

Soil Sampling and Methods of Analysis (Second Edition). Edited by M. R. Carter and E. G. Gregorich. Boca Raton, FL, USA: CRC Press (2008), pp. 1224, £85.00. ISBN-13: 978-0-8593-3586-0. doi:10.1017/S0014479708006546

This is a big book with 1224 pages; 85 chapters in seven sections; two appendices, a 20-page index; 140 contributing authors (predominantly Canadian, reflecting publication by the Canadian Society of Soil Science); two or more editors for each section; and two external reviewers for each chapter. It is authoritative, covering soil analysis in the broadest sense, as indicated by the section titles: Soil sampling and handling; Diagnostic methods for soil and environmental management; Soil chemical analyses; Soil biological analyses; Soil organic matter analyses; Soil physical analyses; and Soil water analyses. All the chapters retained from the first edition have been updated and others added.

Each method is described in detail for any suitably equipped laboratory; materials and reagents, experimental procedure and calculations are presented in full. Introductory notes and references set the methods in context. Details of sophisticated analytical instruments (ICP-MS, ICP-AES, isotope ratio MS, etc.) are not given – it is implicit that these are operated in dedicated laboratories, but full details of relevant sample preparation are given, along with a critical commentary on the merits or otherwise of the different methods. The two appendices cover topics applicable to the whole book – site description and laboratory safety.

Although described as ‘methods of analysis’, this book describes much more than how to quantify element X or molecular species Y in soil. Many of the described procedures are approaches to characterizing the overall biological or physical nature of soils. Examples are potential or actual denitrification where the capacity for or net rate of a complex biologically mediated process is determined under controlled conditions. Here the critical commentaries are particularly useful, detailing the strengths and weaknesses of each approach and how the results may relate to field conditions.

In summary, despite its size, this book is a valuable *vade mecum* for any soil science laboratory.

Charlie Scrimgeour

The Rhizosphere: An Ecological Perspective. Edited by Z. G. Cardon and J. L. Whitbeck. Burlington, MA, USA: Elsevier Academic Press (2007), pp. 212, £37.99. ISBN-10: 0-12-088775-0-4; ISBN-13: 978-0-12-088775-0. doi:10.1017/S0014479708006558

This is a nice and timely addition to the growing literature that deals with the rhizosphere. It brings together almost 30 leading scientists to produce a book that is at the forefront of research in this field. Most chapters clearly explain how the microscopic processes feed into the large-scale ecosystem processes, which should make the book appealing to a broad range of scientists and practitioners. The chapter on C fluxes gives a coherent overview of the current state of knowledge including responses to a changing climate, and the authors identify what they see as future research needs. The chapters on the role of microbial communities, microfaunal interactions and mycorrhizae in the rhizosphere all discuss the implications for ecosystem processes and provide excellent overviews of the complexity and interactions in the rhizosphere. These chapters are then complemented nicely by a chapter on foodwebs, which compartmentalizes organisms based on bacteria and their consumers, fungi and their consumers, and roots and their consumers, and demonstrates that generalities can be captured and explored mathematically. This chapter is written in a way that makes it accessible for a less-mathematical audience. The later chapters in the book deal with managing the rhizosphere and the role of the rhizosphere in biogeochemical cycles and soil formation. As one would expect from a book these days, most chapters deal with response to global change and raise speculative points for discussion and future research needs that will stimulate scientists and students interested in this field. I recommend it strongly.

Wilfred Otten

Enhancing the Efficiency of Nitrogen Utilization in Plants. Edited by S. S. Goyal, R. Tschirner and A. S. Basra. Binghamton, NY, USA: The Haworth Press (2005), pp. 489, US\$59.95 (paperback). ISBN 1-560220141-0. doi:10.1017/S001447970800656X

This book provides an excellent compilation of key topics summarizing current knowledge about nitrogen acquisition and use in plants and, crucially, expert insight into how this knowledge can be applied to crop production. The chapters are consistently well written, making the topics accessible to advanced undergraduate