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| Descrizione fisica      | 1 online resource (238 p.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Collana                 | Biological sciences series (Oxford, England)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Altri autori (Persone)  | MorisonJames I. L<br>MorecroftMichael D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Disciplina              | 571.82<br>581.42632.1<br>632/.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Soggetti                | Climatic changes<br>Crops and climate<br>Growth (Plants)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Lingua di pubblicazione | Inglese                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Formato                 | Materiale a stampa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Livello bibliografico   | Monografia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Note generali           | Description based upon print version of record.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Nota di bibliografia    | Includes bibliographical references and index.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Nota di contenuto       | Plant Growth and Climate Change; Contents; List of Contributors; Preface; 1 Recent and future climate change and their implications for plant growth; 1.1 Introduction; 1.2 The climate system; 1.3 Mechanisms of anthropogenic climate change; 1.4 Recent climate changes; 1.5 Future changes in anthropogenic forcing of climate; 1.5.1 Future global climate scenarios; 1.5.2 Future regional climate scenarios; 1.6 Concluding comments; References; 2 Plant responses to rising atmospheric carbon dioxide; 2.1 Introduction; 2.1.1 Overview of plant biology; 2.1.2 A word about methodology |

2.2 Gene expression and carbon dioxide  
 2.3 Cellular processes: photosynthetic carbon reduction (PCR) and carbon dioxide; 2.3.1 C3 photosynthesis; 2.3.2 C4 photosynthesis; 2.3.3 Crassulacean acid metabolism photosynthesis; 2.3.4 Photosynthetic acclimation to rising CO<sub>2</sub>; 2.4 Cellular processes: photosynthetic carbon oxidation (PCO) and carbon dioxide; 2.5 Single leaf response to CO<sub>2</sub>; 2.5.1 Leaf carbon dynamics; 2.5.2 Inhibition of dark respiration; 2.5.3 Leaf chemistry; 2.5.4 Stomatal response and CO<sub>2</sub>; 2.6 Whole plant responses to rising CO<sub>2</sub>; 2.6.1 Plant development; 2.6.2 Carbon dynamics; 2.6.3 Stomatal regulation and water use  
 2.7 Plant-to-plant interactions; 2.7.1 Plant competition: managed systems; 2.7.2 Plant competition: unmanaged systems; 2.7.3 How does CO<sub>2</sub> alter plant-to-plant interactions?; 2.8 Plant communities and ecosystem responses to CO<sub>2</sub>; 2.8.1 Managed plant systems; 2.8.2 Water use in managed systems; 2.8.3 Unmanaged plant systems; 2.8.4 Water use in unmanaged plant systems; 2.8.5 Other trophic levels; 2.9 Global and evolutionary scales; 2.9.1 Rising CO<sub>2</sub> as a selection factor; 2.9.2 Global impacts; 2.10 Uncertainties and limitations; References  
 3 Significance of temperature in plant life  
 3.1 Two paradoxes; 3.1.1 Paradox 1; 3.1.2 Paradox 2; 3.2 Baseline responses of plant metabolism to temperature; 3.2.1 Photosynthesis; 3.2.2 Dark respiration; 3.3 Thermal acclimation of metabolism; 3.4 Growth response to temperature; 3.5 Temperature extremes and temperature thresholds; 3.6 The temperatures experienced by plants; 3.7 Temperature and plant development; 3.8 The challenge of testing plant responses to temperature; References; 4 Temperature and plant development: phenology and seasonality; 4.1 The origins of phenology; 4.2 Recent changes in phenology; 4.3 Attribution of temporal changes; 4.3.1 Detection of phenological change; 4.3.2 Attribution of year-to-year changes in phenology to temperature and other factors; 4.3.3 Confounding factors; 4.4 Evidence from continuous phenological measures; 4.5 Possible consequences; References; 5 Responses of plant growth and functioning to changes in water supply in a changing climate; 5.1 Introduction: a changing climate and its effects on plant growth and functioning; 5.2 Growth of plants in drying soil; 5.2.1 Hydraulic regulation of growth  
 5.3 Water relations of plants in drying soil

## Sommario/riassunto

Evidence grows daily of the changing climate and its impact on plants and animals. Plant function is inextricably linked to climate and atmospheric carbon dioxide concentration. On the shortest and smallest scales, the climate affects the plant's immediate environment and so directly influences physiological processes. At larger scales, the climate influences species distribution and community composition, as well as the viability of different crops in managed ecosystems. Plant growth also influences the local, regional and global climate, through the exchanges of energy and gases between the