinkler and sprinkler irrigation methods), this the indicator does not exceed 70-75%.

Drip irrigation is water purified using special filters through the droppers, it falls into the soil in the form of a drop, and the root system of the plant the layer in which it is located moistens itself (locally), so irrigation water is delivered under pressure through pipes to each plant or a row of plants, it provides the plant's water demand during the growing season. In this way, mineral fertilizers can be mixed with water and given to the soil.



It has been determined that the use of mineral fertilizers dissolved in irrigation water allows saving of nitrogen fertilizers by 44-57%. In the case of a drop, the water absorbed by the root layer of the plant is absorbed into the soil layer by capillaries. In this case, the effect of gravity is very small. Wetting takes place under the influence of capillary forces. Networks in drip irrigation are divided into drip (irrigation) pipes and tapes. Pipes consist of a single polyethylene pipe (pipe) with a diameter of 16 or 20 mm and a thickness of 0.6-2.0 mm, which are installed (integrated) and not installed (blind) in the droppers. can take.

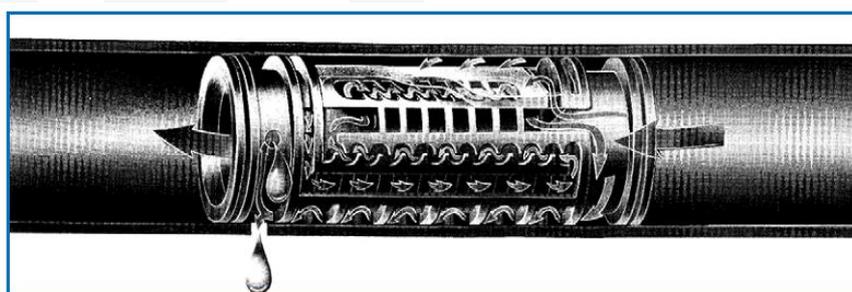
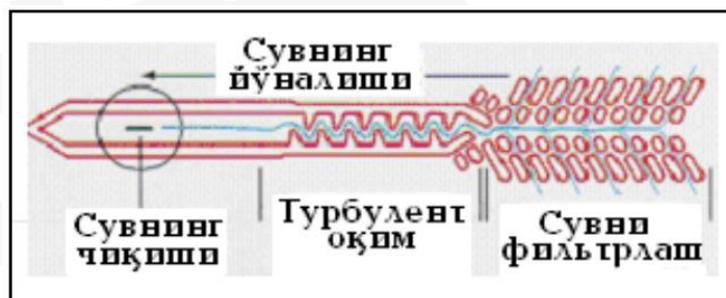
Droppers are not installed - specially for blind pipes from the outside droppers are installed. Integrated pipes are installed by the manufacturer with droppers at certain distances. Usually the distance between them is: 25, 30, 50 and 100 cm.



*a*

*b*

**Figure 5. Integrated (a) and blind (b) pipes**



**Figure 6. Scheme of operation of integrated droppers**



Drip tapes are pipes made of polyethylene films, The microcavities inside the glued seams are, in turn, droppers components - filter holes, labyrinths that turn laminar flow into turbulent flow and create "emitters" that release water in drops. The thickness of the walls of such tapes is from 100 to 300 microns.

## REFERENCES

1. Bekmatovich N. B. et al. Analysis of Work Process Study of Agricultural Crops Irrigation Methods and Technologies //INTERNATIONAL JOURNAL OF BIOLOGICAL ENGINEERING AND AGRICULTURE. – 2022. – Т. 1. – №. 5. – С. 41-47.
2. Nurmatov N.J., Roziyev O.A. Gulmatov J.Q., Berdiyev S.R. "RURAL X o ' WORLD ECONOMY" Tafkkur publishing house 2011
3. "Agriculture and water management of Uzbekistan" journal of agro science. Agro science - agriculture and water management of Uzbekistan
4. Xamidov M.X., Suvanov B.U., Isabaev K.T., Sug'orish melioratsiyasi. O'quv qo'llanma. Toshkent-2019.
5. Жўраев Д. А. Ў., Эргашев А. Х., Иброҳимов Ф. ПАХТА ХОМАШЁСИННИНГ АППАЛИ БАРАБАН ВА ИЛДИРУВЧИ МОСЛАМА ОРАСИДАГИ ҲАРАКАТИНИ НАЗАРИЙ ЎРГАНИШ //Scientific progress. – 2021. – Т. 2. – №. 2. – С. 995-999.
6. Juraev Davron Amir Oglu, Safarov Davron Isayevich, and Berdimuratov Javli Abdinazarovich. "Saw in the cleaner of raw cotton from large contaminants cleaning the distance between the chimneys in the working part of the drum analysis to study the effect on effectiveness." ACADEMICIA: An International Multidisciplinary Research Journal 12.4 (2022): 659-665.
7. Jurayev, K. (2022). CHECKING DETAILS FOR HEAT AND IMPACT FORCES USING KOMPAS 3D SOFTWARE. CENTRAL ASIAN JOURNAL OF MATHEMATICAL THEORY AND COMPUTER SCIENCES, 3(12), 39-51. Retrieved from

