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# Advances in Crop Environment Interaction

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Santanu Kumar Bal • Joydeep Mukherjee  
Burhan Uddin Choudhury  
Ashok Kumar Dhawan  
Editors

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 Springer

*Editors*

Santanu Kumar Bal  
ICAR - Central Research Institute for  
Dryland Agriculture (CRIDA)  
Hyderabad, Telangana, India

Joydeep Mukherjee  
ICAR - Indian Agricultural  
Research Institute (IARI)  
New Delhi, India

Burhan Uddin Choudhury  
ICAR Research Complex for  
NEH Region  
Umiam, Meghalaya, India

Ashok Kumar Dhawan  
Former Addl. Director of Research  
Punjab Agricultural University (PAU)  
Ludhiana, Punjab, India

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*This book is dedicated to  
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## Preface

Agriculture is facing multifaceted threats from unpredictable weather variability, frequent drought occurrence, irrigation water scarcity, degradation of soil resources, and environmental health. These stresses result in modification of plant physiology to impart responses to the changing abiotic and biotic environments, only at the cost of decline in the ability of plant productivity. Given these facts, assessing the status of natural resource base and understanding the soil-plant-environmental interaction mechanisms for devising adaptation and mitigation approaches are of great and imminent challenges for all of us. In this context, it is essential to understand potential applications of modern tools and existing coping mechanisms and their integration to develop advanced mitigation strategies. In a broader perspective, the proposed book deals with crop environment interactions in the pretext of changing climatic conditions.

This book tries to bring answers in four major theme areas such as the following:

Understanding the mechanism of carbon dynamics in soil-plant-environmental continuum, greenhouse gas fluxes in agriculture systems, soil properties influenced by climate change, and carbon sequestration processes

Mitigation and management of photothermal environment for improving crop productivity, soil health under variable climate, agro-ecosystem evapotranspiration losses through biophysical controls, and heat stress in field crops and its management

Studying the impact of climate change on biotic environments, insect-pest interaction, manifestation of diseases, and adaptation strategies for island agro-ecosystem

Innovative approaches for assessing stress impacts in crops such as crop modeling, remote sensing, and spectral stress indices.

This book is a collection of contribution from the authoritative experts in their respective fields, provides a perspective to young researchers and opens up new avenues of work in the respective fields, and will be useful for different stakeholders, including postgraduate students and other academicians as well.

We are extremely thankful to all the contributors for their efforts in providing comprehensive and coherent reviews. We are also thankful to Indian Ecological Society for providing language editing services. We sincerely appreciate Team Springer especially RaagaiPriya ChandraSekaran and Aakanksha Tyagi for providing technical support in this publication.

Hyderabad, India

Santanu Kumar Bal  
Joydeep Mukherjee  
Burhan Uddin Choudhury  
Ashok Kumar Dhawan

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# Contents

## Part I Understanding the Process of Interaction

- 1 Carbon Dynamics in Soil-Plant-Environment System on Climate Change Perspective: Special Reference to Rice . . . . . 3**  
P. Bhattacharyya, P. K. Dash, C. K. Swain, A. K. Nayak,  
D. Chatterjee, S. R. Padhy, R. Saha, and D. Barman
- 2 Monitoring Greenhouse Gas Fluxes in Agro-ecosystems . . . . . 25**  
Sunayan Saha, Paramjit Singh Minhas, and Ramlal Choudhary
- 3 Methane Emission from Wetland Rice Agriculture-Biogeochemistry and Environmental Controls in Projected Changing Environment . . . . . 51**  
Saurav Saha, Dibyendu Chatterjee, Chinmaya Kumar Swain,  
and Amaresh Kumar Nayak
- 4 Response of Soil Properties and Soil Microbial Communities to the Projected Climate Change . . . . . 87**  
Dibyendu Chatterjee and Saurav Saha
- 5 Altitude Regulates Accumulation of Organic Carbon in Soil: Case Studies from the Hilly Ecosystem of Northeastern Region of India . . . . . 137**  
Burhan U. Choudhury, B. C. Verma, T. Ramesh, and S. Hazarika

## Part II Making Interaction Favourable Through Management Interventions

- 6 Managing Photothermal Environment in Improving Crop Productivity . . . . . 153**  
Santanu Kumar Bal, Kiran Pandurang Bhagat,  
Arnab Roy Chowdhury, Nilesh More, Shruti Suman,  
and Harpreet Singh

<b>7</b>	<b>Heat Stress in Field Crops: Impact and Management Approaches</b> . . . . .	181
	S. S. Sandhu, Jagdish Singh, Prabhjyot Kaur, and K. K. Gill	
<b>8</b>	<b>Identifying Suitable Soil Health Indicators Under Variable Climate Scenarios: A Ready Reckoner for Soil Management</b> . . . . .	205
	Joydeep Mukherjee, Nilimesh Mridha, Surajit Mondal, Debasish Chakraborty, and Amit Kumar	
<b>9</b>	<b>Organic Agriculture: Potentials in Managing Abiotic Stresses in Crop Production</b> . . . . .	229
	K. A. Gopinath, V. Visha Kumari, G. Venkatesh, M. Jayalakshmi, P. S. Prabhamani, and G. Ravindra Chary	
<b>10</b>	<b>Plant-Associated Microbial Interactions in the Soil Environment: Role of Endophytes in Imparting Abiotic Stress Tolerance to Crops</b> . . . . .	245
	Venkadasamy Govindasamy, Priya George, Susheel Kumar Raina, Mahesh Kumar, Jagadish Rane, and Kannepalli Annapurna	
<b>Part III Scientific Approaches for Assessing Stress Impacts on Crops</b>		
<b>11</b>	<b>Field Crop Response to Water Deficit Stress: Assessment Through Crop Models</b> . . . . .	287
	Rajkumar Dhakar, M. A. Sarath Chandran, Shivani Nagar, V. Visha Kumari, A. V. M. Subbarao, Santanu Kumar Bal, and P. Vijaya Kumar	
<b>12</b>	<b>Hyperspectral Remote Sensing: Use in Detecting Abiotic Stresses in Agriculture</b> . . . . .	317
	Bappa Das, Gopal R. Mahajan, and Ronald Singh	
<b>13</b>	<b>Understanding the Crop-Climature Interaction Using Process-Based Simulation Models</b> . . . . .	337
	Lalu Das	
<b>14</b>	<b>Canopy Temperature-Based Water Stress Indices: Potential and Limitations</b> . . . . .	365
	Manoj Kumar Nanda, Utpal Giri, and Nimai Bera	
<b>Part IV Stress Impacts on Agricultural Commodities: Few Case Studies</b>		
<b>15</b>	<b>Shift in the Manifestations of Insect Pests Under Predicted Climatic Change Scenarios: Key Challenges and Adaptation Strategies</b> . . . .	389
	Babasaheb B. Fand, Henri E. Z. Tonnang, Santanu Kumar Bal, and A. K. Dhawan	



**16 Food Chains and Webs: Interaction with Ecosystem . . . . . 405**  
Gurminder Singh Chahil, Harsimran Kaur Gill, and Gaurav Goyal

**17 Future of Rice Crop Under Enriched CO<sub>2</sub> Environment . . . . . 425**  
Biswanath Dari and Debjani Sihi

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## About the Editors

**Dr. Santanu Kumar Bal** is a Principal Scientist at the ICAR-Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad. He obtained his MSc and PhD in agrometeorology from Punjab Agricultural University (PAU), Ludhiana. He has published 55 research articles and 110 other publications and received advanced training on database management in meteorology and hydrology in Israel. His current research interests include the development of dynamic crop weather calendars and improvement in prediction of crop phenology.

**Dr. Joydeep Mukherjee** is a Principal Scientist at the ICAR-Indian Agricultural Research Institute (IARI), New Delhi. He obtained his MSc and PhD in agricultural physics from ICAR-IARI. He has published 73 research articles and 32 other publications and received advanced training on the application of GIS in agriculture at OSU, USA. His current research interests include micrometeorology using LAS and eddy covariance tower and soil moisture estimation using microwave remote sensing.

**Dr. Burhan Uddin Choudhury** is a Principal Scientist at the ICAR Research Complex for NEH Region, Meghalaya. He obtained his MSc from PAU and PhD in agricultural physics from ICAR-IARI. He has published 62 research articles and 55 other publications, and he has received the Rothamsted International Fellowship 2016, prestigious IARI Merit Model, and ICAR Biennial Team Research Award. His current research interests are NRM using hyperspectral remote sensing (RS), UAV and multispectral RS, and crop and soil erosion studies in the fragile hilly ecosystems of NE India.

**Dr. Ashok Kumar Dhawan** is former Additional Director of Research and Head of the Department of Entomology, PAU, Ludhiana. He is the president of the Indian Ecological Society and the Society for Sustainable Cotton Production. He has 71 recommendations, 16 books, and 430 research articles to his credit. He is a fellow of seven professional societies and, at present, is involved in organizing conferences to develop awareness among policy planner and public/private sectors on issues related to ecology and environment by organizing conferences.