

# Textbook of Agricultural and Allied Sciences



Sunil Kumar  
P. Smriti Rao  
Neelam Kumari  
Dangi Pooja Arun  
Anjali Verma



# **TEXTBOOK OF AGRICULTURAL AND ALLIED SCIENCES**

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## 2

# CLIMATE CHANGE AND EXTENSION MODELS IN PROMOTING CLIMATE CHANGE ADAPTATION

*Sunil Kumar and Anjali Verma*

The impacts of climate change on agriculture will be severely felt in India. During the course of the 20th century, the average temperature in the country has increased by 0.6°C, and the trend continues to be upward. The cases of ravaging and recurrent floods, drought, and late arrival of the monsoon, erratic rainfall etc., have left the people in peril and these recurrent occurrences of extreme events amply indicate climatic anomalies.

One of the critical issues in Indian agriculture is the high proportion of minted agriculture which is climatically classified as semi-arid tropics. Rainfed agriculture in the semi-arid tropics is particularly vulnerable to climate change, carries a much higher degree of risk, and is characterized by high variability in production, low yields and low returns, often not even covering the cost of cultivation for several crops in many regions. The semi-arid tropics are important to total agricultural production, gross cropped area and farmers' livelihoods in India.

The Government of India has taken several steps to address climate change and reduce the vulnerability of people to adverse impacts of climate change. Some of the important interventions include, Launching of a National Action Plan on Climate Change (NAPCC) and implementing the plan through eight National Missions such as Jawaharlal National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, National Water Mission, National Mission for

Climate Change and Extension  
Sustaining the Himalayan  
India. National Mission  
Mission on Strategic Knowledge  
the core of the National Action  
long-term and integrated  
in the context of climate  
launched a new crop insurance  
Bima Yojana (PMFBY) and  
insurance support with  
so that they can sustain  
player in carbon market  
The Government of India  
Fund to assist national  
adaptation measures in  
adverse effects of climate  
Change Assessment (I  
about the impacts of climate  
level. The National Action  
Actions (NICCSA) is based  
the Climate Change Adaptation  
studies on scientific, technological  
infrastructure related  
extension is in place.  
Technology Dis  
Models. Various Extension  
public and private organizations  
technologies and to  
such innovative models  
are discussed here.  
i. Extension Models  
National Innovation  
Network project of  
launched in 2011  
of Indian agriculture  
climatic variability  
adaptation and  
packages on farm