

Second Edition

PRINCIPLES OF SOIL AND PLANT WATER RELATIONS

M. B. KIRKHAM

Principles of Soil and Plant Water Relations, Second Edition, combines biology and physics to illustrate water movement through the soil-plant-atmosphere continuum. This revised edition of an essential text describes the principles of water relations within soils, followed by the uptake of water and its subsequent movement throughout and from the plant body. This is presented as a progressive series of physical and biological interrelations, and each topic is treated in detail on its own. This book also describes the equipment used to measure water in the soil-plant-atmosphere system. At the end of each chapter is a biography of a scientist whose principles are discussed in the chapter. In addition to new information on the concept of celestial time, this new edition also includes chapters on methods to determine sap flow in plants and the dual-probe heat-pulse technique to monitor water in the root zone.

Key Features

- Provides the necessary understanding to address advancing problems in water availability for meeting ecological requirements at local, regional, and global scales
- Covers plant anatomy: an essential component to understanding soil and plant water relations

New to this Edition

- A new chapter dealing with the method to determine sap flow in plants
- A novel chapter discussing the dual-probe heat-pulse technique to monitor water in the root zone
- A new chapter examining the concept of celestial time, which is used to understand and explain sun and leaf angles; this material is important to know because a major goal of agriculture is to harness solar radiation, particularly now that biomass is being developed as an energy source. Leaf angles relate to drought tolerance.

Related Titles from Elsevier

- Paul, *Soil Microbiology, Ecology, and Biochemistry*, 4e, September 2014, ISBN 978-0-12-415955-6
- Sparks, *Environmental Soil Chemistry*, 3e, September 2015, ISBN 978-0-12-374087-8



ACADEMIC PRESS

An imprint of Elsevier
store.elsevier.com

ISBN 978-0-12-420022-7



9 780124 200227