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Altri autori (Persone)	Husen
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Nota di contenuto	Contaminants and soil-crop plant systems -- Emerging soil contaminants and their persistence in crop plants, soil, and environments -- Nanofertilizers in improving soil quality and crop plant growth -- Use of phytoremediation in improving soil status -- Cadmium: uptake, toxicity and tolerance in crop plants and management of Cd-contaminated soil -- Lead: uptake, toxicity and tolerance in crop plants and management of Pb-contaminated soil -- Mercury: uptake, toxicity and tolerance in crop plants and management of Hg-contaminated soil -- Arsenic: uptake, toxicity and tolerance in crop plants and management of As-contaminated soil -- Zinc: uptake, toxicity and tolerance in crop plants and management of Zn-contaminated soil -- Nickel: uptake, toxicity and tolerance in crop plants and management of Ni-contaminated soil -- Silicon: uptake, toxicity and tolerance in crop plants and management of Si-contaminated soil -- Exploring genetic and molecular methods to induce crop plant tolerance under various contamination -- Biological tools for improving crop plant growth under contaminants --

Understanding the impact of herbicides, insecticides and fungicides stress for crop plant growth and production -- Combined impact of heavy metal and oil sludge on crop plant growth, physiology, and contaminant removal -- Mitigating metal-induced toxicity in crop plants using PGPR -- Understanding physiological and biochemical pathways responsible for stress tolerance mechanisms in crop plants -- Managing defence mechanisms in crop plants using phytohormones under contaminants -- Managing defence mechanisms in crop plants using nutrients under contaminants -- Managing defence mechanisms in crop plants using nanomaterials under contaminants -- Improving crop plants production under stressed-soils using poly-omics techniques and transcriptomic analysis -- Safety issues associated with the usesof micro and nano contaminants.

Sommario/riassunto

This book explores the uptake, toxicity, and tolerance of various contaminants in crop plants and discusses genetic and molecular methods, as well as biological tools, to improve plant growth under contamination stress. The book also covers defense mechanisms in plants using phytohormones and nanomaterials, along with safety concerns related to micro and nano-contaminants. Contaminants in soil-crop plant systems pose a significant challenge to sustainable agriculture, environmental health, and food security. These pollutants, such as herbicides, insecticides, fungicides, salts, nanomaterials, and toxic metals like cadmium, lead, mercury, and arsenic, can enter the food chain through contaminated soil and crops. These substances can damage plants, alter their growth processes, and compromise their integrity. As a result, the persistence of such chemicals within the ecosystem can remain unchanged, affecting plant health and soil quality. This book looks at the effective management practices for the use and disposal of contaminants that are essential to limit their harmful dynamics. It highlights the various interventions for the their tolerance and survival mechanisms of plants against contaminants that can disrupt morpho-physiological and biochemical. It also highlights the use of signaling molecules, phytohormones, plant nutrients, bioaugmented agents, and nanomaterials that can support plants in coping with contamination, improving growth and productivity. This book is a good resource for upper-level students, faculty, scientists, and researchers working especially in nanobiotechnology, plant biology, plant biochemistry, botanical or crop sciences, environmental sciences, ecological sciences, and other allied subjects and or science.