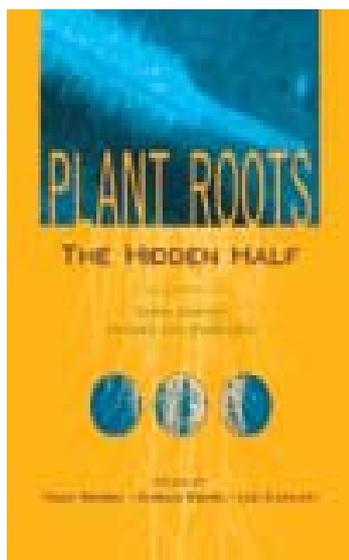




book reviews

Plant Roots. The Hidden Half – Yoav Waisel, Amram Eshel and Uzi Kafkafi eds., 3rd ed., revised and expanded, Marcel Dekker Inc., New York, Basel 2002, xx+1120 pp, ISBN 0-8247-0631-5.



The book is edited by Yoav Waisel, emeritus professor of Botany at the Tel Aviv University, Amram Eshel, professor of Ecophysiology at the Tel Aviv University and Uzi Kafkafi, emeritus professor of Plant Nutrient and Dry Land Agriculture at the Hebrew University of Jerusalem.

Within a relatively short time there appeared three editions of the book which evidence of great interest and demand for

elaborated studies of this type. In comparison with the first and second edition the Editors have introduced several new items and considerably extended the presented problems. The number of chapters increased from 40 in the first edition to 59 in the third, and number of contributions increased to twice as many.

In the last years there has been observed an exceptional proliferation of interest in root biology and intensive research activity in the understanding of root function in plant life. The revised monograph is an example that the opinion was not fully justified according to which the study of the plant root system was behind time and enjoyed less interest in comparison with investigations of the aboveground plant parts

The objective of the third edition of this book is the presentation of the role of roots in plant life both from the point of view of academic study and agronomy practice. In comparison with the second edition the editors added new chapters detailing recent breakthroughs in molecular biology, physiology of growth substances, genetics, biotechnology and biomechanics. The third edition consists of 59 chapters written by 99 contributors, index of organism names and subject index. The articles are grouped into the following ten sections: 1. The origin and characteristics of roots, 2. The root system: structure and development, 3. Root genetics, 4. Research techniques for root studies, 5. The regulation of root growth 6. Physiological aspects of root system, 7. Root growth un-

der stress, 8. Root-Rhizosphere interactions, 9. Roots of various ecological groups and 10. Roots of economic value.

The particular sections deal with the structure and development of roots with details of root anatomy and morphology, methods of root studies including the modern techniques and aeroponics, the model of simulation of root architecture and factorial geometry, covers aspects of root metabolism with the hormonal effects on root growth and graviregulation. The separate sections bring a discussion of the relationship of root with the stress factors (temperature, low oxygen concentration, heavy metal, mechanical soil constraints), the various aspects of the water and minerals uptake, interactions occur in rhizosphere, root interaction with soil pathogens and arthropod root pest, adaptations of roots to their habits (desert, epiphytes, submerged aquatic). In the 10th section there are presented some important aspects of the role of roots as a source of food and metabolites with medicinal activity. At the end of each chapter there are numerous selected references. Thus the reader has the possibility to unveil an entire epoch of the root study from 1672 to the present time. The revised monograph gives a lot of data very interesting and encouraging further study. In our opinion it is first attempt to summarize new findings concerning plant roots biology, therefore we consider it very important. Its reading requires basic knowledge in plant physiology, ecology, genetics etc.

We agree with the Editors opinion that this book is addressed to professional staff in plant sciences who seek to expand their knowledge in the field of root biology and it will also be very useful for agronomy teachers and graduate students.

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