

**Climate-Resilient Plantation
Crop Management for
Sustainable Agriculture**

Climate-Resilient Plantation Crop Management for Sustainable Agriculture

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Preface

Climate change is increasingly challenging the productivity, stability and sustainability of plantation-based agriculture. Rising temperatures, altered rainfall patterns, prolonged droughts, extreme weather events, soil degradation, emerging pests and diseases, and changing agroecological conditions can significantly affect plantation crops and the livelihoods of farming communities. In this context, climate-resilient plantation crop management has become essential for maintaining productivity while conserving natural resources and strengthening agricultural resilience.

Climate-Resilient Plantation Crop Management for Sustainable Agriculture presents contemporary approaches for adapting plantation systems to changing climatic conditions while promoting environmental sustainability and economic viability. The book brings together concepts related to climate-smart production, resilient crop varieties, soil and water conservation, precision irrigation, integrated nutrient management, agroforestry, biodiversity conservation, pest and disease management, carbon sequestration, and digital technologies for plantation monitoring and decision-making.

Particular emphasis is placed on integrating traditional knowledge with modern tools such as remote sensing, geographic information systems, drones, artificial intelligence, sensor-based monitoring and climate-informed management practices. These approaches can improve resource-use efficiency, strengthen early warning and risk assessment, and support site-specific management.

The book is intended to serve as a useful reference for students, researchers, teachers, extension professionals, policymakers and plantation managers. By highlighting practical and science-based strategies, it seeks to encourage sustainable plantation agriculture that can withstand climatic uncertainties while contributing to food security, farmer resilience, ecosystem conservation and long-term agricultural development.

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