

## BOOK REVIEWS

*World Resources 2000–2001: People and Ecosystems: The Fraying Web of Life.* Washington, D.C.: World Resources Institute (2000), pp. 389, GBP 22.95. ISBN 1-56973-443-7.

This is a special Millennium Edition of the World Resources Institute's biennial report produced in collaboration with UNDP, UNEP and the World Bank. It focuses on the interdependence of ecosystems and people, and takes stock of the condition and capacity of five ecosystems – agricultural, coastal, forest, freshwater and grasslands – with the aim of drawing lessons from the global experience in managing and protecting them. The material for the stock-taking exercise is drawn from a Pilot Analysis of Global Ecosystems. The report proposes an 'ecosystem approach' for good management that recognizes the value of ecosystem goods and services to sustain human life, and the interaction and tradeoffs between them, as well as the political and social context in which environmental decisions are made.

The report represents a major step forward in our ability to start laying a sound methodological foundation for undertaking assessments of the state of the world's ecosystems and of the strategies for their successful management and exploitation to meet changing human needs. One can criticise specific aspects of this first ever, global analysis of current environmental conditions, such as the weak assessments of ecosystems' productivity potentials and their human carrying capacities; the 'degradation everywhere' tone of the report and its title; and that the contributors come mainly from the public sector. These deficiencies are rectifiable in the future. The sponsors and the contributors of the report deserve a special commendation for an invaluable reference for a wide audience.

A. H. Kassam

*Nitrogen Fixation in Tropical Agriculture. (Second edition).* By K. E. Giller. Wallingford: CABI Publishing (2001), pp. 423, £60.00. ISBN 0-85199-270-6.

This second edition of the 1991 volume is very welcome. Since the first edition was published, there have been major advances in the understanding of nitrogen-fixing organisms, in particular those from the tropics. Ken Giller is a leading expert in the field who has spent the last few years working in tropical Africa but also has experience of tropical systems worldwide.

The first section covers organisms and processes involved in nitrogen fixation. The author's prediction (p38) for 'future genera of rhizobia' has already been borne out, with two new genera isolated from tropical legume nodules in the last few months. The section also has a critical account of methods for measuring nitrogen fixation.

The second section covers crops and cropping systems, including new work on endophytic organisms. The author evaluates both the work to date and prospects for the future, which are considered in detail in the third section. There are nearly 100 pages of references.

Throughout, the author demonstrates his deep understanding of the needs of tropical countries. With a primary audience in developing countries, this book should be read also by those in the developed world whose horizons are largely confined by temperate legumes.

J. Sprent

*Tamarind* (*Tamarus indica L.*) By H. P. M. Gunesena and A. Hughes. Southampton: International Centre for Underutilized Crops (2000), pp. 170. No price quoted. ISBN 0-85432-7274.

This volume is the first in a series entitled 'Fruits for the Future'. It provides a comprehensive examination of the most important aspects of tamarind biology, cultivation and use. There is an accompanying fact-sheet that summarises broadly the most commercial aspects of the book. The publishers' intention is for there to be eventually a set of farmers' extension guides to also be available with the book.

As an introductory text, the book is of considerable merit, with 12 chapters covering the full range of relevant topics, from basic taxonomy to crop economics, plus appendices on germplasm, seed sources and relevant research groups. Each chapter is a collation of existing information, and most are well structured, although some of the economic data on production and crop exports may by their nature become dated fairly quickly. The order in which some of the chapters appear is rather unusual.

A total of 16 colour plates of fairly good quality are included, plus a couple of excellent line drawings in the section on taxonomy. The overall production standards of the book are good.

In summary, this well-produced volume provides an obvious starting point for anyone intending to grow or study this interesting crop species. In conjunction with the planned extension guides, it should satisfy all practical needs for most growers, while still providing much to interest students and researchers.

Rex Brennan

*The Potato. Treasure of the Andes. From Agriculture to Culture.* Edited by C. Graves. Lima, Peru: International Potato Centre (CIP) (2001), pp. 208. No price quoted. ISBN 92-9060-205-8.

In her introduction to this book, the editor, Christine Graves, hopes that readers will gain a fuller understanding of the rich tradition surrounding the potato in the Andes, of its journey to new homes in Africa, the Americas, Asia and Europe, and of its enormous potential to meet critical needs in the decades to come. The book, which is filled with excellent black-and-white and coloured photographs, achieves these objectives and is an easy and enjoyable read. It should appeal to a wide readership, including scientists, agriculturalists and all those interested in the history, science, and economic and social impact of the world's fourth most important food crop. There is a useful glossary and a suggested reading list for those who wish to search more deeply.

N. L. Innes

*The Sustainable Management of Vertisols.* Edited by J. K. Syers, F. W. T. Penning de Vies and P. Nyamudeza. Wallingford, UK: CABI Publishing (2001), pp.304, £55.00. ISBN 0-85199-450-4.

Vertisols are clayey soils that are potentially very productive but pose several challenges if they are to be managed sustainably for crop production. Despite the cover photograph, the focus of this book is Africa where 35% of the world's Vertisols cover about 100 million ha or 6% of Africa's arable land area mainly in semi-arid areas. This book contains 18 papers presented at a workshop held in Harare, Zimbabwe in May 1999 and organized by what is now the International Water Management Institute. The material is organized into four sections: there are four overview papers, eight papers on country and national perspectives, five on international perspectives and the conclusions. Though the foreword claims that the papers have been chosen to cover social and economic aspects of research alongside biological and physical considerations there is little evidence for this, especially in the country papers. The Sudan contains 70% of Africa's Vertisols, and the 50% reduction in crop yields between 1960 and 1995 shown in Figure 7.1 illustrates well the problem of long-term sustainability on such soils. This book hints at the possible components of sustainable management

but beyond proposing the establishment of a consortium to sustain researchers, is imprecise as to how improved soil surface management, nutrient management and cropping systems are to be implemented.

P.J. Gregory

*Biotic Interactions in Plant-Pathogen Associations*. Edited by M. J. Jeger and N. J. Spence. Wallingford, UK: CABI Publishing (2001), pp. 353, £60.00. ISBN 0-85199-512-8.

Scientific study of diseases has been focused predominantly on investigations of single causative agents affecting single organisms. The majority of life on earth, however, operates in the context of diverse biological communities, and there is an increasing realization of how community-level controls may operate upon individuals, populations and the attendant processes they regulate. Understanding such interactions is critical to improved management of disease in production systems as well as in wider environmental contexts. This book acknowledges this fact in relation to plant disease, and explores and explains many issues relating to biotic interactions between pathogens, their hosts and other organisms. The topics covered are diverse. In relation to fungi they cover hyperparasitism, the consequences of vegetative incompatibility, grass endophytes, intra-specific interactions among *Fusarium oxysporum* strains, and a number of chapters on fungal-faunal interactions. Bacteria are discussed specifically in relation to plant-endophytic forms, chitinolytic types and the use of avirulent mutants. A chapter reviews viral issues generally, and another covers cross-protection and whitefly-borne virus disease epidemics. The impact of pathogens on vegetation dynamics is the subject of two chapters. This is an important area of ecology and is of contemporary relevance in regions where successional management or control of floristic diversity in semi-natural systems is desired. Mathematical models are discussed in the final two chapters.

The production is generally of a high quality, although some of the photographs are rather unenlightening. Overall, the emphasis is largely non-tropical, but I recommend this volume due to the breadth of coverage. There is much to interest the general microbial ecologist here as well as the more obvious plant pathology audience.

K. Ritz

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 Working Group on Potato. First Meeting 23–25 March 2000, Wageningen, The Netherlands*. Compiled by R. Hoekstra, L. Maggioni and E. Lipman. Rome: IPGRI (2001), pp.90, No price quoted. ISBN 92-9043-483-X.