Advances in Plant Pathology and Crop Protection

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Preface

Plant diseases remain among the major constraints to sustainable agricultural production, affecting crop productivity, quality, food security, and farm profitability worldwide. Rapid changes in climate, cropping systems, pathogen populations, and agricultural practices have further intensified the complexity of disease management. Against this backdrop, advances in plant pathology and crop protection are essential for developing resilient, productive, and environmentally responsible agricultural systems.

Advances in Plant Pathology and Crop Protection presents contemporary concepts, emerging technologies, and innovative approaches for understanding and managing plant diseases. The book brings together fundamental principles of plant–pathogen interactions with recent developments in disease diagnostics, molecular pathology, host resistance, biological control, integrated disease management, and precision crop protection. Particular emphasis is placed on sustainable strategies that reduce dependence on conventional pesticides while supporting ecological balance and agricultural productivity.

The book is intended to serve as a valuable reference for students, researchers, teachers, agricultural professionals, and practitioners involved in plant pathology, crop protection, plant breeding, and allied disciplines. By integrating scientific advances with practical perspectives, this volume seeks to promote deeper understanding, encourage innovation, and contribute to the development of sustainable solutions for present and emerging challenges in crop health.

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