



INCREASING CROP YIELDS: EFFECTIVE METHODS OF DRIP IRRIGATION IN AGRICULTURE

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ABSTRACT	KEYWORDS
This scientific article examines effective methods and best practices of drip irrigation in agriculture. By exploring the principles of drip irrigation system design, maintenance, planning and management, this study explores how farmers can optimize water use efficiency, promote crop growth and achieve sustainable agricultural outcomes through the strategic implementation of drip irrigation systems. explains the possibility.	Drip irrigation, agriculture, characteristics of drip irrigation, drops.

Introduction

Drip irrigation has emerged as a key technology in modern agriculture, allowing precise water delivery to crops, saving resources and increasing productivity.

Types of Drip Irrigation

Drip irrigation has its own characteristics and details. You can install automatic drip irrigation, but not automatic, but the first option is more convenient. 1. Droplet hose. The main element is a thick-walled pipe that can withstand pressure up to 3 atm. As a result, water can be delivered over long distances. Emitters or drops are regularly installed. In most cases, the flow rate is 1-2 l/s. 2. Drop tape. The tape is connected to the main hose. The length of the irrigation line can reach up to 450 m, and its volume can reach up to 500 l/h. 3. External microdrops. Watering is carried out using drip irrigation and microwaves, which can be regulated in some types of samples. Dampers are installed on the outside of pipes or attached branches

Disadvantages of Drip Irrigation

When determining the possibility of irrigation, it is necessary to consider not only the advantages, but also the disadvantages. 1. Automatic drip irrigation system can be covered by organic and chemical sources, even some parts of plants. 2. Compared with the mechanical method, the cost of drip irrigation is much higher. 3. Drip irrigation tapes and hoses are vulnerable to pests, such as rodents and wild pigs. 4. The average life of such systems does not exceed two years. Due to wear and tear, parts must be replaced, which incurs costs. Water consumption during drip irrigation When calculating the indicators of the system, it is important to take into account the moisture consumption during a certain period of time. A drip irrigation scheme requires measurements of moisture, soil quality and type, liquid source speed and volume, and drip length. According to the type of water filling, there are three types of emitters: 1.0.6-0.8 l / s. This option is suitable for very long lines, and the liquid in them is

consumed evenly. Choose it for plants that require slow soaking. This flow rate is recommended for low efficiency water sources. 2. 1-1.5 l / s. Standard version used in normal soils. The most common cost. 3. 2-3.8 l / s. Place this option in sandy soil and is suitable for plants with a strong root system. This is a large stream of water.

Drip irrigation has revolutionized crop irrigation, providing a targeted and efficient irrigation method that minimizes water wastage and optimizes plant growth. In the face of increasing water scarcity and environmental problems, the introduction of drip irrigation systems is becoming increasingly important for sustainable agriculture. This article reviews effective drip irrigation techniques in agriculture, focusing on key strategies to maximize water use, nutrient uptake, and productivity.

Drip Irrigation Design Principles:

An effective drip irrigation design is essential to ensure uniform water distribution, optimal plant coverage and minimal water loss. Key design considerations include selection of appropriate emitters, pipe placement, flow rate, and pressure requirements based on crop type, soil characteristics, and topography. Proper spacing of emitters, placement of emitters near root zones, and system filtration are critical design aspects that affect water use efficiency and yield.

Maintenance and monitoring practices:

Regular maintenance and monitoring are critical components of successful drip irrigation systems. Periodic inspection of emitters, filters, valves, and piping for clogging, leaks, or damage will help maintain system integrity and performance. Monitoring soil moisture levels, weather conditions, and crop water requirements allows farmers to adjust irrigation schedules, duration, and frequency to meet plant needs and avoid water stress or excess moisture. Implementing a preventive maintenance schedule and using monitoring technologies such as soil moisture sensors can improve the efficiency of drip irrigation systems.

Irrigation planning and management:

Effective irrigation scheduling is critical to optimizing water use efficiency and yield in drip irrigation systems. Factors such as crop growth stage, soil moisture, weather conditions, and evaporation rate affect the timing and duration of irrigation. Implementing accurate irrigation planning techniques based on real-time data, such as using weather forecasts, soil moisture sensors and crop coefficients, can help farmers deliver the right amount of water at the right time to meet plant demands and minimize water loss.

Integrated Nutrient Management:

Integrating nutrient management practices with drip irrigation systems can improve fertilizer efficiency, ensure balanced plant nutrition, and improve crop quality. Application of fertilizers through fertilizing, irrigation systems allows precise delivery of nutrients directly to plant roots, reducing nutrient leaching and increasing absorption efficiency. By synchronizing irrigation and fertilization practices, farmers can match nutrient applications to crop growth stages and optimize nutrient use for maximum yield.

Summary:

In conclusion, effective introduction of drip irrigation methods is important for sustainable agriculture, water conservation and productivity improvement. By following sound design principles, proactive maintenance practices, accurate irrigation scheduling, and integrated nutrient management strategies, farmers can optimize the use of resources, increase yields, and mitigate environmental impact through the full range of drip irrigation systems. they can use their opportunities. As agriculture continues to evolve in response to changing climate conditions and water availability, the use of efficient drip irrigation techniques will play a critical role in increasing the resilience, efficiency and sustainability of agricultural systems.

References

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