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Life Sciences : Plant Physiology

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Advances in Crop Environment Interaction

- Presents comprehensive understanding of mechanism and various processes in soil-plant-environment dynamics
- Addresses management and mitigation options for soil properties influence by climate change
- Elucidates different approaches for assessing stress impacts in crops through latest protocols
- Studies the impact of climate change on adaptation strategies of plants

Agriculture is currently facing multi-faceted threats in the form of unpredictable weather variability, frequent droughts and scarcity of irrigation water, together with the degradation of soil resources and declining environmental health. These stresses result in the modification of plant physiology to impart greater resilience to changing abiotic and biotic environments, but only at the cost of declining plant productivity. In light of these facts, assessing the status of natural resource bases, and understanding the mechanisms of soil-plant-environment interactions so as to devise adaptation and mitigation approaches, represent great and imminent challenges for all of us. In this context, it is essential to understand the potential applications of modern tools, existing coping mechanisms and their integration, as this will allow us to develop suitable advanced mitigation strategies. From a broader perspective, the book deals with crop-environment interaction in the context of changing climatic conditions. To do so, it addresses four major aspects: Understanding the mechanism of carbon dynamics in the soil-plant-environment continuum; greenhouse gas fluxes in agricultural systems; and soil properties influenced by climate change and carbon sequestration processes. Mitigation and management of the photo-thermal environment to improve crop productivity; soil health under variable climate; reducing agro-ecosystem evapotranspiration losses through biophysical controls; and heat stress in field crops and its management. Studying the impact of climate change on biotic environments; insect-pest interactions; manifestations of disease; and adaptation strategies for island agro-ecosystems. Innovative approaches to assess stress impacts in crops, such as crop modeling, remote sensing, spectral stress indices etc.

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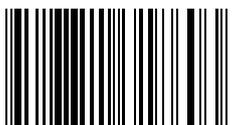
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