# КИЧИК БОҒЛАРДА ПАСТ БОСИМЛИ ТОМЧИЛАТИБ СУҒОРИШ УСУЛИДАН ФОЙДАЛАНИШ САМАРАДОРЛИГИ

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Аннотация

Мақолада Республикадаги интенсив боғларни суғоришда қўлланиладиган паст босимли томчилатиб суғориш технологияси тўғрисида сўз юритилади. Шу билан бир қаторда қишлоқ хўжалик экинларини суғоришда қўлланилишининг ижобий томонлари келтириб ўтилган, жумладан томчилатиб жорий қилинган экинларда сув сарфининг 20-60 фоизгача, минерал ўғитларни 50 фоизгача ҳамда ёқилғи мойлаш материалларини 30 фоизгача иқтисод қилиниши тўғрисида маълумотлар тахлил қилинган ва амалга оширилган ишлар баён этилган.

Калит сўзлар: томчи, боғ, тупроқ, чекланган дала нам сиғими, суғориш, паст босимли, ТИМИ томчилатиб суғориш тизими қувурлари, Томсон.

# ЭФФЕКТИВНОСТЬ ИСПОЛЬЗОВАНИЯ ПРОШЛОГО ПРОИЗВОДСТВА В МАЛЫХ САДАХ

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Аннотация

В статье рассматривается технология капельного орошения низкого давления, используемая при орошении интенсивных садов в республике. В то же время анализируются преимущества и недостатки использования орошения в сельском хозяйстве и приводятся данные об экономичности потребления воды при капельном орошении до 20-60%, минеральных удобрений до 50% и горюче-смазочных материалов до 30%.

Ключевые слова: капельный, сад, почва, ограниченная полевая влагоемкость, орошение, низкое давление, трубы системы капельного орошения TIMI, Thomson.

## EFFICIENCY USE LOW PRESURRE DRIP IRRIGATIONOF IN SMALL GARDENS

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Annotation

The article discusses the technology of low pressure drip irrigation used in the irrigation of intensive gardens in the Republic. At the same time, the advantages and disadvantages of using irrigation in agriculture are analyzed and reported on the

economics of water consumption in drip irrigation up to 20-60%, mineral fertilizers up to 50% and fuel lubricants up to 30%.

Keywords: drip, garden, soil, limited field moisture capacity, irrigation, low pressure, TIMI drip irrigation system pipes, Thomson.

Water resources play an important role to increase sustainable of our economy. Agriculture is considered one of the largest water consumer among economy sectors. The actuality of issues in this sector is to increase the efficiency of using water resources and implementation of new modern water-saving technologies. One of the most important issues in this sector is to increase the efficiency of water resources use and the introduction of new modern water-saving technologies. One of the main tasks is to increase the practical needs of the population to meet the needs of food products and to provide them with clean drinking water.

Especially, the main tasks are to satisfy population need for food production and to supply them with clean drinking water.

The Decree of the President of the Republic of Uzbekistan Sh.Mirziyoev № 3672 of April 17, 2018 "On measures to organize the activities of the Ministry of Water Resources of the Republic of Uzbekistan" became the basis for further development of the work in this direction. Likewise, in order to regulate the use of water resources in the production, processing and other sectors, the Presidential Decree № 4246 "On Measures for Expanding Mechanisms to Promote the Implementation of Water Conservation Technologies in Agriculture" was issued on October 25, 2019.

In general, a great deal of information about irrigation of crops, the selection of irrigation methods and the selection of irrigation techniques contain in textbooks and manuals. In particular, the following styles of agriculture crop irrigation are given:

Irrigation of the land.

2. Sprinkling irrigation.

3. Underground irrigation.

4. Drip irrigation.

5. Sprinkler-water disperser, ograzole, spray irrigation.

6. Subirrigation (CSS lift irrigation) [2].

These irrigation methods can be analyzed in combination with the following water-saving technologies. That is, it is advisable to study water-saving technologies in two groups.

1. Water conservation in traditional ways. By this method it is understood to effectively organize the use of our ancestors' achievements in water supervisor over the years. That is, irrigation methods such as furrow irrigation, short furrow irrigation, double irrigation, subirrigation.

2. New modern water saving methods, as innovative water saving

technologies. These irrigation methods are technologically different from traditional irrigation. This includes: drip irrigation, rainwatering, laser leveling, drip irrigation, film drip irrigation, film piping irrigation, water transfer with concrete and plastic slabs, soils, etc. [3]

Certain results were achieved in cotton, grain and intensive orchards using traditional and water-saving technologies in various regions of the country. In particular, in 2018-2019 low pressure drip irrigation was carried out in the intensive garden of Yangikent Altyn Zamini farm in Vobkent district of Bukhara region. The most favorable conditions for the development of the intensive garden of the Bukhara oasis in the sandy loam soils with a depth of 1.8-2.1 m during the growing season were seasonal irrigation rates of 1700-1800 m3 / ha.

If we analysis research work step by step, A step-by-step analysis of the survey implementation initially identified 0.8 ha of the existing 2 ha of intensive apple orchards on the farm as an experimental field.In the existing experimental fields apple plantations were designed with 4x3m interval of apple seedlings and

were equipped with low pressure TIMI drip irrigation system pipes and water metering devices (Thomson). Moisture levels of the active soil layer were measured using drying cabinets and tensiometers.

The main components of the low pressure drip irrigation system.

The complex of low pressure drip irrigation system includes the following (Scheme 1).

1. The main water source (canal up to the field,reinforced concrete bar and metal, brick, concrete and various containers of reinforced concrete).

2. A solution of mineral and organic fertilizers.

3. A container that keeps the water level stable.

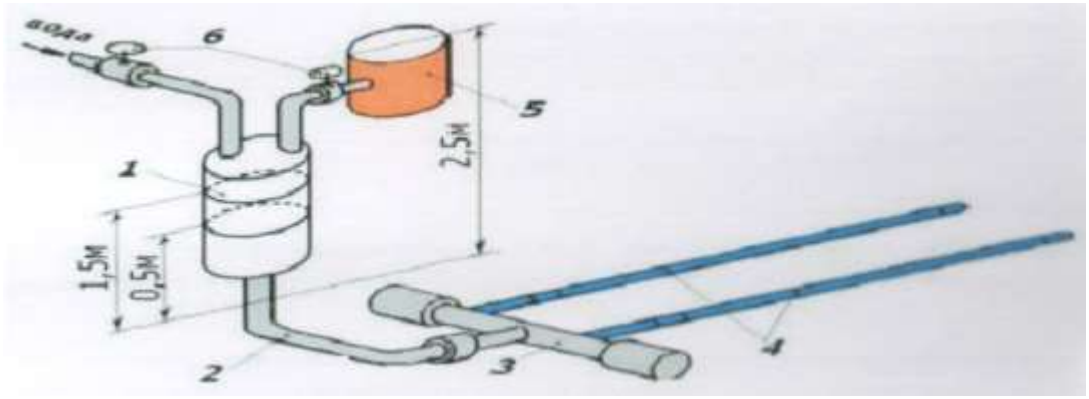
4. Plastic tubes with a diameter of 50-100 mm.

5. Flexible polyethylene tube with drum.

6. Cranes regulating the amount of water supplied to the pipes with flexible polyethylene and the amount of mineral and organic fertilizer solution.

7. Installations for turning, networking and distribution and distribution pipelines.

8. Low-cost pumping device to fill different bottles at a certain height if the water source is not naturally located at 1.5 - 2.0 m.




**Scheme 1. Scheme of low pressure drip irrigation system.**

1-container which maintains the water level steadily; 2-water supply pipe ; 3-distribution Pipe; 4-drop polyethylene tubes; 5-organic and mineral fertilizer containers; 6- regulate the amount of water and fertilizer being transmitted cranes.

This new system was called Low Pressure Drip Irrigation System because it operates artificially and under a pressure of 1.0 - 1.5m without special pressure pumps. It is necessary to fix pump units with pressure of 1 to 3 atmospheres (equivalent to 10 - 30 m water columns) for drip irrigation systems. [4].

Irrigation water is mainly supplied at a pressure of 0.07-0.28 mPa or at its own flow when low pressure is required. Low pressure is generated by the difference between land and water source nozzles or the difference between pressure water baskets and irrigated field nozzles.

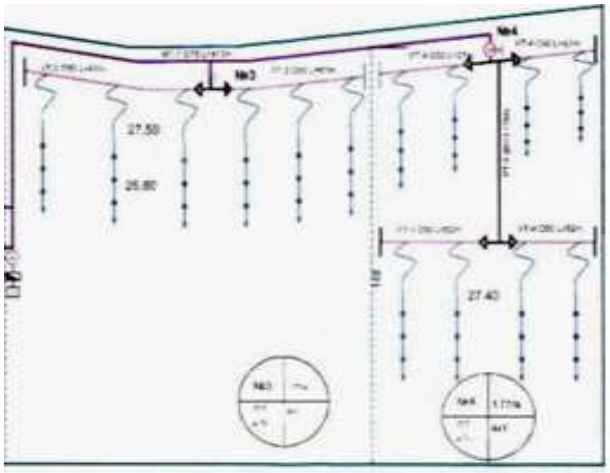
Several type of filter structures up to 90 m3 / h are developed. Sand filters are used to hold particles smaller than 10 microns in diameter, and for particles with a diameter of 10-100 microns, grid filters with 30-40 holes per 1 sq. M. Filters are cleaned by automation or manual washing. Pipes of black polyethylene and less polyvinyl chloride with a diameter of 38-160 mm are used for trunk and distribution pipes (a, b, c, d) Irrigation pipes are made of polyethylene material to fasten stably drumsticks to pipes. The inside diameter of the pipe is 6-19 mm thick and 1 - 6 mm respectively[5].

а) б) с) д)

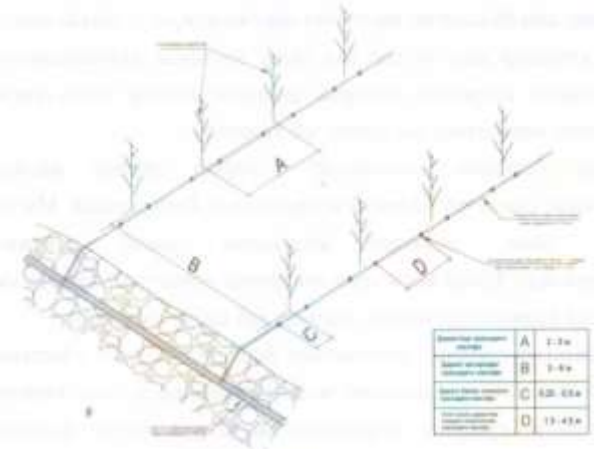
**Picture a, b, c, d. Installation of trunk plastic pipes in the experimental area**

Designed (Scheme 2) low pressure drip irrigation system in “Intensive garden” of Yangikent Altyn Zamini Vobkent district of Bukhara region. There are 654 apple seedlings on the 0.8 hectare area, and 42 irrigation works have been done, with each irrigation soaking the apple seedlings for 6 hours. Each seedling has 2

drops (Scheme 3) with water consumption of 0.0002 l / s per 1 drip, and 0.0004 l / s of water for 1 seedling. For each apple seedling, irrigation once was 8.64 liters of water.



**2-scheme. Drip irrigation system for intensive garden at Yangikent Golden**



**Zamini farm in Vobkent district, Bukhara region.**
**Scheme 3 A common scheme for placing droplet hoses designed**

In the experiments, the water savings were 57%, while the water consumption in the furrow irrigation (Scheme 4) was 4200 m3 / ha, and the water consumption for low pressure drip irrigation was 1700-1800 m3 / ha. Fertilizers saved 50% compared to usual. At the beginning of the vegetation , the average ground water level was 194-198 cm, and in mid-July, in July and August, groundwater levels were about 185-187 cm.

The soil weight was 1.31 g / cm3 in 0-30 cm of plowed soil, 1.39 g / cm3 in subsoil (30-50 cm) and 1.40 g / cm3 in 0-100 cm layer. According to the results of the limited field moisture content of the soil, 19.5% of the soil mass in the 0-50 cm layer was 19.5%, and the limited field moisture content in the 0-100 cm layer was 19.8% of the dry soil weight. According to the soil salinization data, at the beginning of the growing season, the chlorine ion was 0.025% at the beginning of the growing season and 0.014% in the cultivated soil (0-30 cm) of the experimental field soil. In

the 0-100 cm layer, it was 0.021% and 0.012%, respectively. At the beginning of the growing season the dry residue in the plowed layer was 0.526%, at the end of the growing season it was 0.297%. In the active soil layer, it was 0.479% and 0.282%, respectively.

Scheme 4 Comparison scheme of biting and drip irrigation methods [6].

Based on the observations of the experiments and laboratory analyzes, we can conclude the following.

1. The recommended drops are 10-12 times cheaper than the Israeli "Agro-Drip" drip and are no worse than those of foreigners.

2. When irrigating young orchards using pipe drops, the rate of irrigation is reduced by 1.5-2 times compared to polling irrigation.

3. The pipe drip system can be used when the ground slope is I0.03 and the pressure at the end of the irrigation hose should not exceed 3 m.

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