

BOOK REVIEWS

Agriculture and Rural Development Planning by H. D. Akroyd. Aldershot, UK: Ashgate (2003), pp. 238, £45.00.
ISBN 0-7546-3693-3. DOI: 10.1017/S0014479704212157

This book is a welcome addition to the various texts, guidelines and manuals on rural project planning in developing countries. In one volume, it attempts to cover the whole process from the identification of appropriate projects to how they are assessed, implemented and evaluated after completion. The book draws on a number of real case studies which usefully illustrate the various steps in the process.

It aims to meet the needs of students, lecturers and practitioners in the field of rural development planning, and provides a good insight into the approaches and procedures of the African Development Bank (ADB). However, this narrow emphasis means that the methods adopted by other donors or NGOs are somewhat neglected, as are some of the more basic principles of rural planning. With some exceptions, as in the first and penultimate chapters, the book is largely a practical manual, particularly useful for those intending to work for large international funding agencies such as the ADB.

Whilst the book aims to be comprehensive there are, perhaps necessarily, a number of gaps such as practical guidance on participative planning (which is strongly and rightly advocated), farm modelling or the assessment of institutional capacity. Some of the big issues of the day, such as technological feasibility, environmental impact or the role of women in rural development, receive only passing reference. On the other hand, it deals with the procedural issues of, for example, loan processing and project supervision in considerable detail – topics somewhat neglected in previous texts but important to those involved in project management.

Mike Daw

Research Towards Integrated Natural Resources Management. Examples of Research Problems, Approaches and Partnerships in Action in the CGIAR. Edited by R. R. Harwood and A. H. Kassam. Rome: FAO (2003), pp. 168, no price quoted. No ISBN Number. DOI: 10.1017/S0014479704222153

The early agricultural research centres of the Consultative Group on International Agricultural Research were primarily concerned with germplasm collection and improvement and much of the initial global success came from this approach. While they had some elements of natural resources management in the mandate, this became explicit in 1990 with the addition of forestry, fisheries and water management centres and the definition of an ecological approach for sustainable agriculture.

This document traces the evolution of integrated natural resources management concepts within the CGIAR system and the series of time-consuming steps needed to integrate the many stakeholders into planning the research on a landscape or watershed basis by multidisciplinary teams across several countries in a region. In the seven studies from Asia, Africa and Latin America, an international centre was the lead organization involving the rural community, national agricultural research systems and NGOs in the operations of integrated resource management.

The results are reviewed in a section on ‘lessons learned’, which provides a very useful summary of the attributes of success or failure. Successful coordination depends on institutions that have the resources and the scientific capacity to make significant contributions; they require the respect of the stakeholders, which comes only from long experience and contributions within the region. Among the mistakes were too much emphasis on describing ‘everything’, too much focus on the problems rather than on the solutions and lack of balance between the contributions of scientific knowledge and indigenous farmers’ knowledge.

John K. Coulter

Crop Management and Postharvest Handling of Horticultural Products. Volume III – Crop Fertilization, Nutrition and Growth. Edited by R. Dris, R. Niskanen, S. Mohan Jain. Enfield, New Hampshire, U.S.A.: Science Publishers Inc. (2003), pp. 284, £54.60. ISBN 1-57808-278-1. DOI: 10.1017/S001447970423215X

I expected to learn something about nutritional effects on the post-harvest physiology of fruit and vegetables from this book, but was disappointed, as it contains very little on that subject. In fact it is a hotch-potch of chapters on the environmental effect of fertilizers, crop quality in adverse conditions, boron in apples, 'integrated nutrient management' in India, phosphorus in strawberries, tropical fruit nutrition, wood ash, grafting and the jujube tree, all written by different groups of authors, mostly from India and Spain.

These last four chapters seemed to me to be the most useful, and could be a valuable source of references. Having said that, I was a little surprised to read that 'the cultivation of grafted horticultural plants began in Korea and Japan towards the end of 1920'. Messrs Cox and Bramley would turn in their graves. Chapter 6 contains nutritional information on mango, banana, citrus, guava, pineapple, litchi, papaya and grapes. Chapter 7 on wood ash is well written and useful. Chapter 8 is mainly concerned with grafting cucurbits as protection against soil pathogens, cold and salinity.

Alarm bells began to ring with the editors' brief introduction in which they talk of groundwater pollution by nitrites, which I suspect means nitrates. Many of the chapters are riddled with grammatical and typographical errors, not to mention scientific ones such as $\text{Ca}(\text{CO}_3)_2$ as the formula for calcium carbonate and equating ppb with mg/l. The book suffers from a lack of editorial control and should not have been printed without a great deal more checking.

Alan Scaife

Invasive Plant Species of the World. By E. Weber. Wallingford, UK: CABI Publishing (2003), pp. 548, £75.00. ISBN 0-85199-695-7. DOI: 10.1017/S0014479704242156

The subtitle of this book is 'a reference guide to environmental weeds'; the word 'environmental' is used to indicate plants that invade habitats outwith highly disturbed arable fields. A short introduction sets the scene, then the rest of the book is a systematic description of 450 plants species (one to a page in a consistent format) that, through invasion, establishment and spread, are occupying and altering natural or semi-natural habitats. Detailed descriptions are provided for each species together with information on their ecology, world-wide geographic distribution, the habitats they invade and methods for their control. The most commonly cited forms of control require careful use of chemical herbicides. The review includes 1400 key references to further information on the species described, together with a set of recommended text books and internet sites. It is useful, then as a reference, but some perceptions underlying what is meant by naturalness and invasiveness should be challenged. First, the concept that agro-ecosystems and their weeds are inherently distinct from natural habitats is surely artificial, whether the distinction is made by process, species richness or regularity of disturbance. Secondly, it is not so much that a species is invasive, but that an invasion happens through the combination of plant and context, the latter often generated through disturbance by humans or climate events. This is an important distinction, because controlling an invasion, if that is necessary, should be more about managing the context than the particular species.

G. R. Squire and C. Hawes

Genetic Diversity of Cultivated Tropical Plants. Edited by P. Hamon, M. Seguin, X. Perrier and J-C. Glaszmann. Enfield, NH, USA: Science Publishers and CIRAD (2003), pp. 359, € 80.00. ISBN 1-57808-264-1. DOI: 10.1017/S0014479704252152

An understanding of the pattern of genetic diversity in any crop gene pool is a prerequisite of efficient, modern plant breeding. The text aims at reviewing the contemporary methods used to assess patterns of genetic diversity, as well as reviewing actual patterns of diversity within various exemplar tropical crop plants. As such the text will meet the needs of professional breeders, agronomists and researchers, and is an obvious buy for their libraries.

The first three methodological chapters introduce the use of biological and molecular markers to analyse the diversity of collections; the analysis of molecular data, and a methodology for establishing a core collection. These are followed by eleven crop-based chapters (rice, banana, cacao, cassava, citrus, coconut, coffee, pearl

millet, rubber tree, sorghum and sugarcane) that review the genetic diversity and resources of these crops. The latter chapters are similar to those in the publication by Fuccillo *et al* (1997)[†].

The choice of species is eccentric bearing in mind the all-encompassing title. Many major crops such as maize, potatoes and legumes are ignored. The authors have set themselves a difficult task because both the techniques and the crop specific patterns of conserved genetic diversity that they describe are constantly changing as novel techniques and new accessions are added to collections. Surely, it would be better to turn to gene bank web sites for up-to-date information on collections. I found the use of some terms confusing but this may result from translation of the original French text. Overall, the book is comprehensive within the limits it sets itself, but appears somewhat dated in such a rapidly advancing field.

Nigel Maxted

Transhumant Grazing Systems in Temperate Asia. Plant Production and Protection Series No. 31. Edited by J. M. Suttie and S. G. Reynolds. Rome: Food and Agriculture Organization of The United Nations (2003), pp. 331, no price quoted. ISBN 92-5-104977-7. DOI: 10.1017/S0014479704262159

The scope of this book is wide, covering a vast geographical area with a bewildering diversity of cultures, climates and ecology and of the grazing systems which have evolved over a long period of time in response to a combination of these. With a background of reported widespread degradation of mountain grazing land and relatively ineffective attempts to introduce 'improved' pasture, the objectives of the studies were to investigate representative grazing systems in the Himalayan zone such as grazing rights, management and range conditions, and identify the needs and opportunities for the introduction of better management practices and cultivated fodder and pasture. This work is included under the 'Eastern and Western Himalayas'. But the grazing lands of the Hindu-Kush-Himalaya lie in a narrow belt along the southern flank of the range and there is a vast area of grazing land in Central Asia and northwest China: 'cold semi-arid Asia'. The book has been extended successfully to embrace studies from Xinjiang in China, Tibet, Mongolia and observations on Afghanistan, Buryatia, Kyrgyzstan, Tajikistan and Balochistan, which enhances its value.

The editors are to be commended for the way in which they have structured the book skilfully to bring together the diversity of people, systems and environment in a comprehensive and balanced volume. Everything is brought together in the final chapter, 'Future Directions', which reviews the present position, the pastures, constraints, land tenure, political and social change, technical constraints and conclusions from each zone leading to a discussion on possibilities for improvement and technical intervention and the future of pastoral communities. Good illustrations and useful maps enliven the text. This is an admirable book, which extends our knowledge of relatively unknown areas and a welcome addition to pasture literature.

J. Morrison

Landscape Agroecology. By P. A. Wojtkowski. New York: The Haworth Press (2004), pp. 330, \$49.95. ISBN 1-56022-253-0. DOI: 10.1017/S0014479704272155

The author has defined the topic of 'Landscape Agro-ecology' as the ecology of a productive countryside. The subject is treated essentially as a synthesis of the interactions between natural biodiversity, agricultural production systems and land use. The aim of the book is to set out the concepts underlying this novel discipline. The approach is logical, rigorous and academic. The text is clearly laid out and care has been taken to set out the general principles involved.

There are 14 chapters, of which the early ones are an introduction to agro-ecology. Land use practices are then described. How they contribute to the ecological landscape is then outlined. Integration of the factors influencing landscape continues with an analysis of landscape types, later extending to an analysis of how socioeconomic factors and species diversity affect managed agroecological systems. Overall, the book takes us from plant-plant complementarity, through the single plot, then to the farm and finally to the productive landscape. It discusses the physical landscape e.g. block or circular configurations, in relation to farming practices such as crop rotations. There is extensive analysis of water management agro-technologies. Measures to counter the effects of pests and disease are assessed.

[†] *Biodiversity in trust: conservation and use of plant genetic resources in CGIAR Centres.* Edited by D. Fuccillo, L. Sears and P. Stapleton, (1997). Cambridge University Press. ISBN 0-251-59365-4.

There is a useful and up to date list of references and a short index. The book provides a sound introduction to a dynamic and complex discipline and should be of use to land use planners, conservationists, rural resource managers, agriculturalists and economists.

Carol Duffus

Chemical and Isotopic Groundwater Hydrology. 3rd Edition. By E. Mazor. New York: Marcel Dekker (2004), pp. 453, \$175.00. ISBN 0-8247-4704-6. DOI: 10.1017/S0014479704282151

It is hard to overstate the importance of water for agriculture, industry and everyday life in both developed and developing countries. Sustainable use of water resources is vital and demands an understanding of hydrology: atmospheric and underground processes, which are largely hidden and intractable to direct observation. These hidden processes can be inferred from chemical clues: dissolved salts, atmospheric and radiogenic gases, anthropogenic chemicals, radioactive isotopes and the imprint of atmospheric processes on the stable isotope composition of the water.

This book explains how to use the chemical and isotope information to solve real problems. Throughout, the emphasis is on applications. Each chapter is extensively illustrated with real and hypothetical case studies and includes questions and answers on key concepts. Practical aspects of chemical and isotopic analysis are not covered; that is left to the appropriate laboratory. But there is plenty on how to check that these laboratory results are sound and how much can be inferred from them.

The third edition updates and expands much of the material in the previous edition, the remainder now appearing in an additional volume on global water dynamics. New topics in this edition are water quality standards, monitoring networks, data banks and education. Education is a particular enthusiasm of the author who clearly believes that both scientist and the public should be well educated about their water supplies and know how it is that 'unto the place from whence the rivers come, thither they return again'.

C. Scrimgeour

Handbook of Processes and Modeling in the Soil-Plant System. Edited by D. K. Benbi and R. Nieder. New York: Haworth Press Inc. (2003), pp. 762, US\$89.95. ISBN 1-56022-915-2 (paperback). DOI: 10.1017/S0014479704292158

We recommend this book to anyone active in or entering the field of modelling soil and plant processes. It provides a comprehensive and surprisingly detailed overview of the processes and modelling issues involved. It is an excellent reference book with 22 chapters, contributed by international authors with a global citation list. The book opens with physical, chemical and biological processes in soil, and then goes into more specialized aspects of humic substances, soil formation, radioactivity, acidification, alkalization and erosion, which are often overlooked. Next, come soil water dynamics and soil-atmosphere interactions, SOM, nitrogen, phosphorus and potassium dynamics and then secondary- and micro-nutrients. 'Nitrogen Dynamics' is a typical chapter, an illuminating introduction to the many facets of the nitrogen cycle which is clear, concise and accurate with detailed descriptions of the key microbial and physical processes involved, exploiting both text and diagrams. It is packed with essential facts and numbers, has readily useable examples with which modellers and researchers together can explore these complex processes, issues of scale and types of data available and finally a comprehensive bibliography. Having traversed such a vast field, the book still manages to review crop development and growth in two chapters, providing a sound foundation. The book closes with the most important chapter, 'Modelling: Potential and Limitations' by T. Addiscott, which is essential reading. There are few quibbles: the typeset is crammed, but the book would be too heavy otherwise. The one weakness is the omission of a review of root architecture and function.

B. Marshall and R. Wheatley

Agrobiotechnology and Plant Tissue Culture. Edited by S. Bhowjani and W-H. Soh. Enfield (NH), USA: Science Publishers Inc. (2003), pp. 197, US\$94.00. ISBN 1-57808-243-9. DOI: 10.1017/S0014479704302152

This book is comprised of sixteen diverse chapters, originally given as lectures by a wide range of contributors, at an Asia-Pacific Conference on Plant Tissue Culture and Agribiotechnology at the University of Singapore in

December 2000. The first chapter provides an interesting checklist of the successes and failures in biotechnology, though in this fast moving field it may be of historical rather than contemporary value. The following chapters give in-depth reviews of some highly specific topics. There are, for instance, four chapters on aspects of somatic embryogenesis in plants and two on bacterial infections and recombinant vaccines in aquaculture. The chapter by Professor Komamine is an excellent review of gene expression during somatic embryogenesis, but such a topic, while of high scientific merit, is some way from any form of agricultural application. The chapter by Sagare *et al.* on medicinal plants, their conservation and genetic resource management, is extensive and well referenced and would be valuable to any worker in this increasingly important field. Similarly, the chapter on DNA markers in rice by Tabanao *et al.* gives a useful review of the diverse methodologies involved which are applicable to a wide range of plant species. The chapters throughout have numerous citations, and there are illustrations where appropriate. This volume would have benefited from a summary chapter, bringing together the diverse strands and presenting a forward look. There is, however, enough information for the specialist reader and sufficient diversity within for a general reader to merit investigation of this volume.

Steve Millam

Intellectual Property Rights in Agricultural Biotechnology. 2nd Edition. Edited by F. H. Erbisch and K. M. Maredia. Wallingford, UK: CABI Publishing (2003), pp. 308, £55.00. ISBN 0-85199-739-2.
DOI: 10.1017/S0014479704312159

The first edition of the book published in 1998 filled a huge gap in knowledge. In the past, the position on intellectual property rights has by no means been standardized from one part of the world to another. Even today, the understanding of intellectual property protection in different countries, or groups of countries, is a minefield for the unwary or ill-informed. Any book of this kind not only informs and improves understanding of differences, but also must lead, eventually, to much greater uniformity from one country to the next. The further impact of GATT and WTO in amending and unifying the patent laws of individual countries is also indicated in several chapters.

Biotechnology uses a lot of jargon that inevitably manifests itself in the wording of intellectual property law. The second edition of this book has not only been revised, updated and extended, but legal information has also been presented in a simplified form. As well as providing additional detail on plant variety protection and farmers' rights, further case studies have been added. This is a worthy and informative addition to the library of anyone seeking to understand and deal with property rights issues.

W. H. Macfarlane Smith

Readers may be interested to know about the following publications received but not reviewed because of their limited relevance to the majority of readers of *Experimental Agriculture*.

Agri-food Globalization in Perspective. International Restructuring in the Processing Tomato Industry. By B. Pritchard and D. Burch. Aldershot, UK: Ashgate Publishing Ltd (2003), pp. 285, £55.00. ISBN 0-7546-1508-1.

The CGLAR at 31. An Independent Meta-Evaluation of the Consultative Group on International Agricultural Research. By U. J. Lele. Washington, DC: The World Bank (2004), pp. 219, no price quoted. ISBN 0-8213-5645-3.

Household Decisions, Gender and Development. A Synthesis of Recent Research. Edited by A. R. Quisumbing. Washington, DC: International Food Policy Research Institute (2003), pp. 273, no price quoted. ISBN 0-89629-717-9.

Regulating the Liabilities of Agricultural Biotechnology. By S. Smyth, P. W. B. Phillips, W. A. Kerr and C. G. Khachatourians. Wallingford, UK: CABI Publishing (2004), pp. 224, £45.00. ISBN 0-85199-815-1.

The Biotechnology Revolution in Global Agriculture: Invention, Innovation and Investment in the Canola Sector. Wallingford, UK: CABI Publishing (2004), pp. 376, £55.00. ISBN 0-85199-513-6.

Book currently under review

Cropping Systems. Trends and Advances. Edited by A. Shrestha. Binghampton, NY, USA: The Haworth Press (2003), pp. 720, \$59.95. ISBN 1-56022-107-0 (paperback).