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Soggetti	Prefaces
Lingua di pubblicazione	Inglese
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Titolo	Trace elements in soils / / edited by Peter S. Hooda
Pubbl/distr/stampa	Hoboken, NJ, : Blackwell, 2010
ISBN	9786612690877 9781282690875 1282690876 9781444319477 1444319477 9781444319484 1444319485
Descrizione fisica	1 online resource (618 p.)
Altri autori (Persone)	HoodaPeter S
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Trace Elements in Soils; Contents; Preface; List of Contributors; SECTION 1 BASIC PRINCIPLES, PROCESSES, SAMPLING AND ANALYTICAL ASPECTS; 1 Introduction; References; 2 Trace Elements: General Soil Chemistry, Principles and Processes; 2.1 Introduction; 2.2 Distribution of Trace Elements in the Soil; 2.3 Chemical Species; 2.4 Sorption and Desorption; 2.4.1 Sorption Mechanisms; 2.4.2 Sorption Isotherms; 2.5 Precipitation and Dissolution; 2.6 Mobilization of Trace Elements; 2.6.1 pH and Redox Potential; 2.6.2 Influence of Soil Constituents; 2.7 Transport; 2.8 Plant Uptake; 2.9 Concluding Remarks References3 Soil Sampling and Sample Preparation; 3.1 Introduction; 3.2 Soil Sampling; 3.3 Errors Associated with Soil Sampling and Preparation; 3.4 Overview of the Current Situation; 3.5 Scale and Variability; 3.6 Conclusions; References; 4 Analysis and Fractionation of Trace Elements in Soils; 4.1 Introduction; 4.2 Total Analysis; 4.2.1 Matrix Dissolution; 4.2.2 Instrumental Analysis Techniques; 4.2.3 Nondestructive Methods; 4.3 Fractionation of Trace Elements; 4.3.1 Single Extractions; 4.3.2 Sequential Extraction Procedures; 4.3.3 Fractionation Based on Particle Size 4.4 Species-Retaining and Species-Selective Leaching Techniques4.5 Equipment for Direct Speciation of Trace Elements in Soil; 4.6 Conclusions; References; 5 Fractionation and Speciation of Trace Elements in Soil Solution; 5.1 Introduction; 5.2 Soil Solution Sampling, Storage and Filtration; 5.3 Particle Size Fractionation; 5.4 Liquid-Liquid Extraction; 5.5 Ion-Exchange Resins and Solid-Phase Extraction; 5.6 Derivatization Techniques to Create Volatile Species; 5.7 Chromatographic Separation of Trace Element Species; 5.8 Capillary Electrophoresis; 5.9 Diffusive Gradients in Thin Films 5.10 Ion-Selective Electrodes5.11 Donnan Membrane Technique; 5.12 Voltammetric Techniques; 5.13 Microelectrodes and Microsensors; 5.14 Models for Predicting Metal Speciation in Soil Solution; 5.15 Conclusions; References; SECTION 2 LONG-TERM ISSUES, IMPACTS AND PREDICTIVE MODELLING; 6 Trace Elements in Biosolids-Amended Soils; 6.1 Introduction; 6.2 Biosolids-Borne Trace Elements in Soils; 6.2.1 Land Application and Trace Element Loading; 6.2.2 Trace Element Availability in Biosolids-Amended Soils - A Time Bomb? 6.2.3 Plant Response to Trace Elements in Biosolids-Amended Soils - Is There a Plateau?6.3 Assessing Availability of Trace Elements in Biosolids-Amended Soils; 6.3.1 Source Assessment; 6.3.2 End Measurement; 6.4 Long-Term Availability Pool Assessment through a Root Exudates-Based Model; 6.4.1 Rationale for Root Exudate-Based Trace Element Phytoavailability; 6.4.2 Case Studies; 6.5 Conclusions; References; 7 Fertilizer-Borne Trace Element Contaminants in Soils; 7.1 Introduction; 7.2 Phosphatic Fertilizers; 7.3 Micronutrient Fertilizers 7.4 Long-Term Accumulation of Fertilizer-Borne Trace Element Contaminants
Sommario/riassunto	Written as an authoritative guide for analytical chemists, geochemists, soil scientists, agricultural chemists and environmental scientists at postgraduate level and beyond, Trace Metals in Soils provides an up-to-date, balanced and comprehensive review broken up into four sections, covering: basic chemistry and general principles; long-term behaviour of trace metals in soils; environmentally important trace metals, and remediation and management of metal contaminated soils.