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Altri autori (Persone)	AlnaddafLina M JainShri Mohan PennaSuprasanna
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Nota di contenuto	Chapter 1: Nanotechnologies and omics: A way forwardNanotechnologies and omics: A way forward -- Chapter 2: Artificial intelligence in agriculture -- Chapter 3: Molecular techniques for improvement of abiotic stress tolerance in plants -- Chapter 4: Molecular techniques for improvement of biotic stress tolerance in plants -- Chapter 5: Influence of Nanomaterials on Physiology and Antioxidant Defense Activities in Plants under Abiotic Stress Conditions -- Chapter 6: Plant genetic engineering: Nanomaterials-based delivery of genetic material -- Chapter 7: Detection of Genetically Modified Crops with Biosensors -- Chapter 8: Advances in genomics for biofortification -- Chapter 9: Bioinformatics and functional genomics -- Chapter 10: Genome Editing: Revolutionizing Horticultural Crops

Improvement -- Chapter 11: Metabolic engineering for the overproduction of plant secondary metabolites: Alkaloids.

Sommario/riassunto

This book focuses on recent advances in Molecular Tools, Nanotechnology and Artificial Intelligence to monitor, manage and improve horticultural crops in terms of plant growth, nutrient deciency, toxicity, diseases, abiotic stress, soil amendments and agrochemicals entering the surrounding environment. The book consists of 11 chapters grouped in 3 parts. Part I Nanotechnology and Artificial Intelligence, Part II Monitoring Abiotic and Biotic Stress, Part III Genetic Engineering and Genomics. This book provides an overview of nanotechnology and omics used to improve the productivity of crops and sustainability in the future. It also describes the basic structures of six popular artificial intelligence techniques and their applications in horticultural crop improvement. The book presents molecular techniques such as molecular markers, genome sequencing, genome editing and genetic modification that are considered efcient tools to achieve the goals of plant breeders in horticultural crop improvement programs. Chapters are written by globally recognized scientists and subjected to a rigorous review process to ensure quality presentation and scientific precision. Each chapter begins with an introduction that covers similar contexts and includes a detailed discussion of the topic accompanied by high-quality color images, diagrams and relevant details and concludes with recommendations for future study directions in addition to a comprehensive bibliography. .