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I. Definition, Types of Penetrometers, and Uses; II. Types of Tests; III. What Penetrometer Measurements Depend Upon; IV. Cone Penetrometer; V. Appendix: Biography of Champ Tanner; Chapter 10. Measurement of Oxygen Diffusion Rate; I. The Oxygen Diffusion Rate Method; II. Electrolysis; III. Model and Principles of the ODR Method; IV. Method; V. Appendix: Biography of Michael Faraday; Chapter 11. Infiltration; I. Definition of Infiltration; II. Four Models of One-Dimensional Infiltration; III. Two- and Three-Dimensional Infiltration; IV. Redistribution; V. Tension Infiltrometer or Disc Permeameter VI. Minidisk Infiltrometer VII. Measurement of Unsaturated Hydraulic Conductivity and Sorptivity with the Tension Infiltrometer; VIII. Measurement of Repellency with the Tension Infiltrometer; IX. Measurement of Mobility with the Tension Infiltrometer; X. Ellipsoidal Description of Water Flow into Soil from a Surface Disc; XI. Appendix: Biography of John Philip; Chapter 12. Pore Volume; I. Definitions; II. Illustration of Breakthrough Curves and Pore Volumes; III. Mathematical Analysis of Pore Volume; IV. Calculation of a Pore Volume; V. Pore Volumes Based on Length Units VI. Miscible Displacement

Sommario/riassunto

Principles of Soil and Plant Water Relations combines biology and physics to show how water moves through the soil-plant-atmosphere continuum. This text explores the instrumentation and the methods used to measure the status of water in soil and plants. Principles are clearly presented with the aid of diagrams, anatomical figures, and images of instrumentation. The methods on instrumentation can be used by researchers, consultants, and the military to monitor soil degradation, including measurements of soil compaction, repellency, oxygen diffusion rate, and unsaturated hydraulic conduc
