

Contents

	List of Contributors.....	xi
	Preface.....	xv
Chapter 1	The Interdisciplinary Nature of Soil	1
	Abstract	1
	1. Introduction	1
	2. Soils And Biodiversity	2
	3. Interdisciplinary Aspects of Traditional Soil Topics.....	8
	References	8
Chapter 2	Soil Physicochemical Properties and Floristic Composition of Two Ecosystems Differing in Plant Diversity: Fallows and Meadows.....	15
	Abstract	15
	1. Introduction	15
	2. Methods.....	16
	3. Results	18
	4. Conclusions	22
	5. Acknowledgments	22
	References	22
Chapter 3	Effects of Amazonian Dark Earths on Growth and Leaf Nutrient Balance of Tropical Tree Seedlings	25
	Abstract	25
	1. Introduction	26
	2. Methods.....	27
	3. Discussion	35
	4. Acknowledgments	37
	References	37
Chapter 4	Plant Growth as Affected by Concomitant Movement of Arsenic and Sulphur in Saline Soils	41
	Abstract	41
	1. Introduction	41
	2. Materials and Methods.....	42
	3. Results and Discussions	43
	4. Conclusion	46
	References	46
Chapter 5	The Significance of Magnesium For Crop Quality	49
	Abstract	49
	1. The Term 'Quality' and Quality Traits	49
	2. Functions of MG in Plant Metabolism	51
	3. MG Effects on Crop Quality	52
	4. Conclusions	67
	5. Acknowledgments	68
	References	68
Chapter 6	The Role of Exogenous Humic and Fulvic Acids in Iodine Biofortification in Spinach (Spinacia Oleracea L.).....	75

	Abstract	75
1.	Introduction	75
2.	Materials and Methods.....	76
3.	Results	78
4.	Discussion	82
5.	Acknowledgments	84
	References	85
Chapter 7	Magnesium Deficiency Decreases Biomass Water-Use Efficiency and Increases Leaf Water-Use Efficiency and Oxidative Stress in Barley Plants	87
	Abstract	87
1.	Introduction	88
2.	Materials and Methods.....	89
3.	Results	91
4.	Discussion	93
5.	Conclusion	96
	References	96
Chapter 8	Strategic Timing of Nitrogen Fertilization to Increase Root Biomass and Nitrogen-Use Efficiency of Lolium Perenne L.....	101
	Abstract	101
1.	Introduction	102
2.	Materials and Methods.....	102
3.	Results	103
4.	Discussion	106
5.	Conclusions	107
6.	Acknowledgments	107
	References	107
Chapter 9	Warming Alters Competition For Organic and Inorganic Nitrogen Between Co-Existing Grassland Plant Species.....	111
	Abstract	111
1.	Introduction	112
2.	Materials and Methods.....	112
3.	Results	114
4.	Conclusions	119
5.	Acknowledgments	119
	References	119
Chapter 10	Selenium-Rich Dissolved Organic Matter Determines Selenium Uptake In Wheat Grown On Low-Selenium Arable Land Soils.....	123
	Abstract	123
1.	Introduction	124
2.	Results	127
3.	Conclusions	135
4.	Acknowledgments	135
5.	Compliance With Ethical Standards	135
	References	139
Chapter 11	Rapid Plant Rehydration Initiates Permanent and Adverse Changes in the Photosynthetic Apparatus of Triticale	141

75	Abstract	141
75	1. Introduction	142
76	2. Materials and Methods.....	142
78	3. Results	145
82	4. Conclusions	153
84	References	153
85	Chapter 12 Effects Of Poultry Manure And Npk Fertilizer on Infestation of Musk Pumpkin (Cucurbita Maxima) By Insect Pests.....	157
87	Abstract	157
87	1. Introduction	157
88	2. Materials and Methods.....	158
89	3. Results	159
91	4. Discussion	159
93	5. Conclusion	161
96	References	161
96	Chapter 13 Copper Uptake, Accumulation and Physiological Changes in Adult Grapevines in Response to Excess Copper In Soil.....	163
101	Abstract	163
101	1. Introduction	164
102	2. Material and Methods.....	164
102	3. Results	168
103	4. Discussion	173
106	5. Conclusion	176
107	6. Acknowledgments	176
107	References	176
107	Chapter 14 Assaying the Potential Autotoxins and Microbial Community Associated With Rehmanniaglutinosa Replant Problems Based on Its 'Autotoxic Circle'	179
111	Abstract	179
111	1. Introduction	180
112	2. Materials and Methods.....	180
112	4. Results	182
114	5. Conclusions	189
119	References	190
119	Chapter 15 Bacterial Populations In Juvenile Maize Rhizospheres Originate From Both Seed And Soil.....	193
119	Abstract	193
123	1. Introduction	194
123	2. Methods.....	195
124	3. Sources of Soil	195
127	4. Results	197
135	5. Conclusions	204
135	6. Acknowledgments	205
135	References	205
139	Index.....	209