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Nota di contenuto	Preface -- 1. Pros and cons of metal oxide nanomaterial use in Australian broadacre agriculture -- 2. Accumulation of metal-oxide nanomaterials by unicellular algae and their transfer within marine and aquatic food-webs -- 3. The chemistry behind nanotoxicological processes in living systems -- 4. Nanoparticles and Sustainable Agriculture: Concepts and controversies -- 5. Elucidating the role of nano-bio interactions in nanotoxicology -- 6. Potential of nonotechnology for increasing micronutrients fertilizer use efficiency in

crop production -- 7. Fate and effect of engineered nanomaterials in agricultural systems -- 8. Effects of engineered nanomaterials on the alleviation of abiotic stress in plants -- 9. Titanium Dioxide Nanoparticles Interactions: I. In vitro Studies in Animal Cells -- 10. Titanium Dioxide Nanoparticles Interactions: II. An Analysis Based on Animal Organ System -- 11. Engineered nanomaterials toxicity at different growth phases of agricultural species -- 12. Nanotoxicology Research Based on Drosophila Models -- 13. Caenorhabditis elegans – A unique animal model to study soil–nanoparticles–organism interactions -- 14. Cytotoxic efficacy of green engineered biomolecules-loaded silver nanoparticles on HeLa Cell line using leaf extracts of Leucas aspera -- 15. Zebrafish models of nanotoxicity – A comprehensive account -- 16. Responses of terrestrial plants to metallic nanomaterial exposure – a Mechanistic analysis -- Index. .

Sommario/riassunto

The range of nanomaterial applications has expanded recently from catalysis, electronics, and filtration to therapeutics, diagnostics, agriculture, and food because of the unique properties and potentials of different nanoparticles and nanomaterials. Research shows that these exquisite particles can interact with an organism at the cellular, physiological, biochemical, and molecular levels. Our knowledge, however, of how they affect these changes, selectively or generally, in diverse organisms or ecosystems is very limited and far from satisfactory. Data indicate that the biological function largely depends on the shape, size, and surface characteristics of the nanoparticles used along with life cycle stages of an organism. This book focuses on the body of work carried out by distinguished investigators using diverse nanomaterials in both plant and animal species. It includes specific case studies as well as general reviews highlighting aspects of multilayered interactions. This volume provides a comprehensive resource for academic scholars, as well as for researchers in the concerned industries and policy makers.