

BOOK REVIEWS

Natural Resources Management in African Agriculture: Understanding and Improving Current Practices. Edited by C. B. Barrett, F. Place and A. A. Aboud. Wallingford, UK: CABI Publishing (2002) with ICRAF, Nairobi, pp. 335, £60.00. ISBN 0-85199-584-5. DOI: 10.1017/S0014479703211339

Although the final note of this volume may suggest that it contains little that is really 'new', by focussing on a fuller understanding of the process of adoption of natural resources management (NRM) practices and the policies needed to support them it does provide useful insight into how to improve the generation and diffusion of improved natural resources management (INRM) practices acceptable to African smallholder farmers. After an interesting stage is set, nineteen 'case-study' chapters by different authors and varying in style and quality, follow. This might hinder those who wish to read the volume from beginning to end.

The case studies illustrate what can be and has been achieved. It is, understandably, relatively easy to identify additional INRM practices such as the adoption of biological control practices and efforts to introduce integrated pest management (IPM) into Africa. Greater reference could have been made to the need to change African food crop agriculture from a 'difficult' way-of-life into an attractive business for the youth of tomorrow.

Progress that has been made during the evolution from farming systems to farmer participatory research methods is illustrated, but application of an approach that interactively integrates the different needs and potential benefits of all stakeholders is stressed. The research-to-development continuum and the associated debate of scaling-up and -out are also raised. Perhaps the 'underlying' priority that is placed on the generation of 'international public goods' or 'global principles' is an over preoccupation of international scientists and those who fund international research. Should more resources and innovative minds be used in applying the insights gained from this volume to generating and diffusing more technologies that are 'locally' acceptable?

Robert H. Booth

Waste Composting for Urban and Peri-Urban Agriculture: Closing the Rural-Urban Nutrient Cycle in Sub-Saharan Africa. Edited by P. Dreschel and D. Kunze. Wallingford, UK: CABI Publishing (2001) with IWMI and FAO, pp. 224, £45.00. ISBN 0-85199-548-9. DOI: 10.1017/S0014479703221335

Population expansion and intensification of agriculture has lead to two intrinsically linked environmental problems: (i) pressure on our land to produce sufficient food: and (ii) elevated levels of waste production, particularly in urban centres. The book looks to converge these ecological threats into one sustainable and ecologically responsible solution.

It provides a well-balanced account of the practical, social and economic opportunities and constraints of using urban waste compost as a soil conditioner in agriculture, calling on 'real-life' case studies to emphasize key points. While focussing on African examples, the book provides an excellent account of how to implement measures to close the urban-rural nutrient loop that could be applied in both the developed and the developing world. This is a must for individuals and organizations composting urban waste streams for agricultural soils and would also be a valuable addition to the library for anyone interested in achieving sustainability in waste management and agriculture.

Robert Haward

Environmental Effects of Transgenic Plants. The Scope and Adequacy of Regulation. Washington DC: National Academy Press (2002), pp. 320, £30.95. ISBN 0-309-08263-3. DOI: 10.1017/S0014479703231331

This is a report by a committee set up by the US National Research Council to 'review the scientific basis that supports the scope and adequacy of US Department of Agriculture's oversight of environmental issues

related to current and anticipated transgenic plants and their products'. The chapters discuss factors that affect environmental assessments of transgenic plants, the scientific assumptions and premises that underpin regulation of any environmental risks, the regulatory policy of USDA-APHIS, case studies and analysis of APHIS assessments, post-commercialization testing and monitoring, and the future of agricultural biotechnology.

The general conclusion is that a rigorous scientific risk analysis should offer essential technical information to agencies that make decisions about commercialization, and provide evidence to the public that the decision-making agencies deserve their trust.

Although the report concludes that adoption of some European practices could improve American procedures, it plainly dispels the impression given by opponents of agricultural biotechnology that American practice is dictated by biotechnology companies. It is made clear that in the US, as elsewhere, considered scientific opinion is central to the regulation of transgenic plant releases.

The book is only about US practices, but its potential readership is wider because it examines genetic manipulation and its potential environmental effects in general. The science involved is universally applicable. Indeed, I think the book has interest for all who advise governments or regulators about risks from growing transgenic crops. The issues discussed are wider than simply science-based questions.

M. A. Mayo

Crop-Soil Simulation Models: Applications in Developing Countries. Edited by R. B. Matthews and W. Stephens. Wallingford, UK: CABI Publishing (2002), pp. 277, £55.00. ISBN 0-85199-5632. DOI: 10.1017/S0014479703241338

This is a pleasingly coherent and comprehensive review of a wide-ranging topic. An introduction describes the conceptual basis of crop simulation models and their uses. There follows an authoritative analysis of topics related to simulation models. These are grouped into chapters on models as aids to research, decision-support, and education and training. The final two sections assess whether crop models have been useful, and consider the way forward. It is clear that models can be valuable research tools, and the authors recognize the work still needed in relation to their adoption by potential beneficiaries.

Throughout, information is at a suitable level for both novices and experienced modellers. Each topic is clearly defined and any overlaps reinforce underlying concepts. Where appropriate, the authors provide opinions without championing particular modelling systems or approaches. In summary, this book provides a generic text for crop simulation model theory and practice, and a useful reader for all crop scientists. It provides examples of different models without details of specific methods of development and programming. In this regard, an appendix related to some of the main models would have been useful. This limitation is compensated for by an excellent set of references. This book is highly recommended.

S. Azam-Ali and R. Burgess

Allium Crop Science: Recent Advances. Edited by H. D. Rabinowitch and L. Currah. Wallingford, UK: CABI Publishing (2002), pp. 515, £95.00. ISBN 0-85199-510-1. DOI: 10.1017/S0014479703251334

This book provides a welcome update of *Allium* science. In many areas it is much more than an update and could be used as a definitive text for many aspects of *Allium* research. The editors should be congratulated on bringing together many excellent contributions. Several chapters stand out, including those on taxonomy and evolution, the exciting possibilities for fertile garlic and the increasing understanding of the health benefits of alliums. However, one or two chapters have few modern references, which presumably indicates few recent advances – which is what the book is about. Equally, the chapter on ornamentals is quite interesting but, in that The Netherlands is the world's largest producer with around 100 ha, ornamentals are not exactly significant on a world scale. Perhaps their inclusion indicates future potential. In fact the colour plates do the ornamentals justice on their own and are a welcome addition in a book of this type, although the repetitive labelling seems unnecessary. As always, on closer inspection of the text one can pick out minor errors or discrepancies; *A. galanthum* is classed in subgenus *rhizirideum* in the colour plates but in the taxonomy chapter is put in subgenus *allium* section *cepa*. For further information on the very interesting species *A. asarense* reference is made to section 3.4 whereas it is in section 2.4; however, these are almost insignificant amongst a welter of useful information in a well laid out and authoritative book.

Brian Smith

Rice Almanac: Source Book for the Most Important Economic Activity on Earth. Edited by J. L. Maclean, D. C. Dawe, B. Hardy and G. P. Patel. Los Banos (Philippines): IRRI (2002) with WARDA, CIAT and FAO, pp. 253, no price quoted. ISBN 971-22-0172-4. DOI: 10.1017/S0014479703261330

The first edition of the Rice Almanac was published in 1993 by the International Rice Research Institute to bring together general information on rice – its origin, its growth and production, the ecosystem under which it is grown, and opportunities for increased yields. The second edition, co-published with WARDA and CIAT in 1997, included new information on West African and Latin American countries. In this third edition, co-published with WARDA, CIAT and the Food and Agriculture Organization of the UN, the number of countries for which production-related information is provided has doubled to 64, including all major producers. The Almanac comprises five parts: (i) importance of rice; (ii) the rice plant and its ecology; (iii) international issues; (iv) international rice research and development; and (v) rice around the world. It also includes a table on rice facts, which provides country-specific information on social and economic indicators, agriculture, and rice consumption, production and trade.

This almanac is a valuable source of information on rice. The parts dealing with international issues and rice research and development are excellent. It is generally error free. It is, however, incorrect to refer to NERICA cultivars as hybrid rice when in reality they are true breeding derivatives from interspecific crosses made at WARDA. Moreover, the current production area of the NERICA's is probably as yet too modest to provide the main food in the 'hunger period' from late September to late November in several West African countries as is stated on p. 21. A more serious shortcoming is the inconsistent and partial groupings of rice ecotypes in Figure 1. Examples include, Indica upland (dryland), Indica aus (summer), Japonica tropical lowland (bulu), and the lack of corresponding agronomic description including the production with traditional rice varieties. The absence of agro-ecological zone maps for Africa and Latin America and of country-specific information on the area planted to modern rice varieties in Africa is surprising. Nevertheless, the contributors, reviewers, editors and publishers must be commended for producing a quality publication of relevance to a wide-ranging audience.

A. H. Kassam

Agri-Culture: Reconnecting People, Land and Nature. By J. Pretty. London: Earthscan Publications Limited (2002), pp. 261, £14.95. ISBN 1-85383-925-6 paperback. DOI: 10.1017/S0014479703271337

This book is an excellent exposition of agricultural transformation from about 12 000 years ago to present-day industrial agriculture. The author shows, through several examples worldwide, how people have attempted to connect land and culture, and the need to adopt an agro-ecological approach in achieving sustainable agriculture. Ensuring soil health, sustainable pest- and weed-control methods, and efficient water use through, for example, a farmers' field schools approach, is stressed as the best use of nature's goods and services while not damaging the environment. While genetically modified crops and animals have the advantages of increasing food production, especially in unfavourable environments, they also have possible negative effects on biodiversity, apart from the inherent lack of responsibility and trust by those who develop and use the products, respectively.

In conclusion, ethical farming, as a limit to the freedom to destroy landscapes, and having linkages between economies and nature, calls for radical reforms in national agricultural policies. Extensive notes and many references provide authority on the views expressed in the book. It is recommended to those who care for the health of mother-earth, especially agricultural institutions, farmers and policy makers.

Richard S. Musangi

Global Rangelands. Progress and Prospects. Edited by A. C. Grice and K. C. Hodgkinson. Wallingford, UK: CABI Publishing in association with Center for International Forestry Research (2002), pp. 320, £65.00. ISBN 0-85199-523-3. DOI: 10.1017/S0014479703281333

This book attempts to bring out the main concepts and findings from the two-volume proceedings of the Sixth International Rangeland Congress of 1999, which had broadened its scope to give much more attention to the 'people issues' of the world's rangelands. About 20 per cent of the papers have a social component, but the chapter on Indigenous People is thin. Rangeland is a form of extensive-grazing land use, not a distinct ecosystem, and two pages are given to explaining the term. The introduction describes the four main themes of the Conference: the multiple uses of rangeland; maintenance of basic resources; social and economic

relationships, and interrelationships. There are twenty chapters on social and technical themes, and a synthesis. The importance of the traditional grazing areas of Africa and Asia is mentioned often (though with little detail), while the great herding systems of central and northeast Asia are hardly mentioned. Much of the technical detail comes from commercial rangeland systems, which have often been under grazed for a relatively short time. The book has a strong Australian leaning. A useful discussion of modern concepts in range development and management is given in the chapter on International Perspectives for Rangelands.

J. M. Suttie

Economic and Social Issues in Agricultural Biotechnology. Edited by R. E. Evenson, V. Santaniello and D. Zilberman. Wallingford, UK: CABI Publishing (2002), pp. 448, £70.00. ISBN 0-85199-6183. DOI: 10.1017/S001447970329133X

Since 1990, CABI has taken the lead internationally in producing biotechnology publications. Twenty-five books have been produced in the *Biotechnology in Agriculture Series*, together with other volumes. Most have covered technical subjects, but an increasing number have addressed policy issues including intellectual property rights (IPRs), transgenics, international trade and marketing issues. These reflect, in part, the public debate and concerns over genetically modified organisms (GMOs), which tend to overshadow the broader aspects of biotechnology in agriculture.

This book includes papers presented at two conferences organized by the International Consortium on Agricultural Biotechnology Research in 2000 and 2001. It draws together many of the socio-economic issues addressed individually in earlier publications, and highlights how these impact on the developing world in what is aptly described as the transition from the 'green' to the 'gene' revolution. There are five thematic sections: intellectual property rights and technological exchange; public-private issues; the impact and management of gene technologies; developing country experiences in biotechnology; and the application of global models to assess the economic impacts of GMOs.

There are 'take home' messages from each chapter, but generic issues include the need for developing countries to resolve IPR issues and develop their own capacity in biotechnology, especially in Africa. The benefits of harmonization through regional approaches for developing nations are highlighted, given that complexity of the issues.

The book is well produced and will be of value to all those concerned with the application of biotechnology, especially in the developing world.

George Rothschild

An Introduction to Arthropod Pest Control. By J. R. M. Thacker. Cambridge: Cambridge University Press (2002), pp. 343, £19.95, Paperback. ISBN 0-521-56787-4. DOI: 10.1017/S0014479703301334

This book, intended for undergraduate and postgraduate use, provides an up-to-date and well-balanced overview of current approaches to pest control. It covers botanical and modern synthetic insecticides, formulations, application methods and side effects, biological control agents and micro-organisms, pheromones, growth regulators, genetic manipulation (sterile insect release), host plant resistance, cultural techniques and organic farming. The last two chapters describe the development of Integrated Pest Management (IPM) programmes, with case histories of successful IPM, and the latest developments in pest control biotechnology. Each chapter ends with a short statement summarising the major achievements and disadvantages of each technique.

Inevitably, such a wide range of topics requires some over-simplification, but there are odd inconsistencies in the depth of basic knowledge assumed by the author. Some additional information is given in a glossary of topics for each chapter at the end of the book, but the choice of subjects is rather idiosyncratic, and important topics are omitted. It would, for example, have been useful to provide further explanation or reference to a standard insect physiology text to follow the brief accounts of insecticide modes of action and resistance mechanisms. There are numerous figures and tables, most of which indicate the source of the data. Each chapter ends with a short list of references, many published in the last three years. Regrettably, these are not cited in the text, making it difficult to find the origin for particular statements. On balance, however, this is a useful source of reference to current approaches to pest control.

Trefor Woodford

Trees on the Farm: Assessing the Adoption Potential of Agroforestry Practices in Africa. Edited by S. Franzel and S. J. Scherr. Wallingford, UK: CABI Publishing (2002), pp.197, £35.00. ISBN 0-81599-561-6. DOI: 10.1017/S0014479703311330

This very worthwhile book is the summation and distillation of five agroforestry experiments carried out during the 1990s at a range of sites in eastern Zambia and central and western Kenya: the sites were at different altitudes (900 to 1800 m asl) with different amounts and patterns of rainfall and, very importantly for the assessment, greatly different access to markets.

The biological and physical aspects of the experiments are of considerable interest but the fascination of the study centres on the concept of 'adoption potential' – the feasibility, profitability and acceptability of agroforestry practices as viewed by local farmers.

The study, involving many local farmers, was based on four premises: (i) that a systems (integrated) approach was required for the assessment of adoption potential; (ii) that a participatory approach was essential to ensure that local farmers played a leading role in problem diagnoses and the testing and evaluation of solutions (new practices); (iii) the absolute need of both financial analyses and farmers' assessments – they are nearly on a par with yield and soil amelioration; and (iv) that it had to be made possible for those involved (the actors) on farm to participate in the process of technology development and hasten the dissemination of new information. To some this combination of premises may suggest that hard science was being compromised, but with the availability of hierarchical decision – tree modelling and other similar procedures such a decision would be ill-founded.

In reaching their conclusions the editors have been self-effacing. Yes, the adoption of agroforestry practices, with the investment of small amounts of land and labour, can obviate the risks incurred by farmers when spending their limited cash on expensive inputs, but to the reviewer the take-home message for research workers is 'be humble'. I commend this book – it provides an object lesson in collaboration at all levels.

F. T. Last

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*.

Sustainability of Rice Production in Thailand. By P. M. Phlinas. New York: Nova Science Publishers Inc. (2001), pp. 235, US\$69.00. ISBN 1-59033-074-9. DOI: 10.1017/S0014479703321337

Vegetable Breeding for Market Development. East-West Seeds 1982–2002. Edited by K. Kunz. Nonthaburi, Thailand: East West Seeds International Ltd (2002), pp. 150, US\$35.00. ISBN 974-90629-0-6. DOI: 10.1017/S0014479703331333