

Current Books on Gardening & Botany



Yoav Waisel, Amram Eshel and Uzi Kafkafi (editors).

Plant Roots: The Hidden Half.

Third Edition, Revised and Expanded.

New York: Marcel Dekker, 2002.

cloth, 1,120 p., ISBN 0-824-70631-5, \$250.

This massive undertaking assembles the accumulated knowledge of more than 100 scientists from around the world. *Plant Roots: The Hidden Half* is a large (more than 1,000 pages) and detailed overview of root-related information. The chapters can be highly technical. Every aspect of plant roots is covered: morphology, physiology, cellular and biochemical composition, biometrics, microbiology and ecology.

The authors are selective in their review of certain topics, careful to choose specific areas where exciting new research is yet to be reviewed. For example, Nigel Chaffey (Chapter 6) covers secondary growth and makes note of other authors who have reviewed secondary growth of roots. Chaffey then explains "... since the last of those reviews was published, new aspects of the cell biology of secondary growth in roots has been studied, and it is therefore appropriate now to consider the inner workings of the system." The approach is consistent throughout the book and contributes to its individuality.

I expect the readers of this book to be drawn to specific chapters related to past and present research interests; I was especially interested in the content of Chapters 12 (Reich), 28 (Bacon et al.), 48 (Kapulnik and Okon) and 49 (Sieber). Reich discusses root-shoot allocation patterns and the optimality theory. Bacon et al. discuss gravitropism, phototropism, hydrotropism and thigmotropism. Kapulnik and Okon review rhizosphere bacteria, and Sieber reviews fungal endophytes.

Also noteworthy is the contribution of Wendy Kuhn Silk. Silk chooses to use a combination of creative and scientific writing in the introduction of Chapter 7 to describe root growth: "Root growth zones, like boat wakes, are composed of changing 'material elements' — cells analogous to water droplets in a boat wake." I found this touch of creative writing to be refreshing in comparison to the stringency of pure scientific writing.

Presenting a comprehensive, up-to-date review of all aspects of root biology, *Plant Roots: The Hidden Half* is a text for researchers, teachers and students in the fields of plant biology and related disciplines. I highly recommend this book as a valuable reference tool. — Lara Jefferson, Plant Conservation, Chicago Botanic Garden.

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