

Enhancing Crop Resilience:

Advances in Climate Smart Crop Production Technologies



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BioTica

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Preface

The increasing unpredictability and intensity of climate change pose significant challenges to global food security, demanding urgent and innovative approaches to agricultural production. In this context, the concept of climate-smart agriculture (CSA) has emerged as a critical strategy to enhance the resilience of crops, optimize resource use, and reduce greenhouse gas emissions. “Enhancing Crop Resilience: Advances in Climate-Smart Crop Production Technologies” aims to provide a comprehensive overview of the latest developments and best practices in this dynamic field.

This book brings together contributions from leading researchers, agronomists, and practitioners at the forefront of advancing CSA technologies. The chapters cover a wide range of topics relevant to climate-smart agricultural practices. By presenting cutting-edge research and case studies from around the world, the book highlights practical solutions that can be adopted and scaled up to make agriculture more resilient to climate variability.

The journey towards climate-smart agriculture is not without its challenges. The adoption of new technologies and practices requires a paradigm shift among farmers, policymakers, and stakeholders. This book emphasises the importance of collaboration and knowledge exchange among the global agricultural community to drive innovation and achieve sustainable outcomes.

“Enhancing Crop Resilience: Advances in Climate-Smart Crop Production Technologies” is intended for a diverse audience, including researchers, agricultural professionals, policymakers, educators, and students. It aims to inspire and inform readers about the potential of CSA to transform agricultural systems and ensure food security in the face of a changing climate. By showcasing the latest advancements and success stories, this book serves as a valuable resource for those committed to fostering a resilient and sustainable future for agriculture.

We hope this book will contribute to the global dialogue on climate-smart agriculture and inspire action towards more resilient and sustainable agricultural systems. We extend our gratitude to the contributors for their expertise and dedication, and the readers for their interest in advancing the cause of climate-smart crop production.

Editors

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About the Book

This book aims to comprehensively explore cutting-edge climate-smart technologies that contribute to the advancement of sustainable agriculture. Focusing on enhancing crop performance, the book aims to equip readers with in-depth knowledge and practical insights into the latest innovations, methodologies, and strategies for cultivating resilience in the face of a changing climate. The scope of this book extends across a rich landscape of topics, providing readers with a comprehensive understanding of the multifaceted world of climate-smart agriculture. Encompassing diverse cutting-edge technologies, the book delves into precision agriculture, digital farming, climate smart varieties, and innovative irrigation and crop management systems. Beyond technology, it explores resilience-building strategies, such as climate adaptive breeding and integrated pest management, offering practical insights for improving crop performance in dynamic environmental conditions.

The scope also embraces sustainable practices, including organic farming, agroforestry, and regenerative agriculture, underscoring the interconnectedness of environmental stewardship and resilient crop production. Through real-world case studies and interdisciplinary perspectives, the book navigates the complexities of sustainable agriculture, addressing the role of policies, frameworks, and successful implementation strategies. As a forward-looking resource, it explores emerging trends and future directions, encouraging readers to envision the evolving landscape of sustainable crop production in the context of a changing climate.



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