Relationship; 9. Crop Water Requirement and Irrigation Scheduling; 10. Measurement of Irrigation Water; 11. Water Conservation and Harvesting; 12. Economics in Irrigation Management and Project Evaluation.

Each chapter is extensively subdivided into numbered sub-sections. The addition of some photographs would have enlivened the text. There are notes on irrigation development in Bangladesh, China and Iran, but most of the material is of general application. However, there is little or no material on sprinkler or trickle irrigation. In addition to extensive referencing, there are lists of relevant journals and appropriate FAO publications. At the end of each chapter are questions and exercises.

The book provides a thorough introduction to the fundamental aspects of surface (channel-based) irrigation, although, for undergraduates, the price is very high.

Henry Gunston

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Treated Wastewater in Agriculture. Use and Impacts on the Soil Environment and Crops. Edited by G. J. Levy, P. Fine and A. Bar-Tal. Chichester, UK: Wiley-Blackwell, (2011), pp. 446, £125. ISBN 978-1-4051-4862-7.

This book provides a comprehensive and highly relevant overview of the many issues involved in the use of treated wastewater (TWW) in irrigated agriculture. The first four chapters address general topics, such as the composition of sewage effluent, important health considerations and other guidelines for the use of TWW in agriculture, and economic aspects. The remaining ten chapters address the impacts on the soil environment and crops. All chapters are written by scientists, most of whom are working in Israel where the use of TWW in agriculture is a necessity.

Several chapters mention the complex nature of the wastewater–soil–plant system, which makes it difficult to assess the outcomes of TWW applications on soils and crops, especially the long-term effects. Three chapters refer to significant, albeit sometimes small, progress in this respect: Chapter 5, on nitrogen, phosphorus, calcium and carbonate, Chapter 7, on heavy metals in TWW-irrigated soils, and Chapter 11, on the effect of treated municipal wastewater on soil microbiology. The use of acronyms is widespread and this reader would have liked to see more lists of acronyms as in Chapter 7.

Although water treatment is expensive, irrigation with treated municipal wastewater provides a cost-effective option for recycling of sewage water. The global rise in the use of TTW is driven by the growing competition for freshwater. Tighter restrictions on the disposal of wastewater also contribute to the trend.

This interesting book is recommended reading for scientists, engineers and for graduate teaching.

Jacob W. Kijne

Expl Agric. (2011), volume 47 (3), © *Cambridge University Press 2011*
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A New Agenda for Sustainability. Edited by K. A. Nielsen, B. Elling, M. Figueroa and E. Jelsøe. Burlington, VT, USA: Ashgate Publishing Company (2010), pp. 303, £65.00. ISBN-13: 978-0754679769.

The number of books published on global sustainability has increased dramatically in recent years. These range from paperbacks produced for mass market consumption right through to more academic texts, many of which target specific sectors (e.g. socio-political systems, business, food production, conservation, waste, etc.). This book by Nielson *et al.* takes a high level academic assessment of sustainability in its broadest sense, taking a holistic view of the subject area. The book seeks to challenge our often preconceived ideas of 'sustainability' and exposes real weaknesses in the concept. For example, we often talk about sustainable agricultural systems, but rarely do we consider the wider implications of this on society and the subsequent economic, political and environmental ramifications outside of agriculture. This book clearly states the need for joined up thinking.

The book is well suited to those who wish to gain a deeper understanding of the complexity of sustainability across a broad range of disciplines. Examples of issues covered include GMOs, man-made chemicals, food production, mental health, transport, nature conservation and political governance. At the end of the book, all of the issues highlighted throughout the text are subsequently brought together in a concluding chapter which aims to set the future direction for strategic thinking in this area. This will prove particularly useful for

policy-makers and researchers who wish to think wider than their specific field. In summary, if you are looking for a book about agricultural sustainability in its narrowest sense then you would better off looking elsewhere. However, if you wish to explore the wider debate in which agriculture sits then this is the book for you.

Davey Jones

Expl Agric. (2011), volume 47 (3), © *Cambridge University Press 2011*
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Sustainable Land Management - Learning from the past for the future. Edited by S. Kapur, H. Eswaran and W. E. H. Blum. Berlin: Springer-Verlag (2011), pp. 400, £117.00. ISBN 978-3-642-14781-4.

Large areas of the world's land surface have been more or less seriously degraded by mankind. This book's 18 chapters describe aspects of such 'Anthroscapes', drawn mainly from countries around the Mediterranean Sea.

Although 'sustainability' is invoked – as if a *mantra* – throughout the book, it is not clearly defined, nor its ecological bases acknowledged (save a brief mention on p. 140 and intimated in more detail in the sixteenth chapter, from Japan). Therefore, routes to follow in remediating past damage and to making future uses of land more conservation-effective, are not clearly identifiable. Had this ecological focus been apparent from the beginning of the book, the possibilities for lasting improvements in future could have been implicit when reading the varied chapters which followed.

I looked forward to reviewing a book with a title so relevant to today's need. But the contents don't fulfil the promise of the title. It is a 'hotch-potch' of information from which no clear conclusions or recommendations for effective action have been, or can be, drawn, except what *not* to do.

There is no glossary; there are uncorrected spelling mistakes and evident errors of fact (e.g. pp. 132 and 140). Also, legends for diagrams on pp. 340, 343, 344, 389–391 have been wrongly allocated among them. Many of the illustrations (both photos and diagrams) were originally in colour. Rendering them in grey-scales throughout the book diminishes their visual impact and value.

This book was evidently rushed to publication before the editors had completed their work.

T. F. Shaxson

Expl Agric. (2011), volume 47 (3), © *Cambridge University Press 2011*
doi:10.1017/S0014479711000366

Experimental Statistics for Agriculture and Horticulture. By C. Ireland. Wallingford, UK: CABI (2010), pp. 360, £39.95 (paperback). ISBN 978-1-84593-537-5.

Aimed at 'students and researchers', this book starts from scratch and covers all the topics in applied statistics you would expect from its title, up to, but not including generalized linear models. There is a lot of text but the writing is clear and relatively jargon-free. The statistical approach is frequentist with emphasis on concepts, how to do the arithmetic by hand (where feasible) and how to use statistical software. Apart from model definitions the use of mathematics is almost completely avoided. There are many fully worked examples but no exercises. As well as being a guide to exploiting statistical software, the book is designed to be a self-contained manual with a full complement of statistical tables.

So what distinguishes this textbook from the many other introductory texts? Firstly, it assigns greater importance to the design and analysis of experiments, 25% of the book's content, and interactions in particular are nicely explained. Secondly, every example includes a 'Conclusions' paragraph which converts the technicalities of the statistical analyses into plain English. Thirdly, two styles of statistical software are illustrated, the specialist package Genstat and the more general Microsoft spreadsheet statistical functions, along with the Microsoft Excel Analysis Toolpak.

Although I felt uncomfortable with recommended analysis for 'regression with replicated values', where the concept of pure error was ignored, thought too much emphasis was given to chi-squared tests and disliked the use of GLM as an abbreviation for General Linear Model, I would happily recommend this volume to its target readership either as a textbook or reference book.

Jim McNicol