



# Agroecological Approaches for Soil Health and Water Management

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In the last century, innovations in agricultural technologies centered on maximizing food production to feed the growing population have contributed to significant changes in agroecosystem processes, including carbon, nutrients, and water cycling. There are growing concerns regarding soil fertility depletion, soil carbon loss, greenhouse gas emissions, irrigational water scarcity, and water pollution, affecting soil health, agricultural productivity, systems sustainability, and environmental quality. Soils provide the foundation for food production, soil water and nutrient cycling, and soil biological activities. Therefore, an improved understanding of biochemical pathways of soil organic matter and nutrient cycling, microbial community involved in regulating soil health, and soil processes associated with water flow and retention in soil profile helps design better agricultural systems and ultimately support plant growth and productivity. This book, Agroecological Approaches in Soil and Water Management, presents a collection of original research and review papers studying physical, chemical, and biological processes in soils and discusses multiple ecosystem services, including carbon sequestration, nutrients and water cycling, greenhouse gas emissions, and agro-environmental sustainability. We covered tillage, nutrients, irrigation, amendments, crop rotations, crop residue management practices for improving soil health, soil C and nutrient cycling, greenhouse gas emissions, soil water dynamics, and hydrological processes.



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