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Autore	Kalia Rajwant K
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species -- 14. Insect Torments of Timberland- Monitoring to Microbial Control and Beyond -- 15. Eco-tech Strategies: Revolutionizing Forest Insect Pest Control through Biological and Biotechnological Innovations -- 16. Biotechnological Approaches for Combatting the Tree Diseases to Enhance the Forest Ecosystem Sustainability -- 17. Abiotic Stress Reduction with Molecular and Physiological Approaches in Trees -- 18. Abiotic stress tolerance: Role of Nitric Oxide Signaling in Developing Climate-Resilient Plants.

Sommario/riassunto

This edited book aims to bring out a comprehensive collection of information on tree biology, breeding, improvement, genetics, and biotechnology. The focus of this book is to address the status of tree biology research through biotechnological, physiological, pathological, and entomological aspects. Trees are dominant and perennial species found in several ecosystems. They are the only piece of infrastructure that gains value over time. Their economic relevance is well known in terms of the production of food, feed, fodder, fuel, timber, and other products. Trees are well-known habitats for different organisms. They also deliver various ecosystem services, including temperature regulation, mitigation of soil erosion, and managing and filtering rainwater. Tree species are versatile and are capable of providing livelihood security to people, besides several other advantages. In the era of high population growth and increasing pressure on agricultural systems, efficient management of tree resources is the need of the time. Therefore, it is essential to understand tree biology, breeding, and improvement. This book comprises information on various aspects of tree breeding, biology, genetics, and research in the improvement of tree species. Applications of tissue culture, biotechnological approaches, tree health management, insect pest management, and nutrient recycling have been covered in the book, along with some chapters on case studies from Rajasthan and Africa. This book is a useful read for agricultural students, researchers, teachers, and professionals interested in the fields of agroforestry, horticulture, silviculture, and tree improvement.