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BOOK REVIEWS

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Biology of Earthworms. Edited by A. Karaca. Heidelberg: Springer-Verlag (2010), pp. 316, £135.00. ISBN 978-3-642-14645-0.

This book has the same title as that written by Edwards and Lofty and published 39 years ago but that is where the similarity ends. The 1972 book comprehensively dealt with the subject using information at hand at that time, while the present book deals in depth with some of the more interesting and topical aspects of the biology of earthworms relevant to research that is now ongoing. The fact that this book does not cover absolutely all aspects of earthworm biology is a reflection of how our knowledge has increased over the intervening years.

This book has 18 chapters written by specialists from throughout the world. There are chapters giving up-to-date information on the usual topics of earthworm reproduction, anatomy, the interaction of earthworms and agriculture and their usefulness in remediation and soil structure. However, there are also chapters on less recognized aspects of earthworm biology, e.g. antimicrobial vermipeptides, the earthworm immune system, biocontrol of soil-borne plant fungal diseases, use of earthworms as bioindicators of soil quality, and their role in organic farming systems and molecular genetics. These new aspects of earthworm biology, which have not been covered in previous text books published in the 1990s, make fascinating reading and contribute to us now having a better understanding of the role earthworms play in the soil ecosystem. This book is not for the general public but will appeal to graduates and research workers. Hopefully a paperback version will follow soon.

Brian Boag

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Soil Microbiology and Sustainable Crop Production. Edited by G. R. Dixon and E. L. Tilson. Heidelberg : Springer (2010), pp. 435, £135.00. ISBN 978-90-481-9478-0.

This is an excellent report on current knowledge of the many complex interactions that occur between microorganisms and crops in soils. Possibilities for future progress in increasing global crop production, using environmentally benign and beneficial means are also discussed intensely.

The book starts with a report on the fragility of world food production and the challenges faced in this vital area, particularly in the maintenance of soil health and the development of sustainable systems. Other topics covered include the sheer immense diversity present in soil microbial communities, which contain a large proportion of the world's biodiversity, much of which is yet to be defined. Microbial habitats and functional responses to system inputs, in nutrient cycling and the multitude of other functions vital to a sustainable biosphere are described. A fascinating chapter on the beneficial intimate associations between plants and microbes also presents many intriguing examples of biocontrol between microbes. Then the more frequently acknowledged phenomenon of pathogenicity, with its impacts, costs and controls is discussed in great detail.

An intriguing area, the impact of land-use practices on soil microbes, which is infrequently discussed, is introduced. Included are the effects of plants and plant breeding on microbial dynamics, with ideas on the possible potential for system management. Similarly the vast complexity of possible responsive interactions of soils to climate change is investigated.