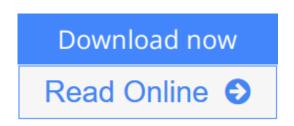


Physicochemical and Environmental Plant Physiology

By Park S. Nobel



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This text is the successor volume to **Biophysical Plant Physiology and Ecology** (W.H. Freeman, 1983). The content has been extensively updated based on the growing quantity and quality of plant research, including cell growth and water relations, membrane channels, mechanisms of active transport, and the bioenergetics of chloroplasts and mitochondria. One-third of the figures are new or modified, over 190 new references are incorporated, the appendixes on constants and conversion factors have doubled the number of entries, and the solutions to problems are given for the first time. Many other changes have emanated from the best laboratory for any book, the classroom.

Covers water relations and ion transport for plant cells; diffusion, chemical potential gradients, solute movement in and out of plant cells
Covers interconnection of various energy forms; light, chlorophyll and accessory photosynthesis pigments, ATP and NADPH
Covers forms in which energy and matter enter and leave a plant; energy budget analysis, water vapor and carbon dioxide, water movement from soil to plant to atmosphere

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Editorial Review

Review

"Nobel's book has been a cornerstone of plant physiology for over three decades? a must read for any selfrespecting plant physiologist. Where else can one find such an analytically precise presentation that couples the engineering equations of ecophysiology to the basic principles of physical chemistry? This edition represents the penultimate integration of the quantitative sciences within the field of plant physiology" -William K. Smith, Wake Forest University

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From the Publisher

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"...The book contains an enormous amount of information, carefully presented and well discussed...Should

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"...The book deserves to be widely read and will be of great use for a substantial time." (*Plant, Cell and Environment*)

"A 'must' for any advanced course on plant physiological ecology and environmental physiology." (J. Rozema, Vrije Universiteit Amsterdam, The Netherlands)

"...The style and content make this book unique among textbooks in plant physiology..." (*Plant Science Bulletin*)

"...its success is attested to by the fact that there really is little in the way of direct competition for the topics it covers... (*Ecology*)

From the Back Cover

In fundamental ways, the functioning of all living systems obeys the laws of physics and chemistry. This is true for all physiological processes that occur inside cells, tissues, organs, and organisms. This new edition of a classic text has been thoroughly revised while maintaining its unparalleled commitment to the clear presentation and student user-friendliness. Certain to maintain its leading role in the teaching of general and comparative physiological principles, **Physicochemical and Environmental Plant Physiology, 2nd Edition** establishes a new standard of excellence in the teaching of quantitative plant physiology.

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- * Enhanced coverage of bioenergetics, and gas and water fluxes
- * Thoroughly revised figures
- * Revised calculations in all chapters
- * Reformatted problems with solutions
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