IIP International Multidisciplinary Research Journal
IIPIMRJ

An Online Peer-Reviewed / Refereed Journal
Vol: 02 No. Issue IV, (October-December) (2025)
Impact Factor: GSRD-IF: 5.001
ISSN: 3049-2734 (Online)

Water conservation in agriculture

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Article Info

Article History:
Received: 26th Sep 2025
Accepted: 10th Oct 2025
Published: 25th Oct 2025

Keywords:
Drip irrigation,
Sprinkler irrigation,
Rainwater harvesting,
Cover crops and Organic farming

ABSTRACT

India is considered to be an agricultural country. Practically 80% of the population lives in villages through, people in our country are seen to be doing different occupation and jobs, it is a fact that a major portion of our population is engaged in agriculture and allied occupation. Agriculture is the largest consumer of freshwater in the world more than 70% of global water resources are used for farming with increasing population urbanisation and climate change the demand for food and water is rising rapidly. Therefore, water conservation in agriculture has become very special for sustainable development.

The present paper stressed on the importance of water conservation, to focus on water conservation techniques and methods also focus on the needs of water conservation in agriculture.

Plagiarism Check Report:
Tool Used: Turnitin
Date of Report: Oct 09, 2025
Similarity Index: 3%
Remarks: No significant matching text. All citations and matches are properly referenced. The manuscript is considered original.

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How to Cite: Kavitake, V. S. (2025). Water Conservation in Agriculture. IIP: International Multidisciplinary Research Journal (IIPIMRJ), 2(IV), 688–690.

Introduction

Water conservation ensures the sustainable use of groundwater and surface water resources. Excessive and upland irrigation not only depletes water resources but also damages. Soil fertility through water logging and salinity. Many farmers throughout the world relay on groundwater nearby water resources and pumping supplies to water their crops. Traditional agriculture is known for its high-water usage. However, water conservation in agriculture has become important for the health of environment and sustainability of agriculture. By adopting efficient irrigation methods are following.

Drip irrigation is a modern method of water in crops in which water is delivered directly to the roofs of plants through a network of pipes tubes add emitters instead of flooding the entire field, water drips slowly at the base of each plant. It's a benefit to minimise water loss due to evaporation and runoff. Its saves around 30 to 70% less water compare to traditional irrigation the plants gate sufficient and time the water, to prevent the soil problem, saves fertilizer, energy, reduces labour and irrigation cost in the long run. It's a costly and require regular maintenance to prevent clogging of pipes and it is not suitable for all crafts and regions.

Sprinkler irrigation system spray water into air simulating rainfall. The water then falls on crops, soil and plants in controlled manner. Sprinkler minimise losses due to runoff deep percolation and evaporation. It’s distributed water evenly across the fields, avoiding irrigation in some areas and under irrigation in other water can be applied in required amount at the right time, matching crop needs. It saves the labour time and energy. Sprinkler irrigation prevents soil erosion compared to flooding. It provides a cooling effect into hot weather. Some limitation is also there; this method is very costly sprinkler irrigation requires electricity and diesel to operate.
Water harvesting and reuse system are designed to collect and store and storm water which can be used letter for various purposes the systems have local benefits such as reducing run off volume and preventing water quality degradation downstream. They also contribute to sustainable water management by utilising collected water for future use reducing reliance on freshwater sources and promoting water conservation. Rain water collects from rooftops, fields or surfaces it's stored in tanks ponds or reservoirs. It ensures water availability ear bond improve crop yield stability reduces pressure on groundwater and support sustainable agriculture.

Farmers can enhance their crop productively per unit of water by cultivating crops that are well suited to local climate. Drought resistant crops that are well suited to local climate drought resistant crops are particularly advantages as they can reduce the risk crop failure periods of water scarcity, improve overall yields and enhance economic stability for farmers.

Rotational grazing is a livestock management practice fair grazing land pasture is divided into section called a paddock and animals are moved from one paddock to another at regular intervals. Proper grazing management practices and has the field ability to absorb water and minimize runoff leading to more drought resistant pastures. It can increase soil organic matter

and improve fodder coverage, leading to improved water retention in the soil.

Composting is the biological process of decomposing organic waste like crop residues animal manure, food waste and other biodegradable material into nutrient rich soil-like substance called compost. Farmers use composed to improve soil fertility due to composting rainwater and irrigation water to seep into soil instead of running off. Compost on the soil surface forms a protective layer reducing direct water evaporation

Cover crops play important role in protecting bare soil form erosion water loss and compacting by providing a protective layer that reduces the impact of wind and water erosion.

Conservation tillage refers to a collection of farming practices at reducing soil erosion it improves water infiltration reduces cand run off and soil erosion and enhance soil moisture retention

Organic farming improves soil structure through the use of compost green manure and crop residues organic practices like mulching, cover of cropping and intercropping help retain soil moisture and reduce evaporation

Conclusion

Water conservation in agriculture has become increasingly crucial for the health of environment and sustain ability of agriculture adequate water is essential for the germination nutrient update and crop health conservation water helps maintain the reliable harvest reducing the risk of crop failure efficient water use ensure availability for future farming and domestic needs less water use means reduce the pumping cost and energy saving and improves profitability for farmers these uses only possible that we adopt the techniques such as drip irrigation capturing and store water crop rotation conservation tillage composting and organic farming farmers can optimise water use maximize crop yields and promote long term sustainability in agriculture so water conservation practices maintain soil fertility and finally water conservation in agriculture is vital to secure food production save cost protect soil and ecosystems and ensure sustainable farming in the face of growing water scarcity.

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