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BOOK REVIEWS

The Biodiversity of Traditional Leafy Vegetables. Edited by J. A. Chweya and P. B. Eyzaguirre. Rome: IPGRI (1999), pp. 182, no price quoted. ISBN 92-9043-404X.

This book is a collection of six reports on traditional leafy vegetables in the five African countries of Botswana, Cameroon, Kenya, Senegal (2 reports, one in each of English and French) and Zimbabwe.

The reports cover the edible use of wild and cultivated indigenous traditional plants used by several ethnic groups within each country. Most of the crops are grown for family subsistence, but some are important for limited cash generation that, in turn, provides limited independence for the women involved.

Ethnic and taxonomic nomenclature is presented with some information on natural plant variation. In addition, a wealth of information including nutritional value, medicinal properties and the most common methods of processing and preparation is given. Proposals for maintaining species diversity, promoting conservation and encouraging greater use of traditional leafy vegetables in a society which is becoming more urban, are put forward to counter the loss of knowledge and declining use of such crops.

P. R. Dawson

Climate Change and Global Crop Productivity. Edited by K. R. Reddy and H. F. Hodges. Wallingford, UK: CABI Publishing (2000), pp. 471, £75.00. ISBN 0-85199-439-3.

Amid all the news of exceptional and disastrous weather in various parts of the world, the general concern that there are progressive and permanent changes occurring in the world's climate is unsurprising. The attention of biologists and agriculturists is focused on the effects of changes that are less disastrous but are no less important. Not only is agriculture prone to disruption by adverse weather but rates of growth, partitioning between root and shoot, and water and nutrient use efficiencies are among the many crop parameters that may be modified by the less dramatic small changes in average temperature and a few ppm in CO₂ concentrations. Not all crops respond to these changes in the same way.

The book starts with an overview of the progressive changes occurring in the biosphere (and their causes) then provides a wide-ranging and authoritative assessment of the responses of crop systems to these changes. The editors have an inclusive view of 'crop' as there are chapters on tree crops, grassland and rangeland, as well as on a wide range of globally important arable crops. Each crop is treated with respect to factors such as the effects of temperature, CO₂ concentration and water deficits on basic processes such as photosynthesis, water use, growth and development – phenology and rates and yields. There are chapters on interactions between crops and weeds and on the dynamics of soil organic matter and of populations of crop pests. The book concludes with shorter sections on 'mitigation strategies' – how to live with the changes – and on economic and social impacts.

This book will appeal to professional crop scientists and to serious students.

D. K. L. MacKerron

Towards an Agenda for Agricultural Research in Europe. Edited by A. Boekwstein, P. Diederer, W.M.F. Jongen, R. Rabbinge and H. Rutten. Wageningen, The Netherlands: Wageningen Pers (2000). pp. 317, NGL 130.00. ISBN 90-74134-80-7.

This book is a detailed record of an international conference held in April 1999 in Wageningen, on the future of agricultural research in Europe. It is broad in scope. Agricultural production, food processing, nutrition, land use and the landscape are covered in over thirty papers. It claims to present an integrated approach to agricultural research priorities and addresses the technological opportunities offered by biotechnology. Indeed, the book covers the emergence, against the background of the globalization of markets and research, of the life science industry in which all the stakeholders in the food chain have to be considered. The public-private partnership, diversity of funding, biodiversity, ecology, land and water use, industrial applications of biological materials and food processing are all considered. There is some concentration on the EU research programmes such as foresight and the emergence of food safety and health as key areas of public interest. As is typical of a conference volume that tries to cover so much, however, and exacerbated by the fact there are no less than five editors, the final product is somewhat lacking in cohesion. The whole is less than the sum of the parts, so that dipping into specific chapters is more rewarding than looking for systematic conclusions.

C. Thirtle

Genes in the Field. Edited by S. B. Brush. Washington DC: Lewis Publishers (2000), pp. 288, no price quoted. ISBN 1-56670-404-7.

'It is no longer necessary to ask whether *in situ* conservation of crop plants should be undertaken but rather to discuss how, when and where it is done, and how it might be enhanced'. So states the foreword to this book. Genetic diversity of crop species is conserved both *ex situ* in genebanks and *in situ* on farms and elsewhere. Procedures for *ex situ* conservation are well established but the importance of *in situ* conservation has become widely acknowledged only during the past decade. The issues have not yet been addressed adequately and the status of *in situ* conservation therefore is comparatively rudimentary. This book brings together some of the world's leading scientists in this area, in a welcome and valuable attempt to 'take the discussion a step further'.

The first two chapters provide an introduction to the issues: the first a general overview, and the second focussing more specifically on the genetic structure of landraces in relation to population biology and social science. There follows a series of four case studies of existing programmes on *in situ* conservation. At first, their geographical coverage (three from the Fertile Crescent – NE Africa region, and one from Mexico) seems disappointingly narrow. On reflection, however, this demonstrates well the relatively undeveloped state of *in situ* conservation and highlights the importance of this book in helping to stimulate progress in that area. The final section of the book comprises five chapters on policy and institutional issues. It includes discussion of experiences in Peru and Zimbabwe, and appropriately highlights the fact that effective *in situ* conservation very largely depends on development of appropriate policy and institutional structures.

In summary, this book represents an important contribution to development of *in situ* conservation, summarising the relevant issues and benefiting from the experiences of real conservation programmes. It should be read by conservation scientists and by policy makers.

N. R. Sackville-Hamilton

Agricultural Extension: The Kenya Experience; An Impact Evaluation. By M. Gautam. Washington DC: The World Bank (2000), pp. 67, US\$ 22.00. ISBN 0-8213-4758-6.

The Training and Visit (T&V) system of extension management has been widely supported by the World Bank; by 1997 Bank projects supported an investment of US\$ 700 million in 22 countries in

Africa. It has been a controversial programme, however, with some reports of very high economic returns and others critical of the effectiveness and costs. Despite this there have been very few attempts to rigorously establish the impact of the projects. This report is welcome therefore as a thorough evaluation of a programme, which started in 1982, and was expected to require 15 years to mature.

The evaluation found that the blanket approach is not effective and that the T&V system is neither financially sustainable nor cost-effective. There are other serious indictments of the system that raise strong doubts about the role of the Bank in encouraging countries to borrow heavily for such projects.

The evaluation shows, however, that farmers value the right kind of advice and, as in Europe, are prepared to pay for it. This raises important questions about the role of public sector funded extension and, particularly, how best to help the poorest sections of the farming community. This report is a valuable document for all of those involved in technology transfer to the rural communities in developing countries.

J. K. Coulter

Crop Pollination by Bees. By K. S. Delaplane and D. F. Mayer. Wallingford, UK: CABI Publishing (2000), pp. 344, £60.00. ISBN 0-851999-448-2.

A welcome and timely addition to the pollination bookshelf. Welcome as a state-of-the-art review for all interested in applied pollination, from agricultural advisors to growers and bee-keepers. Timely because pollination is in crisis. Pollinator diversity is in decline worldwide and honey-bee populations are threatened by Varroa. In recognition of this crisis, the Conference of the Parties of the Convention on Biological Diversity this year decided to establish an International Initiative for the Conservation and Sustainable Use of Pollinators.

The book has 51 chapters. The first four cover flower morphology, the pollination process, pollination benefits and bee conservation. Three chapters are devoted to honey bees while six focus on other species namely the bumblebees, alkali bees, alfalfa leaf-cutting bees, mason bees and carpenter bees. There are chapters on pesticides, priorities for research, development and education. Remaining chapters review the flowering, pollination requirements and main pollinators of 36 selected bee-pollinated crops, from alfalfa to watermelon. There are three appendices (i) suppliers of bees and books, (ii) pesticides and (iii) an example of a pollination contract between crop growers and beekeepers. Over 600 references guide further reading. It thus complements the more comprehensive reference work: *Insect Pollination of Crops* by J. B. Free, published in 1993.

I. H. Williams

Recent Advances and Issues in Biology. By L. A. Mertz. Phoenix, Arizona: Oryx Press (2000), pp. 282, £33.50. ISBN 1-57356-234-3.

This publication aims to offer an easy-to-read introduction to the field of biology and an overview of current research areas. There are five main chapters on the themes of biodiversity, ecosystems, evolution, molecular biology and genetics, and social issues. In addition, information (mainly gleaned from websites) on specific reports, careers information and brief biographies of key workers in the field, is presented.

In attempting to encompass such a wide and rapidly moving area, much of the text appears in the form of 'soundbite' type headline reports, with references for further information added at the end of each short section. The book appears, however, to lose its structure after the main chapters. Much of the remainder is quoted verbatim from other sources and the chapter on resources is merely a list of other information sources with a brief description of each. The glossary is useful but rather oversimplified for most readers. This volume is a worthwhile and generally easily readable ambitious attempt to cover a wide subject, but the lack of detail, comment and informed opinion, plus an over-

reliance on other readily available published information sources, combine to reduce the overall impact and value.

S. Millam

Plant Resources of South-East Asia, No 16, Stimulants. Edited by H. A. M. van der Vossen and M. Wessel. Leiden, The Netherlands: Backhuys Publishers (1999), pp. 201, NLG 130.00. ISBN 90-5782-053-6.

This book is a worthy addition to the Prosea series. The four principal stimulant crops in world cultivation, cacao, coffee, tea and tobacco form the basis of this book, but the coverage is much broader, extending to 54 species. An introductory chapter to the stimulant plants of South East Asia develops into an authoritative summary of the science and cultivation of cacao, coffee and tea. Overviews of these and 12 other major stimulants (20 species) follow. Botanical, agricultural and economic information, often including yield, is organised under some 20 headings. Briefer descriptions of 33 minor stimulants follow. The book ends with a list of other plants used as, or associated with, stimulants and a comprehensive index. The writing is to a consistently high standard by authors who know their subjects and some impressive insights into the agriculture of the major crops are presented. The usual pitfalls of multi-author volumes have been avoided. Students of tropical agriculture will find the introductory chapter invaluable while the book as a whole will be a standard reference on the lesser stimulant crops over the years ahead.

R. Lockwood

A Textbook of Agricultural Entomology. By D. V. Alford. Oxford: Blackwell Science, pp. 320, £39.50. ISBN 0-632-05297-X.

This book provides clear and detailed descriptions of the major insect and mite pests in the British Isles and other parts of Northern Europe. It is arranged in two parts. Part I begins with a brief account of external and internal features, development and growth. Diagnostic characteristics of the main groups of pests and beneficial species are then outlined, usually down to family level. The descriptions concentrate on features distinguishable using a hand lens or low-power microscope, and are often accompanied by line drawings. There are useful cross-references for those families with major pest species that are described in Part II. This second part provides more detailed descriptions of agricultural and horticultural pest species. Details of their distributions, host ranges, damaging effects and economic importance are followed by a brief account of their biology. In many instances, descriptions of the size and appearance of immature and adult stages are illustrated by line drawings or colour photographs.

Wisely, Alford has excluded any discussion of control methods, that rapidly become outdated, or pest management principles, the subject of many recent publications. He concentrates instead on identification and life history information, not only of pests of field and glasshouse but also of orchard and plantation crops, and some minor crops. The book contains superb colour photographs of pests and plant damage, and numerous line drawings to aid identification. It should prove very useful to undergraduate and postgraduate students, crop protection specialists and those teaching or taking BASIS courses.

The book is timely, well produced, clearly laid out, and good value at £39.50.

J. A. Trefor Woodford

Plant-Microbe Interactions, Vol. 5. Edited by G. Stacey and N. T. Keen. St. Paul, MN, USA: APS Press (2000), pp. 323, US\$64.00. ISBN 0-89054-260-0.

My first reaction was: 'not another book on plant-microbe interactions'. The chapters, however, are well written and synthesize current views on a number of important subjects. There are some familiar topics covered in the nine chapters presenting up-dates on pectic enzymes, quorum sensing, *hrp* genes in *Pseudomonas syringae*, disease resistance genes in *Arabidopsis*, and a good chapter on redox regulation of plant responses. An interesting chapter on elicitor receptors includes information on the kinetics of ligand binding. Perhaps few of us enjoy enzyme kinetics but unfortunately they are important! There are additional chapters on *Agrobacterium rhizogenes*, *Phytophthora infestans* and, finally, a chapter on nitrogen fixing genes in *Acetobacter diazotrophicus*, an endophyte of sugarcane.

With vast amounts of new information becoming available from genomic programmes, the future challenge for review articles will be one of combining all the information into a form that can be presented in an innovative way to other scientists. There is evidence in this book that some writers have begun the process with increasing reference to world-wide web (www) sites but there is still a long way to go. The main target audience for the book probably is the postgraduate student for whom it will be very useful but I am not convinced that the book is sufficiently innovative or critical to be useful for senior researchers.

G. D. Lyon

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

Farm Sector Restructuring in Belarus. Progress and Constraints. World Bank Technical Paper No. 475. Edited by C. Csaki, Z. Lerman and S. Sotnikovo. Washington DC: The World Bank (2000), pp. 121, US\$22.00. ISBN 0-8213-4792-6.

The Intellectual and Technical Property Components of pro-Vitamin A Rice (Golden Rice^{DM}): A Preliminary Freedom-To-Operate Review. By R. D. Kryder, S. P. Kowalski and A. F. Krattiger. ISAAA Briefs No.20. ISAAA. Ithaca, NY, USA (2000), pp. 56, US\$25.00. ISBN 1-892456-24-9.

International Obligations and National Objectives: Options for Plant Variety Protection in the New Millennium. Report on the Regional Workshop in Southern Africa on the Implementation of Article 27.3(b) of the TRIPS Agreement 22–25 March 1999. Harare, Zimbabwe. Edited by L. T. Chitsike. Rome; IPGRI (2000), pp. 116, no price quoted. ISBN 92-9043-446-5.

Rural, Environment, and Social Development Strategies for the Europe and Central Asia Region. Washington DC: The World Bank (2000), pp. 47, US\$22.00. ISBN 0-8213-4808-6.

Rural Development Strategy. Eastern Europe and Central Asia. World Bank Technical Paper No. 484. Europe and Central Asia Environmentally and Socially Sustainable Rural Development Series. By C. Csaki and L. Tuck. Washington DC: The World Bank (2000), pp. 47, US\$22.00. ISBN 0-8213-4809-4.

Ethnobotany and Genetic Diversity of Asian Taro: Focus on China. Proceedings of the Symposium on Ethnobotanical and Genetic Study of Taro in China: Approaches for the Conservation and Use of Taro Genetic Resources, 10–12 November 1998 – Laiyang Agricultural College, Laiyang, Shandong, China. Edited by D. Zhu, P. B. Eyzaguirre, M. Zhou, L. Sears and G. Liu. Rome: IPGRI (2000), pp.99. No price quoted. ISBN 92-9043-438-4.

Report of a Working Group on Beta. First Meeting 9–10 September 1999, Brooms Barn, Higham, Bury St Edmunds, UK. Compiled by L. Maggioni, L. Frese, C. Germeier and E. Lipman. Rome: IPGRI (2000), pp.102, no price quoted. ISBN 92-9043-441-4.

Participatory Varietal Selection. The Flame Spreads into 2000. Bouake, Côte d'Ivoire: WARDA (2000), pp.81, no price quoted. ISBN 92-9113-204-7.

Report of a Working Group on Grain Legumes. Second Meeting, 1–3 October 1998, Norwich, UK. Compiled by L. Maggioni, M. Ambrose, R. Schachi and E. Lipman. Rome: IPGRI (2000), pp.102, no price quoted. ISBN 92-9043-453-8.