outlined, followed again by a chapter on organic matter decomposition in relation to composting, and methane production. This is followed by an account of trace gases in soil, especially nitrogenous gases and methane, and finally a chapter on heavy metals as pollutants, together with a brief account of toxicity, environmental aspects and microbial resistance. The text includes a good number of figures and tables, which clearly relate to the text, and there is an ample bibliography, which could lead readers to more detailed accounts of the topics discussed. Clearly the topic is huge, and the authors have succeeded in greatly simplifying and reducing to the most important points in this short volume. The book is of value to undergraduate and postgraduate students, or indeed other readers new to the field.

Geoffrey Michael Gadd

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Soil Ecology and Management. By J. K. Whalen and L. Sampredo. Wallingford, UK: CABI (2010), pp. 296, £37.50 (paperback). ISBN 978-1-84593-563-4.

This modular textbook will be particularly suited for undergraduates, lecturers and practitioners interested in soil systems. It is written with some authority with over 100 scientific articles on soil ecology between the authors. The modular nature of the book allows the reader to select those chapters of greatest interest. Each chapter presents selected highlights in focus boxes with more in-depth information. However, the modular nature also means that the book falls a bit short of a systems approach as the interactions between groups and processes are more difficult to identify. The first part of the book provides the reader with basic information on the soil environment and soil-forming factors, and is particularly aimed at those new to soil studies. The larger part of the book deals with the organisms in soil, covering microorganisms, micro-, meso- and macro-fauna, with each section describing the biology, the diversity, and methods for collections and quantification. Interactions between various groups are discussed by considering their roles in the food web. The ecology is then linked to functions of the food web, covering primary production, decomposition, nutrient cycling and biological control. The final two parts of the book deal with management of the soil environment and address the impact of climate change on the food web. These last two chapters are a bit short and might not satisfy a reader specifically interested in management or the impact of global warming. Overall the book strikes a balance between depth and breadth of soil ecology and offers helpful links to web pages for each of the chapters for further study. Undergraduates and those new to the field will find this a useful book.

Wilfred Otten

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Manual of Methods for Soil and Land Evaluation. Edited by E. A. C. Costantini. Enfield, Science Publishers (2009), pp. 549, £76.99. ISBN 978-1-57808-571-2.

This book is an English language revision of a text first published in Italian. The book aims to provide an operational and educational tool for land evaluation for agriculture and forestry based on knowledge of soil. The introduction covers the history, definitions and concepts of soil and land evaluation. This is followed by seven chapters in Part II on Soil and Land Evaluation covering land capability classification, soil protection, irrigation, erosion, hydrology and restoration; and in Part III on Land Suitability and Land Zoning 25 chapters present a wide variety of detailed examples of land suitability for row crops (bread wheat, durum wheat, maize, rice, alfalfa, potato, tobacco, soybean, sugar beet), small-scale niche cultivation (emmer wheat, truffles, ash-tree manna, cactus pear, lentils), and tree cultivation (including common ash, walnut, citrus, olives, stone fruits, apple and pear, kiwi fruit). These chapters provide clearly organized descriptions of suitability assessments focused largely through cultivation techniques and crop requirements for each species. Two final chapters cover land evaluation for Italian conifers and land suitability for grazing.

The focus of the book on Italian soils and crops is clear and limits the utility of the text to be mainly an applied manual for those interested in these crops in areas with soils and climates similar

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to those in Italy. The text has a limited wider value for other species, regions and soil types, although the clarity of suitability assessment methodologies gives it some potential for student instruction in these procedures.

Richard Aspinall

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Sustainable Potato Production. Guidelines for Developing Countries. By N. Lutaladio, O. Ortiz, A. Havercort and D. Caldiz. Rome: FAO (2009), pp. 92, US$40.00. ISBN978-92-5-106409-2.

This booklet, based on experiences gained during the UN International Year of the Potato (2008), is an attempt to influence decision makers in developing countries to improve potato production sustainably so that the crop may achieve its full potential and make the contribution to world food security of which it is capable. Factors constraining productivity are identified and good agricultural practices that may overcome them are summarized, as well as indicators of sustainability. Five FAO fact sheets outline key issues in potato development. The arguments and facts are clearly presented and well illustrated. This booklet cannot by itself provide the practical details necessary for individual farmers to enhance their productivity on farm nor does it attempt to do so, but it provides useful guidelines and a reference source for individuals and institutions, whose aims are to provide the practical guidance to farmers and other users of the crop, to formulate appropriate policies and research agenda.

George Mackay

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Crop Physiology. Applications for Genetic Improvement and Agronomy. Edited by V. O. Sadras and D. F. Calderini. Burlington, MA, USA: Elsevier/Academic Press (2009), pp. 581, £66.99. ISBN: 978-0-12-374431-9.

This volume is a compilation of 21 reviews, ably edited and presented in three parts as Farming Systems, Capture & Use of Resources and Crop Physiology. The parts have 5, 3 and 13 chapter/essays respectively, contributed by 60 authors working in 13 countries, but predominantly in Australia (15) and Argentina (11). Each chapter has an extensive reference set. The scale of the work is such that it will not be read cover-to-cover; agronomists will inevitably concentrate on either their crop or on their own region. Chapter 1 (Sustainable Agriculture) is noteworthy: it outlines the arrangement and scope of the book, and makes outspoken pronouncements (e.g. on perceived, significant deficiencies of organic agriculture and bio-fuels.) The book contains a great deal of useful information, but has a strange index with a confusing dual-alphabetical system; e.g. 'C' is subdivided into 'Canopy' and 'Crop Quality', 'B' into 'Biomass and 'Breeding', and so on. 'Model', therefore, has to be sought in presumed sections, as there is no 'M'.

The main message is two-fold:-

- Whole-crop physiology is invaluable, but currently is grossly neglected in favour of 'sexier' sciences
- (G × E) is dead (well, certainly inadequate in agronomy): long live (G × E × M)!

The implications are that excellent data collection is paramount and modern computerized analysis is essential for unravelling multi-dimensional aspects of cropping.

I commend chapters 1 and 10 for background and a basis for modelling, and as someone developing a (non-food) genus complete with new management system for a non-traditional purpose in unusual agricultural environments, I can vouch that the complexity of growing crops can be best attacked by open minds using multivariate methods. Management interactions clearly bring a further dimension to G and E in advancing knowledge.

Trevor Walker

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