

Biodiversity in Agricultural Production Systems. Edited by G. Benckiser and S. Schnell. Boca Raton, FL, USA and London: CRC/Taylor and Francis (2007), pp. 429, £79.99. ISBN-13: 978-1-57444-589-8. doi:10.1017/S0014479706264901

It would be easy to make the mistake of thinking that the separation between agriculture and nature began when the first seeds were sown ten thousand years ago. Then, the wilds become steadily pushed back as the agricultural frontier advances. Domestication of plants and animals then dominates the world, as more than six billion of us today place daily demands on food systems. In truth, though, the separation of domesticated and wild biodiversity has never been never this clear. What are the prospects, then, of agriculture and biodiversity coexisting? There are three levels of integration: biodiversity in the field that contributes a service to food production; integration of whole farms with internal mosaics of different land use; and whole landscapes in which ecological restoration can occur. All three have been a focus for recent efforts to make agriculture more sustainable.

This book contains 20 chapters that address questions relating to agriculture and biodiversity, and a variety of solutions are suggested for sustainable management. These are generally well written and clearly illustrated (some in colour). But the book is biased towards soil biodiversity (reflecting the expertise of the two editors), with 15 of the chapters addressing soil microbes, fungi, nematodes, earthworms, enzymes and soil quality assessment. Other chapters focus on gaseous emissions from agricultural systems, natural succession, agrobiodiversity in cropping systems, and food web interactions. There is surprisingly little on ecological management above-ground, and readers will have to look elsewhere for this material. The first two chapters do, however, provide a useful overview of biological diversity issues in crop production systems.

Jules Pretty

Plant Conservation Genetics. Edited by R. J. Henry. New York: Food Products Press (2006), pp. 180, US\$34.95 (paperback). ISBN 1-56022-997-7. doi:10.1017/S0014479706274908

An understanding of genetics is a prerequisite for efficient and effective plant conservation. Although, this book aims at reviewing the science of plant genetic conservation, it appears misnamed as it fails to provide any detailed discussion of conservation genetics itself and those buying the text based on the title alone are likely to be disappointed.

The text includes 11 chapters, with a brief introduction followed by five chapters addressing various aspects of *ex situ* conservation, then two chapters with an *in situ* focus and finishing with three chapters that deal with various aspects of molecular/genomic analysis. Overall the text has a very particular slant on plant genetic resource conservation, focusing on the application of genomic techniques to the study of diversity. Although the five chapters addressing *ex situ* conservation techniques are adequate, they are not comprehensive. The Convention on Biological Diversity and International Treaty established the principle of *in situ* having precedence over *ex situ* conservation, and it is therefore surprising that the *in situ* chapters are superficial and there is no discussion of landrace conservation or the International Treaty on Plant Genetic Resources for Food and Agriculture. The final three chapters are, however, more interesting, covering the application of marker technology and genomics to plant conservation and management.

Although I value some of the information provided, overall the book lacks detail of recent advances and I would be reluctant to recommend this text. Although now in need of revision, Frankel *et al.* (1995) still provides a far superior introduction to the subject.

Nigel Maxted

Frankel, O. H., Brown, A. H. D. and Burdon, J. J. (1995). *The Conservation of Plant Biodiversity*. Cambridge University Press, Cambridge.

Pesticides. Health, Safety and the Environment. By G. A. Matthews. Oxford: Blackwell Publishing (2006), pp. 235, £79.50. ISBN-13: 978-1-4051-3091-2. doi:10.1017/S0014479706284904

This book provides a succinct overview of the development of pesticides from the 1930s to the present day. It has a well-written text with a good literary style, which makes the book easy to read and digest. It is extensively illustrated with black and white photographs, line drawings, graphs and tables. Unfortunately, a few photographs are of poor contrast and it is difficult to identify the salient points highlighted by the author.

The history of active ingredients and their formulations are described, both past and present, as well as current non-chemical alternatives such as biopesticides and the genetic modification of crops. It examines both the environmental impact and health and safety implications of handling and applying pesticides, and the hazards of contamination of adjacent plants and individuals during application. Sampling techniques for the analysis of residues in harvested food crops are explored. Although the text concentrates mainly on pesticide applications in the United Kingdom, the implications of European legislation are considered. There are also numerous examples from around the world – Europe, USA, Africa and Asia. Inevitably, health and safety legislation generates a plethora of acronyms, which are fortunately well covered by a 12-page appendix.

This book should have a wide audience, providing valuable information to all those who have an interest in pesticides, whether they are agronomists, operators or students. However, it is not a cheap book at nearly £80.00 for what is a compact volume.

Peter Gill

Flower Breeding and Genetics: Issues, Challenges and Opportunities for the 21st century. Edited by N. O. Anderson. Dordrecht, The Netherlands: Springer (2006), pp. 822, £191.50. ISBN 1-4020-4427-5. doi:10.1017/S0014479706294900

This book will come as a very welcome addition to the rather sparse library covering the genetics and breeding of ornamentals, and usefully brings the topic into the 21st century with its scientific and technical content.

The book is divided into two major parts: flower breeding programme issues and crop-specific breeding and genetics, with the latter covering the major groups of bedding plants, flowering potted plants, cut flowers and herbaceous perennials. Each of these five sections is organized into chapters which take the form of scientific papers, each subdivided with numerous headings and subheadings, making the wealth of information contained within them readily accessible to the reader. There is some very useful scientific content here, well supported with reference lists for further reading and investigation, and the topics are covered comprehensively.

Whilst I can be enthusiastic about the usefulness of this book, I have some reservations. The high cost will surely deter some and, for a book of this intended quality and high cost, and considering the colourful nature of the topic, the quality of photographic reproduction is extremely disappointing. The tables and diagrams, however, are excellent, clearly laid out, relevant and helpful. Some references are either misquoted or incomplete, and there is no general index. The book is very US-orientated, reflecting its origins, which might limit its appeal elsewhere, and there is a notable absence of some of the major species such as *Pelargonium*/*Geranium*, *Viola* and *Dahlia*.

All in all, this is a very useful and welcome contribution to the flower-breeding scene and will be welcomed by many, despite its shortcomings.

A. E. Arthur

Handbook of Seed Science and Technology. Edited by A. S. Basra. New York: Food Products Press (2006), pp. 795, US\$ 94.95 (paperback). ISBN-13:978-1-56022-315-3. doi:10.1017/S0014479706304905

This is a comprehensive textbook for researchers by 54 contributors, many of whom are very well-known research scientists in their respective fields. The coverage is comprehensive, from ovule development through seed dormancy and germination, to ecology and technology. Early chapters include information from the last decade on the specific loci which are involved in the control of seed development in *Arabidopsis* and other species. Evidence of an up-to-date narrative is clear throughout: specific chapters cover topics such as genetic engineering to enhance the nutritive value, biotechnology to improve seed crops, and synthetic seed technology.

More traditional areas are also covered, e.g. chapters on seed quality testing, seed vigour, seedborne pathogens. Seed quality testing is the most 'traditional' of the chapters, but nevertheless includes a section on testing genetically modified seeds, which are now widespread in global trade. The only curious selection of topics is those covering vegetable seed quality and hybrid seed production in vegetable crops: curious in the sense that other crop types appear to have been omitted (although it could be argued that information on other crop seeds is generously provided in other chapters).

The comprehensive index is of great help with topics that pervade the book but do not have a chapter devoted to them, e.g. seed storage. Similarly, the text layout, tables, and figures are good. All in all, a pleasing addition to the literature for 'new readers' and for some topics older ones too. It is superior, in my view, to the similar sounding *Seeds Handbook* published in 2004 by Marcel Dekker, Inc.

Richard Ellis