



## Effect of Water Scarcity on Modern Agriculture in India

Kapil Verma<sup>1\*</sup>, Aman Verma<sup>2</sup>, Ashish Kumar Verma<sup>3</sup>, Shyam Ji<sup>4</sup>

### Introduction:

India is the second most populous country in the world, and agriculture is a vital source of livelihood for millions of people. However, water scarcity has become a major challenge for Indian agriculture. The country is facing a severe water crisis, with an estimated 600 million people experiencing high to extreme water stress. In this article, we will discuss the impact of water scarcity on modern agriculture in India and potential solutions.

### Water Scarcity in Modern Agriculture in India:

Water scarcity has become a major challenge for modern agriculture in India. The country is heavily reliant on groundwater resources for irrigation, with nearly 70% of the groundwater being used for agriculture. However, over-extraction of groundwater has resulted in the depletion of water tables in several regions, leading to a severe water crisis.

### Impacts of Water Scarcity on Modern Agriculture in India:

**Reduced Crop Yields:** Water scarcity leads to reduced crop yields, which results in a decrease in food production. This, in turn, increases food prices and affects the food security of the country.

**Increase in Crop Diseases and Pests:** Water scarcity can also lead to an increase in crop diseases and pests. Drought-stressed plants are more susceptible to pests and diseases, which can lead to significant crop losses.

**Soil Erosion and Degradation:** Water scarcity can also lead to soil erosion and degradation. When there is not enough water to sustain crops, farmers may resort to over-tilling the soil or using excessive amounts of fertilizers and pesticides, leading to soil degradation.

**Decreased Livestock Productivity:** Water scarcity can also impact the productivity of livestock, which rely on water for hydration and to produce milk and meat. Lack of water can lead to a decrease in milk and meat production, which can negatively affect the income of farmers.

<sup>1</sup> P.G. Scholar Department. of Extension Education

<sup>2</sup> Ph.D. Research Scholar Department of Extension Education

<sup>3</sup> Ph.D. Research Scholar Department of Agronomy

<sup>4</sup> P.G. Scholar Department of Extension Education

**Increase in Food Prices:** Water scarcity can also lead to an increase in food prices, as reduced crop yields and livestock productivity result in a decrease in food supply. This can lead to food insecurity, especially for the poor.

**Water Conflicts:** Water scarcity can also lead to water conflicts between farmers, communities, and states. In several regions, there have been disputes over the distribution of water, which has led to conflicts and violence.

**Migration and Displacement:** Water scarcity can also lead to migration and displacement of farmers and rural communities. In several regions, farmers have been forced to abandon their land and migrate to urban areas in search of better livelihoods.

irrigation to reduce water use and improve water efficiency.

**Improving Water Efficiency in Agriculture:** Farmers can also improve water efficiency in agriculture by using drought-resistant crops, adopting precision farming techniques, and reducing water losses during irrigation.

**Adopting Drought-Resistant Crops:** Farmers can also adopt drought-resistant crops that require less water to grow. These crops can withstand long periods of drought and are ideal for regions facing water scarcity.

**Rainwater Harvesting:** Farmers can also adopt rainwater harvesting techniques to capture and store rainwater for irrigation purposes.



Fig. 1: Water Scarcity in India

### Mitigation Strategies for Water Scarcity in Modern Agriculture in India:

**Water Conservation Techniques:** Farmers can adopt water conservation techniques like drip irrigation, sprinkler irrigation, and micro-

**Desalination and Water Reuse:** In coastal regions, desalination plants can be set up to convert seawater into freshwater for irrigation. Additionally, treated wastewater can also be reused for irrigation purposes.



## Conclusion:

Water scarcity has become a major challenge for modern agriculture in India. The country needs to adopt a comprehensive approach to address this issue, including measures to improve water conservation, reduce water use, and adopt drought-resistant crops. The government must also invest in infrastructure and technology to increase water efficiency in agriculture and reduce water losses.



**NEW ERA**  
AGRICULTURE MAGAZINE