This book is highly recommended to all those who are interested and involved in this fascinating area, from final year students to research leaders and consultants in all the environmental sciences.

R. E. Wheatley

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Principles of Soil Chemistry. 4th edition. Edited by K. H. Tan. Boca Raton, FL, USA: CRC Press (2011), pp. 362, £63.99. ISBN 978-1-4398-1392-8.

This is the latest edition of a text first published in 1982. Since 1982 much more information about soils has become available and there are marked changes in how we use this information. There have also been major developments in the analytical facilities available and associated increases in the volume and precision of the data obtained. The relative ease with which we are now able to gather data makes it ever more important that the basic principles of the nature of the materials and the processes in which they participate are understood.

The book has 12 chapters, beginning with an overview of the development of soil chemistry. From Chapter 2, there is a wealth of information which should prove sufficient for anyone with a reasonably good scientific background to understand some of the complexities of the soil system, focusing on the nature of the constituents, their interactions and the processes operating within it. Whilst in places there may be rather too much detail for some, the basic information is presented in a clear and concise manner and should provide a good starting point for the student soil scientist. The book includes all the basic material to be expected in a book on soil chemistry. It is written in a clear and concise manner and makes cross-reference between sections to help the reader; it also has a detailed index which is essential in a book of this nature. This is not a book you would read from cover to cover, but it will be useful to have on the shelf to pick up when you wish to seek information about soil chemistry.

Stephen Nortcliff

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Genetics and Improvement of Barley Malt Quality. Edited by G. Zhang and C Li. Hangzhou and Heidelberg: Zhejiang University Press and Springer (2010), pp. 296, £171.00. ISBN 978-7-308-06382-1 and ISBN 978-3-642-01278-5.

This book seeks to review the latest developments in the understanding of the genetics of malting barley by using acknowledged experts to identify the key developments in their fields. Unfortunately, it reads like nine separate reviews with little attempt to connect them, which is a shame as some are very good. The book omits, however, any treatment of malting as a system and connection to the end-user. Malting quality is treated as a series of additive effects whereas it is a balance between competing processes where the aim should be to produce just enough enzyme at the right time, not to maximize its production. There are many varieties that have satisfied the criteria discussed in this book but failed to make any market impact, which partly reflects conservatism in malting but also highlights laboratory performance, often based on <1000 grains, as a poor predictor of industrial performance when applied to billions of grains. Chapter 9 touches upon the diversity of the malting market with some conflicting objectives that depend upon the exact end product, and this should have been extended to the problems faced in industrial malting and the quality aspects required to meet the different brewing markets. The authors were under the impression that their figures would be printed in colour whereas they are all in black and white and so their impact is diminished. The copy editing is poor with many spelling and factual mistakes, which again decreases the impact. In summary, the book is an update of previous reviews and worth purchasing if you do not already have one of those.

W. T. B. Thomas

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