



About the Editors

Krashankant Sharma born in Parwana village in the Bulandshahr district of Uttar Pradesh. He began his academic journey in his village with our schooling and went on to pursue higher education in Agronomy. He completed his graduation and post-graduation from Amar Singh P.G. College, Lakhaoti, affiliated with Chaudhary Charan Singh University, Meerut. Currently, he is pursuing a Ph.D. in Agronomy in Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut has successfully qualified several national-level examinations, including ASRB-NET (Agronomy), UGC-NET, and JRF (Environmental Science). With a deep passion for agricultural sciences and sustainability, Mr. Sharma has published numerous research papers and review articles in reputed Scopus-indexed journals. In addition to his academics, he is actively involved in practical farming activities, bringing scientific principles to the grassroots level. His work reflects a commitment to bridging the gap between research and real-world agricultural practices.



Mr. Vaibhav Parmeshwar Gulwane is a dedicated agricultural researcher currently pursuing a Ph.D. (Agri.) in Genetics and Plant Breeding, holding an M.Sc. (Agri.) in the same field from the Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra. His expertise includes in drought stress tolerance, crop improvement, and innovative agricultural practices aimed at enhancing sustainability and productivity. He has authored and contributed to multiple NAAS-rated Research Papers, Book Chapters, and Popular Articles. He was honoured with the "Excellent Agri Student Award-2018" at National-Level Krishithon Exhibition, Nashik. Mr. Gulwane has also served as an Assistant Professor at K. K. Wagh College of Agriculture, Nashik. He is committed to advancing agricultural science through research and educational writing, with a focus on climate-resilient agriculture.



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SCAN ME



MODERN INNOVATIONS IN AGRICULTURAL SCIENCE AND TECHNOLOGY

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Editors

Krashankant Sharma

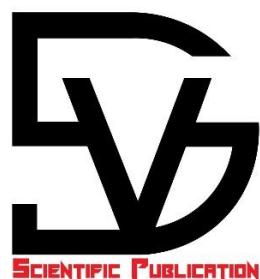
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PREFACE

Agriculture has been the foundation of human civilization since ancient times. For millennia, we have cultivated the land to feed and clothe ourselves. And yet, as our global population continues to grow and the pressures on our food systems mount, agriculture faces unprecedented challenges in the 21st century. Climate change, environmental degradation, water scarcity, and the need to feed an estimated 9 billion people by 2050 necessitate a transformation in how we grow our food.

This book, "Modern Innovations in Agricultural Science and Technology," aims to showcase the cutting-edge developments that are ushering in a new era of sustainable, efficient, and resilient agriculture. From precision farming techniques that harness big data, to biotechnology breakthroughs in crop breeding, to novel approaches in vertical farming and aquaponics, the innovations covered in these pages represent the diverse and exciting ways science and technology are being leveraged to revolutionize agriculture.

Through research insights, case studies, and expert analysis, the authors explore how these modern innovations are being applied to tackle the most pressing issues facing agriculture today - increasing yields, minimizing inputs and waste, adapting to a changing climate, and ensuring food security and safety, all while protecting the environment and supporting farmer livelihoods. Whether it's the use of drones and sensors for optimized irrigation and nutrient management, CRISPR gene editing to develop drought-tolerant crops, or AI-driven platforms for supply chain traceability, the technologies and practices highlighted here offer a compelling vision of a more sustainable and prosperous agricultural future.

However, this book goes beyond just presenting technological solutions. It also grapples with the complex social, economic, and policy dimensions that will determine how these innovations are ultimately adopted and scaled. Issues of access, equity, ethics, and governance are woven throughout the chapters, acknowledging that realizing the full potential of agricultural innovation requires more than just scientific advances alone.

Aimed at researchers, practitioners, policymakers, and anyone passionate about the future of food and farming, this book provides a timely and comprehensive look at the current landscape of agricultural science and technology innovation, and the promising directions it is headed. As we confront the monumental task of nourishing humanity in the face of growing constraints, embracing and augmenting the vital innovations detailed here will be essential.

Happy reading and happy gardening!

Editors.....□

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