



# AGRI MAGAZINE

(International E-Magazine for Agricultural Articles)

Volume: 03, Issue: 01 (January, 2026)

Available online at <http://www.agrimagazine.in>

© Agri Magazine, ISSN: 3048-8656

## Climate Change and Causes

\* A. Abidharani, Dr. B. Guna and Mrs. S. Sandhiya

Nalanda College of Agriculture, M.R. Palayam, Trichy, Tamil Nadu, India

\* Corresponding Author's email: [abidharaniabiraman@gmail.com](mailto:abidharaniabiraman@gmail.com)

Climate change has become one of the most serious global challenges affecting agriculture. Changes in temperature, rainfall patterns, and the frequency of extreme weather events have a direct impact on crop production, soil health, and water resources. Agriculture, which largely depends on natural climatic conditions, is highly vulnerable to these changes. This article explains the causes of climate change and its effects on agriculture, along with possible adaptation and mitigation measures to ensure food security and sustainable farming.

### Introduction

Agriculture is the backbone of many developing countries, including India. It provides food, employment, and income to millions of people. However, climate change has started to disturb the natural balance that agriculture depends on. Rising global temperatures, irregular rainfall, droughts, floods, and cyclones are becoming more common. These changes reduce crop yield, affect farmers' livelihoods, and threaten food security. Understanding the impact of climate change on agriculture is essential to develop strategies for sustainable agricultural development.

### Causes of Climate Change

Climate change is mainly caused by human activities such as deforestation, burning of fossil fuels, industrialization, and increased greenhouse gas emissions. These activities increase carbon dioxide and other gases in the atmosphere, leading to global warming and climate variations.

### Impact on Crop Production

Rising temperatures and unpredictable rainfall affect crop growth and productivity. Heat stress reduces crop yield, while droughts cause crop failure. Excess rainfall and floods damage standing crops and reduce soil fertility.

### Impact on Soil and Water Resources

Climate change leads to soil erosion, loss of soil moisture, and degradation of soil quality. Water scarcity increases due to reduced rainfall and drying of water sources. This creates difficulties in irrigation and crop management.

### Effect on Pests and Diseases

Higher temperatures and humidity encourage the spread of pests and plant diseases. New pests and diseases appear in regions where they were previously absent, increasing crop losses and production costs.

### Impact on Farmers' Livelihood

Small and marginal farmers are the most affected by climate change. Crop failure, increased input costs, and unstable income lead to economic stress. This affects the social and economic well-being of farming communities.

### Adaptation and Mitigation Measures

Climate-resilient farming practices such as crop diversification, use of drought-resistant varieties, efficient water management, and organic farming can reduce the impact of climate change. Government support, awareness, and modern technology play a key role in adaptation.

### Conclusion

Climate change poses a serious threat to agriculture and food security. Its impacts on crops, soil, water, and farmers' livelihoods cannot be ignored. To reduce these effects, sustainable agricultural practices and climate-smart technologies must be adopted. Collective efforts by farmers, governments, and researchers are to protect agriculture from climate change and ensure a secure future for coming generations.