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## BOOK REVIEWS

*Glossary of Plant-Pathological Terms.* By M. C. Shurtleff and C. W. Averre III. St Paul, Minnesota: APS Press (1997), pp. 361, US\$72.00. ISBN 0-89054-176-0.

The Oxford English Dictionary defines a glossary as ‘A collection of glosses; a list with explanations of abstruse, antiquated, dialectal or technical terms; a partial dictionary.’ Containing probably almost ten thousand terms associated with the study of plant disease this book fits comfortably within that definition. The authors hope that their explanations accurately convey concepts, recognize that the role of English as the constantly evolving international language of science implies that some terms will become ‘antiquated’ while new ones evolve. From within this continuum of biological terms they include those pertaining to plant pathology but exclude new words or those given special meanings unless they are widely used in pathology. This means that they use correct scientific descriptions of, for example, ‘environment, ecology and organic’ but do not recognize how these words are now so often and seriously misused.

Unusually in a work of scientific reference, the need for brevity could not permit reference to the origin of any of the specialized terms. The confidence of users must therefore rest on their own testing, supported by the long collection, search and teaching experience of the authors and the implied approval of the American Phytopathological Society in publishing it. As the authors admit, their huge effort in creating this foundation must soon become time-worn. The best that one can wish is that like Ainsworth and Bisby’s *Dictionary of the Fungi* it continues to serve plant pathology through as many as eight editions.

J. M. Hirst

*Plant Adaptation and Crop Improvement.* Edited by M. Cooper and G. L. Hammer. Wallingford, UK: CAB INTERNATIONAL (1996), pp. 636, £65.00. ISBN 0-85199-108-4.

This book is a compendium of papers presented at a workshop on analysis and exploitation of plant adaptation held in 1994. The workshop was based on studies of genotype × environment interactions in international trials of a range of annual agricultural food crops. The book is divided into five sections: an overview of crop improvement, analysis of genotype × environment interactions, interpretation of the interactions, integrated approaches to plant improvement, and a synthesis of strategies. It provides a useful insight into the problems faced by those conducting trials in a range of environments and is a useful reference as it contains many examples of statistical analyses to reveal adaptation of crop varieties to specific environments. Cross-over interactions are shown to exist and practical strategies for their exploitation are discussed. There is considerable repetition but the authors have, commendably, not over-done the statistical theory. Unfortunately, Quantitative Trait Locus (QTL) analysis, which will lead to further dissection of factors controlling adaptation, was not considered. There were relatively few published QTL studies in crop plants in 1994 compared to 1997 but there were sufficient examples of QTL × environment interactions for them to have been considered in at least some of the papers.

W. T. B. Thomas

*Adaptation in Plant Breeding. Developments in Plant Breeding Volume 4.* Edited by P. M. A. Tigerstedt. Dordrecht, Boston and London: Kluwer Academic Publishers (1997), pp. 308, hardback £99.00. ISBN 0-7923-4062-0.

This book is a volume of 38 selected papers from the XIV Eucarpia Congress held at Jyväskylä, Sweden, from 31 July to 4 August 1995. The print, figures and tables are clear and do justice to the papers, but there is neither an author nor a subject index, and the price may seem excessive to some considering that all but three of the papers have already appeared in *Euphytica* Volume 92, No. 1–2, 1996. The papers are organized under 10 headings: Genetic basis of adaptation, Climatic and edaphic adaptation, Mechanisms of adaptation, Host–parasite coevolution, Plant mixtures, Stress conditions, Breeding for wide adaptation, Breeding for low/high input, Breeding in case of global warming, and Genetic resources for adaptation. Each topic is introduced by a keynote paper and is followed by two or three case studies. The editor hopes that the proceedings will be of value to specialists world-wide in their endeavour to breed new plants that meet the demands of the growing world population, against a background of global concern about environmental protection and biodiversity, the dangers of high chemical usage and global climatic change. The range of crops covered, including cereals, forages and forest trees, and the number of countries represented, particularly European and American, are certainly sufficient for most specialists to find something of interest.

J. E. Bradshaw

*Biological Indicators of Soil Health.* Edited by C. Pankhurst, B. Doube and V. Gupta. Wallingford: CAB INTERNATIONAL (1997), pp. 451, £60.00. ISBN 0-85199-159-0.

This book contains a timely collection of papers from a multidisciplinary authorship, which strives to present a range of methods and thoughts behind the concept of soil health: what it is and how to provide some measure of it. In general, the book is well written and thought out, covering a wide range of potential indicators of soil health in a well organized and pleasing format. Much emphasis is placed on soil organisms as indicators of soil health (pathogens, genetically modified organisms). However, the book also examines the potential of plants and the use of molecular methodologies for possible indicators. My main problem with the book is in its definition of soil health, which seems to lack quantification and perhaps may present a misplaced image of what soil health is, or should be. I would have been happier with a term that emphasized the fact that the soil is to be used for our benefit, for a wide range of activities (primary food production, survival, and leisure), rather than one which places emphasis on soil as an individual living entity. Yet the book is a good read and if I did not already have a copy, I would go out and buy one.

Iain Young

*Intensified Systems of Farming in the Tropics and Subtropics.* By J. A. N. Wallis. Washington, DC: The World Bank† (1997), pp. 203, US\$20.00. ISBN 0-8213-3944-3.

This is a thoughtful and well-written World Bank Discussion Paper by one of their most experienced Senior Advisors in the Agriculture and Natural Resources Department. It deserves to be very widely read. The author asks the fundamental question: what set of conditions are necessary for intensified, rainfed (unirrigated) farming/land-use systems in the tropics/subtropics to be sustainable in the long run? To answer this question he examines eight contrasting farming systems. Each is described in a

†Pricing of publications by The World Bank. The World Bank has agreements with sole distributors in most countries. The prices quoted in US\$ are for the USA. For UK prices it is necessary to consult the UK agent, Microinfo Ltd, PO Box 3, Alton, Hants, UK.

chapter, followed by the author's assessment of those factors which have led to intensified farming and his opinions on whether it is sustainable. The eight farming systems are: (i) fallow reduction in Anatolia, Turkey, (ii) dairy development in Uruguay, (iii) intercropping and relay cropping in Antioquia, Colombia, (iv) intercropping and relay cropping in the forest zone in Nigeria, (v) farming in the Cerrados region in Brazil, (vi) soyabean farming on black cotton soils in India, (vii) tea plantations in Kenya and (viii) oil palm development in Malaysia. He concludes that sustainability depends upon conditions being favourable in three basic domains: the natural resources domain (for example, climate, cultivars, soils) the private-sector domain (for example, needs, desires, incentives, rights, equity – how the farmer sees it) and, most importantly, the public-sector domain (for example, political systems, policies, institutions, exchange rates, infrastructure). It is how these three domains interact that determines whether or not a system will be sustainable. There is a summary, an overview chapter, maps of the regions considered and an extensive bibliography of papers, most of which are unknown outside the countries concerned.

Melvin Cannell

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*.

*New Partnerships for Sustainable Agriculture*. Edited by L. A. Thrupp. Washington DC: World Resources Institute (1996), pp. 136, US\$16.95. ISBN 1-56973-103-9.

*Integrated Pest Management*. (*Environmentally Sustainable Development Studies and Monograph Series No. 13.*) By T. W. Schillhorn van Veen, D. A. Forno, S. Joffe, D. L. Umali-Deiningger and S. Cooke. Washington DC: The World Bank† (1997), pp. 37, US\$9.95. ISBN 0-8213-3748-3.

*Decentralization and Biodiversity Conservation*. Edited by E. Lutz and J. Caldecott. Washington DC: The World Bank† (1997), pp. 176, US\$40.00. ISBN 0-8213-3688-6.

*Expanding the Measure of Wealth. Indicators of Environmentally Sustainable Development*. (*Environmentally Sustainable Development Studies and Monograph Series No. 17.*) Washington DC: The World Bank† (1997), pp. 110, US\$20.00. ISBN 0-8213-3956-7.

*Advancing Sustainable Agriculture. The World Bank and Agenda 21*. (*Environmentally Sustainable Development Studies and Monograph Series No. 19.*) Washington DC: The World Bank† (1997), pp. 80, US\$20.00. ISBN 0-8213-3974-5.

*Tropical Cattle. Origins, Breeds and Breeding Policies*. By W. J. A. Payne and J. Hodges. Oxford: Blackwell Science (1997), pp. 336, £60.00. ISBN 0-632-04048-3.