



## Saving Water Consumption through Proper Use of Water Resources in Agriculture

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**Abstract:** *This article is going to explore a range of practical strategies and actionable tips that can be implemented on your farm to save water. Moreover, by adopting these measures, we can contribute to preserving this precious resource and enhancing our agricultural operations' overall sustainability and resilience.*

**Keywords:** *agriculture practices, freshwater, reduce soil erosion, Drip irrigation, sprinklers, Micro-irrigation systems.*

Water conservation plays a pivotal role in promoting sustainable agriculture practices. As responsible farmers, it is imperative for us to take proactive measures to limit water waste and ensure the efficient utilization of this vital resource. Implementing efficient irrigation techniques minimizes water waste and optimizes irrigation practices. With these techniques, farmers can ensure that water is delivered to crops in the most effective and targeted manner, avoiding unnecessary losses. Although water scarcity already impacts about one-third of the global population, the world is poised to experience even more fresh water constraints due to issues such as a growing global population, pollution, and also drought due to global climate change[1].

Just like the global energy use, we must take swift and decisive action to prevent water wasting that is occurring around the world to be able to provide a sustainable future for future generations and the environment.

Modern agriculture accounts for 70 percent of global water resource use and large amount of this water is actually wasted through excessive runoff or evapotranspiration, we can make a huge impact on global freshwater supplies if we re-evaluate how we are using water in agriculture and take water conservation seriously[2]. By improving water use and management in agriculture, humanity will increase the water resources that are available to those that need it the most, help developing communities around the world in a sustainable manner, reduce soil erosion, reduce conflicts over natural resources, and help to ensure food security for everyone. Here are some key strategies to consider:

### 1. Drip irrigation

This method involves delivering water directly to the plant's root zone through a network of tubes or pipes with small emitters. It provides precise water application, minimizing evaporation and runoff. Drip irrigation is particularly effective for row crops, orchards, and gardens.

### 2. Precision sprinklers

Utilizing sprinkler systems that are designed for uniform water distribution is essential. Adjustable nozzles, pressure regulators, and timers can help deliver water accurately and evenly, reducing overspray and ensuring adequate coverage while minimizing water waste.



### 3. Micro-irrigation systems

These systems deliver water directly to the plant's root zone, typically through low-volume emitters. They are ideal for container plants, potted crops, or areas with specific water requirements. Micro-irrigation systems ensure targeted watering, reducing the risk of overwatering or underwatering.

### 4. Use of moisture sensors

Employing soil moisture sensors can provide real-time data on soil moisture levels. This allows farmers to irrigate only when necessary, based on the actual needs of the plants. By avoiding over-irrigation, water waste is minimized, and crop health is optimized. Implementing these efficient irrigation techniques empowers farmers to significantly reduce water waste, conserve valuable water resources, and enhance the health and productivity of their crops. As we progress, let's explore additional strategies that can further amplify water conservation in agriculture. Water conservation in agriculture is crucial for sustainable farming practices[3]. By implementing efficient irrigation techniques, selecting appropriate crops, and practicing effective soil and water management, farmers can reduce water waste and enhance overall water efficiency. Strategic crop selection and planning, precision irrigation, soil moisture monitoring, mulching, and proper drainage systems all contribute to optimized water usage and improved soil health. By embracing these measures, farmers can make a significant impact on preserving water resources and ensuring the long-term viability of agriculture.

Regularly monitoring soil moisture levels helps farmers determine irrigation requirements accurately. Tools like soil moisture sensors or manual testing methods can assess moisture content at different soil depths. This information enables farmers to apply water only when necessary, preventing over-irrigation and water waste. The application of organic or inorganic mulch materials, such as straw, wood chips, or plastic films, to the soil surface can significantly reduce evaporation. Mulching provides a protective layer that conserves soil moisture and also helps control weed growth, reducing competition for water and nutrients. Incorporating organic matter, such as compost or manure, into the soil improves its structure, water-holding capacity, and nutrient retention. Conservation practices like contour plowing, terracing, or strip cropping help prevent soil erosion and retain moisture in the root zone.

Effective drainage systems are crucial to prevent waterlogging and excessive runoff. Poorly drained soils can lead to water stagnation, root suffocation, and nutrient leaching[4]. Where necessary, maintaining proper field grading and implementing subsurface drainage methods ensure proper water management. Collecting and storing rainwater runoff from roofs, fields, or other catchment areas provides an additional water source for irrigation during dry periods. Installing appropriate rainwater storage systems like tanks or ponds ensures water availability during water scarcity. Implementing systems to capture and treat wastewater for reuse in irrigation reduces the reliance on freshwater sources. Treating and reusing water from sources like ponds, drainage ditches, or on-farm water storage systems significantly reduces water consumption.

### REFERENCES:

1. Серова Е.В. Аграрная экономика. М.: ГУ ВШЭ, 1998
2. Коваленко Н.Я. и др. Экономика сельского хозяйства. М.: Юркнига, 2009
3. <https://www.worldexcellence.com/water-conservation-in-agriculture-how-to-limit-waste-in-one-of-the-most-water-consuming-sectors/>
4. <https://greentumble.com/ways-to-reduce-water-consumption-on-farms>