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BOOK REVIEWS

Agricultural Growth for the Poor: An agenda for development. Washington DC: The World Bank (2005), pp. 197, US$35.00 (paperback). ISBN 0-8213-6067-1. doi:10.1017/S0014479705213546

This is a timely analysis of lessons learnt from previous agricultural investments by the World Bank and by other major donors.

It offers no quick fixes. Two decades of deliberate neglect by governments and donors of the rural sectors and a rapidly changing context for agriculture have created some huge challenges. It advocates a more analytical, participatory and country-specific approach. Four key steps are identified: strengthening national capacity; supporting producer and processor organizations; supporting the preparation of national strategies; and informing policy makers – not just more public spending but better targeted spending. However, there is a danger of adding to the list of underachieving national strategies.

There is an interesting and thought provoking chapter on tailoring support to diverse agricultural systems, which looks at the roles of intensification, diversification, expansion of farm size, off-farm income and exit strategies. The conclusion that off-farm employment and exit strategies in the marginal and drier areas will be important elements of any strategy may not be popular but is probably realistic – this presents a formidable challenge to the dry and marginal countries of Africa and Asia.

For the busy reader there is an executive summary and brief overviews at the start of each chapter and some interesting case studies in over 60 'boxes' on which to browse. The book tabulates the divergence in donor strategies in rural development. Success will depend on aligning the donor community and then maintaining continuity and consistency of support for at least 10 years – this will be a real test of commitment and leadership!

Andrew Bennett

Global Agricultural Trade and Developing Countries. Edited by M. A. Aksoy and J. C. Beghin. Washington, D.C: The World Bank (2005), pp. 329+CD-ROM. US$45.00. ISBN 0-8213-5863-4. doi:10.1017/S0014479705223542

If global agricultural trade were simply a trading issue, this would be a shorter book. Proper treatment of the subject necessarily needs to probe a whole range of domestic production, protection and policy regimes; then, there are preferences which, even if helpful to developing countries, serve further to distort world trade.

Liberalization of agricultural trade was barely attempted under the GATT, at least until its last years. The WTO has been in existence for a decade but only recently have the two lead players, the EU and the USA, begun to decouple agricultural support from production. This is hailed in this book as 'a step in the right direction' for developing countries (and maybe host-country consumers and non-agricultural producers too), although it is recognized that the simultaneous existence of coupled and decoupled support programmes leaves incentives to overproduce and fails to eliminate distortions.

This volume consists predominantly of commodity studies – sugar, dairy, rice, wheat, groundnuts, fruits and vegetables, cotton, seafood and coffee chapters comprise 170 of its 329 pages. Dedicated chapter-authors seem chosen for their liberal views, for this book emerges from a liberal stable, the World Bank itself, but within that the work is a collaboration between the Prospects Group of DEC and the Trade Group of PREM (which in translation means that they should have the future interests of, respectively, developing countries and poor people at heart). For many of the commodities other than tropical beverages, the influence of competing (subsidised) temperate crops is a main and enduring feature. There is a stark admission that agricultural trade reform and liberalization will create winners and losers (even just among developing countries) but punches are pulled when it comes to deploying means for compensating the losers.

Adrian Hewitt

Agriculture as a Producer and Consumer of Energy. Edited by J. L.Outlaw, K. J. Collins and J. A. Duffield. Trowbridge, United Kingdom: Cromwell Press (2005), pp. 368, £65-00. ISBN 0-85199-0185. doi:10.1017/S0014479705233549

The potential problems of global warming are now compelling politicians and scientists alike to review the sources and use of energy. The editors and their contributors have performed a major service in pulling together the many aspects of the above, in respect of agriculture. In recent times, agriculture has become a major fossil fuel energy user. Over the same period, despite research demonstrating a range of crop-based possibilities for fuel production, only a few forward-looking countries have taken these up on a commercial scale. This indicates the conflicts between economic growth, government tax income and spend, political correctness and scientific concerns.

Chapters 1–5 provide an excellent summary of recent history and current knowledge. Chapters 6–12 detail the economic possibilities for grain- and ligno-cellulose-sourced ethanol, and for bio-diesel. The next two chapters look at some aspects of energy conservation and efficiency in agriculture. Perhaps the most important information for the future is contained in chapters 15–20. These show alternative energy production methods, and the value of gaseous emissions being re-assimilated to create further energy sources. In examining alternative energy sources, the book raises complex issues, including possible conflict between land use for energy rather than food production.

This book contains excellent lists of references, and a valuable glossary. The editors have produced a text that is both informative and easily understood. It is a most welcome addition to the literature.

W. H. Macfarlane Smith

Biotechnology, Agriculture and Food Security in Southern Africa. Edited by S. W. Omamo and K. von Grebmer. Washington DC: International Food Policy Research Institute (2005), pp. 297, no price quoted. ISBN 0-89629-737-3. doi:10.1017/S0014479705243545

There is a serious problem when African countries, in the midst of a severe food shortage, reject food aid because the grain had been genetically modified. When this happened in 2003 in southern Africa, a strong debate was triggered on the safety of GM food and the role it could/should play in Africa's future food security.

The International Food Policy Research Institute (Washington/Addis Ababa) and the Food, Agriculture, and Natural Resources Policy Analysis Network (Harare) organized an initiative to address the issues and to seek solutions. In addition to organizing a workshop, the initiative sought ways to raise awareness, promote discussion, and to improve policies regarding agricultural biotechnology, and how it can impact food security throughout southern Africa.

This book has both descriptive and prescriptive chapters covering ethics, food safety and consumer issues, biosafety, intellectual property rights and trade. It also offers a conceptual framework to facilitate ongoing dialogue by the many stakeholders. The contributors include specialists from the UK, the USA, and African countries, ensuring a broad view of the issues, and adding strength to the recommendations.

The editors argue that globalization means developing countries will have to find ways to accommodate and adopt agricultural biotechnology if they are to survive and compete internationally. They also point out that countries not investing in biotechnology will likely suffer greater environmental degradation and food insecurity, and face the almost impossible task of keeping GM crops and food products from crossing their borders.

The book should serve as a key reference document for African decision-makers and others who need to make well-informed decisions on the issues raised.

L. Reginald MacIntyre

Women in Agriculture in the Middle East. Edited by P. Motzafi-Haller. Aldershot, England: Ashgate Publishing (2005), pp.177, £45.00. ISBN 0-7546-1920-6. doi:10.1017/S0014479705253541

This book describes the place of women in the agricultural economies of the Middle East. It originated from a collaborative project initiated by the Danish Government in 1997 and is an authoritative account, supported by official statistics, of gender and agriculture in these countries. There are five chapters plus an introduction

and conclusions by the editor. There is one chapter each for Jordan, the Palestinian Authority and Israel. Two chapters cover Egypt with the second being a detailed bibliography of research on women and development. Examples of the data discussed are: 'Regional distribution of the agricultural labor force by year and sex' in the West Bank and Gaza Strip; 'Legal instruments available to women for obtaining land, livestock, credit, employment and social insurance' in Egypt; 'The decline in rural population in Israel'; 'Patterns of gendered division of labor in agriculture in Jordan'.

Overall the book is an excellent read although the inclusion of numerical data in the text makes it hard work in places. Of interest are the following statistics: only 1% of working women in Israel are employed in the agricultural sector; nearly 1 million fruit trees in the Palestine Authority have been lost as a result of military action; marketing of animals in Jordan is done equally by men and women; 5% of owner/managers in rural areas of Egypt are women. The book would have benefited by the inclusion of maps as well as some comparative statistics with countries outwith the Middle East.

Carol Duffus

Forage Legumes for Temperate Grasslands. By J. Frame. Rome, and Plymouth UK: FAO and Science Publishers, (2005), pp. 309, US$59.00. ISBN 1-57808-358-3. doi:10.1017/S0014479705263548

This is a timely book since, with rapidly increasing energy costs and increased interest in environment-friendly agriculture, the role of forage legumes in temperate farming is likely to increase. It is in two parts: eight concise, very informative chapters discuss forage legume technology and provide an excellent background to the second part; they deal with plant development; sward establishment; nitrogen fixation; seeds mixtures; nitrogen and mineral nutrition; weeds, pests and diseases; feeding value; utilization by grazing or mowing and conservation. The second part contains summary profiles of 35 forage legumes belonging to 14 genera; in some cases minor forages of the same genus are discussed within a profile. The style is terse, to allow detailed information to be presented. Profiles include sections on description, distribution, characteristics (including growth, defoliation, compatibility, climatic adaptation and nitrogen fixation), breeding, nutritive value, utilization, animal performance, main attributes and shortcomings. The coverage of temperate leguminous fodders is comprehensive and includes some Asian fodders and several cool-season forages for sub-tropical conditions, notably in irrigated smallholder farming systems from Egypt through Southern Asia. Main references are indicated for each species and a comprehensive bibliography is provided. The profiles are sufficiently detailed to inform readers on the selection of species to fit given needs and climates, to establish, grow and use them. It is clearly written and suitable for its target readership: advisers, progressive farmers, consultants, researchers, lecturers and students. This book is strongly recommended to all interested in temperate pastures, stock rearing and land management.

J. M. Suttie

Genetic Resources, Chromosome Engineering and Crop Improvement: Volume 1. Grain Legumes. Edited by R. J. Singh and P. P. Jauhar. Boca Raton, FL, USA: CRC Press (2005), pp. 376, US $149.95. ISBN 0-8493-1430-5. doi:10.1017/S0014479705273544

In essence, this book is a compendium of review papers encompassing ten major species of grain legumes: common bean, pea, pigeonpea, cowpea, faba bean, chickpea, lentil, lupin, mungbean and azuki bean. Although the introductory chapter is limited in scope, the subsequent chapters are wide-ranging, providing both an historical view as well as an examination of recent developments and future directions in research and utilization for the species. Appropriately titled, it provides a reference for those seeking information on such topics as species origin and domestication, crop production, organization of genetic diversity, taxonomy and cytogenetics, germplasm collections and resources, conventional and molecular methods of germplasm enhancement, and foci of crop improvement. While each topic is covered somewhat briefly, the authors provide ample and up-to-date literature citations for further investigation. A detailed index is also available to aid the reader to locate specific topics. As such, this book is a valuable and comprehensive treatise available to students, scientists and researchers alike.

B. J. Furman

Genetics and Breeding of Sugar Beet. By E. Biancardi, L. G. Campbell, M. de Biaggi and G. N. Skarakis. Enfield, NH, USA: Science Publishers (2005), pp. 367, £48.40. ISBN 1-57808-366-4. doi:10.1017/S0014479705283540

This book broadly covers all aspects of sugar beet genetics, breeding and seed production. Starting with the history of this young crop, which has been cultivated for only 200 years, information on genetic resources for beet breeding and the different breeding methods is presented in a comprehensive manner and illustrated by excellent figures. The objectives of beet breeding are described in detail and the different aspects of seed production under different environments are explained. Moreover, the book contains two chapters about biotechnology in beet breeding with all relevant techniques. Modern approaches for the analysis of the beet genome and their implications on beet breeding are discussed, including the use of molecular markers and genetic modification.

Each chapter ends with an exhaustive literature survey. Citations go up to 2004, so the most recent literature is included. The respective contributions have been written by a number of authors, which creates some redundancy between the chapters. Each chapter starts with a general introduction, which also pinpoints aspects from research with other crop plants and gives an introduction into the fundamentals of a given topic such as molecular techniques and thus helps the non-expert in the field to grasp the essentials. The book has a very large subject index of 36 pages. This helps the reader to find even rare subjects and makes it useful as a reference book. This book is an excellent survey of the current status of beet breeding and is unique in this field. It should find a place in any library and it can be highly recommended for students as well as for scientists.

Christian Jung

Ginger. The Genus Zingiber. Edited by P. N. Ravindran and K. N. Babu. Boca Raton, Florida, USA: CRC Press (2005), pp. 551, £74.99. ISBN 0-415-32468-8. doi:10.1017/S0014479705293547

This volume provides an excellent resource of particular use for students and researchers working with ginger (*Zingiber officinale*). Attention given to other species in the genus is limited. All aspects of ginger are dealt with comprehensively, and the literature sources are extensive.

The excellent chapter on the chemistry of ginger documents the variability found in product composition and the complex interaction between crop genetics, cultivation environment and management that underlies this variability. There is an important cross-link to the chapter on 'Properties and Medicinal Uses of Ginger' where reference is made to scientific investigations on the medicinal use of crude ginger products. Until methodologies for providing a comprehensive definition and specification of crude materials being used are established, the repeatability and utility of these investigations will be restricted. A number of strategies are being followed in this area – for example the use of fingerprinting (HPLC and H^1-NMR) and chemometrics to characterize and class whole extracts – and a review of the situation would have been valuable.

The chapters on cultivation provide a comprehensive overview of practices and systems used and the complex interaction of factors that impact on yields achieved. This is supported by excellent chapters on 'Pests' and 'Diseases'. Many of the production practices reported, from practice and research, are highly labour intensive. Whilst the benefits of plastic mulch in delivering yield benefits and significantly reducing irrigation are briefly mentioned, for example – and water requirement for crop cultivation is an increasingly important issue – a greater focus on modernization of practices to improve commercial returns to growers, rather than simply yield increases, would have been valuable.

Steve Caiger

Grasslands of the World. Edited by J. M. Suttie, S. G. Reynolds and C. Batello. Rome: Food and Agriculture Organization of the United Nations, (2005), pp. 514, US$48.00 (paperback). ISBN 92-5-105337-5. doi:10.1017/S0014479705303541

'Grasslands' are defined as those areas of 'natural' vegetation, which are in the main unsuitable for crop production because of climatic and edaphic limitations and are utilized for extensive livestock production. Grazing lands, which cover a large part of the world's land surface, are an important global resource, and many

of them are under threat because of overuse. The diversity is staggering: types of vegetation and associated management practices which range from commercial ranches to traditional transhumance and nomadic systems. The book is aimed at agricultural scientists, educationalists, extensionists and decision-makers.

Successive chapters describe the grasslands of East Africa, South Africa, Patagonia, the Campos of Uruguay and Brazil, Central North America, Mongolia, the Tibetan Steppe, Australia and the Russian Steppes. 'Other Grasslands' covers some of the gaps with cameos of other areas. The key aspects and issues of the major grasslands are well handled: ecology, management in traditional and commercial systems, degradation and rehabilitation and socio-economic aspects, as are the various interfaces between the grazing animal/vegetation, pastoralist/cultivator and domestic livestock/wild herbivores. In the concluding chapter the editors bring the threads together admirably. Each chapter has a distinctive flavour, the maps and illustrations are informative and the references comprehensive.

The book is a mine of information about the world's major grazing lands; current management, the technology of management and improvement, current thinking and prospects for the future. This book is a timely addition to grassland literature, which complements other titles in the FAO Grassland Group series.

John Morrison

Handbook of Photosynthesis. 2nd Edition. Edited by M. Pessarakli. Boca Raton, Fl, USA: CRC Press (2005), pp. 928, US$92.00. ISBN 0824758390. doi:10.1017/S0014479705313548

This second edition of the *Handbook of Photosynthesis* is a major treatise that will be widely used for reference and background material. Forty-six chapters, written by different authors, cover biochemistry, genetic control, whole plant integration, environmental influences and evolutionary significance. The text of each chapter is neatly arranged and well referenced. For instance, chapter 7 on the role of phosphorus in photosynthetic carbon metabolism has an introduction that includes a diagram showing the role of phosphorus in metabolism, then covers short and long term effects of phosphorus deprivation (for example, on growth, photosynthetic machinery, metabolism, P compartmentation and carbon partitioning), continues with shorter sections on recovery and adaptation, and ends with 228 references. Experienced crop physiologists and agronomists are unlikely to find much that is new to them in the sections on photosynthesis and plant productivity (chapter 27) or radiation-use-efficiency (chapter 29). Similarly, chapter 30, on physiological improvement for drought tolerance, appears to be more a summary for the general reader or undergraduate than a basis for the researcher in the subject. Crop physiologists and other readers of *Experimental Agriculture* are more likely to find interest in the philosophical or evolutional discussions of, say, the first and last chapters, while some of the more molecular or biochemical sections, the style and content of which are generally accessible, should deepen their understanding of how photosynthesis relates to other processes in plants and soils.

Geoff Squire

Nitrate, Agriculture and the Environment. By T. M. Addiscott, Wallingford, UK: CABI Publishing (2005), pp. 304, £29.50 (paperback). ISBN 0-8519-9913-1. doi:10.1017/S0014479705323544

Many people who have researched, taught or learned about the environmental and agricultural chemistry of nitrogen in general and nitrates in particular will be well aware of Tom Addiscott's earlier book (with co-authors), *Farming, Fertilizers and the Nitrate Problem* published in 1991. This new book is not a second edition of that, but rather a book on a closely related topic written from a different perspective. The new title draws on more than a decade of new research to set the subject in its wider global and human context. This text does not start from the implicit assumption that there is a problem but regards the manipulation and modification of the nitrogen cycle by humans as part of a necessary adjustment to global and regional biogeochemistry if the world is to sustain its large human population. By including informed contributions from experts in a diverse range of fields, including health, oceanography and tropical agriculture, a wide-ranging discussion is presented. The underlying thesis of the book is that enrichment of the environment with reactive nitrogen species is an issue that we have to come to terms with and learn how to manage – the alternative has much more serious consequences for humans.

David Hopkins

Ecological Implications of Minilivestock: Potential of Insects, Rodents, Frogs and Snails. Edited by M. G. Paoletti. Enfield, NH, USA: Science Publishers (2005), pp. 648, £53.60. ISBN 1-57808-339-7.
doi:10.1017/S0014479705333540

When I was first asked to review this book I had my doubts. When I opened it I could hardly stop reading !

This is a fascinating publication in which the value of so-called minilivestock is put into real perspective with information on their past and present importance in many parts of the world. It is easy to ask why such a book has not been published many years ago and been on the shelves of agricultural scientists, in particular animal nutritionists, as well as human nutritionists. No doubt, this is due, at least in part, to Western dominance of science. Except for frogs and snails there has been little interest in general by Western scientists in edible insects, worms, snakes and rodents. As a result there has been relatively little scientific input into defining how best such species can be cultivated and production made more efficient.

The book consists of 29 papers on different aspects of nutritive and proven or perceived medicinal properties of hundreds of species, including details of their amino acid composition, and in many instances their history of use in different parts of the world. I wish to compliment the authors and editor and hope that the book will be on the shelves of agricultural scientists before western monoculture, herbicides, pesticides, etc. destroy too many of the habitats of minilivestock that can supply good and sustainable quality of human food. Such timely conservation will in turn help to preserve biodiversity and form an integral part of total feed resource management in different parts of the world as discussed by several of the authors.

This excellent book deserves a wide readership.

E. R. Orskov. OBE

Good Statistical Practice for Natural Resources Research. Edited by R. Stern, R. Coe, E. Allan and I. Dale. Wallingford, UK: CABI Publishing (2004), pp. 388, £27.50 (paperback). ISBN 0-85199-722-8.
doi:10.1017/S0014479705343547

Sustainable agriculture has emerged as a high priority concern during the past three decades. A collective international response from the research community has been the promotion of natural resources management (NRM) research for sustainable development. Since the 1990s, NRM science has become a rapidly evolving field and its scope continues to grow as more NRM-related fields become integrated into impact-oriented NRM research to address multi-scale issues. This book is an excellent example of how experimental statistics has and continues to evolve in the area of the use of statistics in NRM research.

This book is divided into five parts. Part 1 sets the scene and addresses the needs of NRM research projects that involve multiple activities. In part 2, issues concerned with sampling and other aspects of planning of research activities are covered. Part 3 is concerned with data management including organizing and archiving the data. Part 4 – the largest part – is devoted to ideas concerned with data analysis. Part 5, 'Where next', includes current trends and their implications for good practice.

The book discusses both biophysical and socioeconomic aspects of NRM research and may help to bring them closer together. It also includes the recently evolved ideas on the integration of participatory methods in NRM research, and has useful sections on surveys, studies of human subjects, multi-scale measurements, and on preparing protocols, which some of the recalcitrant social scientists may find particularly helpful.

This book is a valuable reference guide to advanced students and professionals in agricultural research and development, including those in forestry and environmental sciences. It should be particularly helpful to research managers and biometricians.

Amir Kassam

Books currently under review

Genetic Improvement of Solanaceous Crops. Volume 1. Potato. Edited by M. K. Razdan and A. K. Mattoo. Plymouth, UK: Science Publishers (2005), pp. 451, £54.70. ISBN 1-57808-184-X.

Handbook of Industrial Crops. Edited by V. L. Chopra and K. V. Peter. Binghamton, NY, USA: The Haworth Press (2005), pp. 535, US$59.95 (paperback). ISBN 1-56022-283-2.

Principles and Practice of Soil Science. The Soil as a Natural Resource. 4th Edition. By R. E. White. Oxford: Blackwell Publishing (2005), pp. 363, £29.99 (paperback).ISBN 0-63206-455-2.

Grasslands: Development, Opportunities, Perspectives. Edited by S. G. Reynolds and J. Frame. Enfield, NH, USA and Rome: Science Publishers and FAO (2005), pp. 539, US$74.00. ISBN 1-57808-359-1.

Water Flow in Soils 2nd Edition By T. Miyazaki. Boca Raton, Fl, USA: CRC Press (2006), pp. 418, £109.00. ISBN 0-8247-5325-9.

Genetic Engineering and Biotechnology Concepts, Methods and Agronomic Applications By Y. Tourte. Enfield, NH, USA: Science Publishers (2005), pp. 197, £21.50 (paperback). ISBN 1-57808-356-7.

Frost Protection: Fundamentals, Practice and Economics. Vol. 1. By R. L. Snyder and J. P. de Melo-Abreu. Rome: FAO (2005), pp. 223, US$38.00.ISBN 92-5-105328-6.

Frost Protection: Fundamentals, Practice and Economics. Vol. 2. By R. L. Snyder, J. P. de Melo-Abreu and S. Matulich. Rome: FAO (2005), pp. 64.US$24.00. ISBN 92-5-105329-4.

The Ecology of Seeds. By M. Fenner and K. Thomson. Cambridge: Cambridge University Press (2005), pp. 250, £26.00 (paperback). ISBN 0-52165-368-1.

The Physiology of Flowering Plants. 4th Edition. By H. Opik and S. A. Rolfe. Cambridge: Cambridge University Press (2005), pp. 392, £30.00 (paperback). ISBN 0-52166-485-3.

Biological Diversity and Function in Soils. Edited by R. D. Bardgett, M. B. Usher and D. W. Hopkins. Cambridge: Cambridge University Press (2005), pp. 411, £38.00 (paperback).ISBN 0-521-60987-9.

Crops and Environmental Change. An Introduction to Effects of Global Warming, Increasing Atmospheric CO_2 and O_3 Concentrations, and Soil Salinization on Crop Physiology and Yield. By S. G. Pritchard and J. S. Amthor. Binghamton, NY, USA: The Haworth Press (2005), pp. 421, US$49.95 (paperback).ISBN 1-56022-913-6.

Abiotic Stresses. Plant Resistance through Breeding and Molecular Approaches. Edited by M. Ashraf and P. J. Harris. Binghamton, NY, USA: The Haworth Press (2005), pp. 725, US$89.95 (paperback).ISBN 1-56022-965-9.

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

Report of a Vegetables Network. Joint Meeting with an ad hoc group on leafy Vegetables, 22–24 May 2003, Skierniewice, Poland. Compiled by G. Thomas, D. Astley, I. Boukema, M. C. Daunay, A. DelGreco, M. J. Dieze, W. van Dooijeweert, J. Keller, T. Kotlinska, A. Lebeda, E. Lipman, L. Maggioni and E. Rosa. Rome: IPGRI (2005), pp. 146, no price quoted. ISBN 10-92-9043-679-4.