**BOOK REVIEWS**


DOI:10/1017/S0014479702213095

In this carefully researched, and well-written history of WARDA’s progress during the fifteen-year period under review, the author provides a compelling account of the problems faced and overcome by the management and staff during this difficult transitional period. By including a broader view of the international research milieu at the time – and particularly focusing attention on the CGIAR’s role in the case of WARDA, Walsh has also provided valuable background material on the politics and other difficulties inherent in doing world-class research in West Africa. The success of Monty Jones and his team in producing the Nerica (new rice for Africa) varieties from the inter-specific crosses between the Asiatic *Oryza sativa* and African *O. glaberrima* serves to highlight the scientific breakthroughs and their resultant impact at the farmer level. With many anecdotal, yet relevant, quotes and stories Walsh has painted a balanced picture of the WARDA Centre as it is today – and how it has developed over the past 15 years. The Postscript – that brings the reader up to mid 2000, hints at some of the difficulties now being faced by WARDA and the CGIAR as they move into the new millennium. The book will be of considerable interest to those involved with international research and development and is a ‘must read’ for any scientist thinking of working at, or collaborating with, WARDA: it provides a very complete picture of WARDA’s legacy and what has made it successful. This is an important reference since many of the key players involved in leading the Centre through this turbulent period have since retired from WARDA.

J. Griffith


DOI:10/1017/S0014479702223091

As Almekinders and de Boef state in their chapter ‘considering on-farm employment of diversity as in situ conservation of genetic resources may seem too easy and not deserving the label ‘conservation’ at all.’ Nonetheless, this view of in situ conservation is increasingly accepted. This book is the first to examine how participatory approaches can help achieve conservation through on-farm diversity, an often contradictory objective because promoting diversity can involve replacing landraces. In the long term, however, landraces cannot be preserved by resource-poor farmers without denying them the benefits of improved germplasm. One possible way of resolving this contradiction is to promote diversity using participatory approaches. This book lays the basis for how this might be achieved.

There are very useful chapters on methods, and the book examines farmers’ access to new germplasm, local systems of germplasm management and crop improvement, and local seed systems. A final section considers public policy and awareness issues. It is a thought-provoking and essential read for anyone interested in in situ conservation. However, any future edition must report quantitative information on the impacts and benefits of participatory approaches. Many will remain
unconvinced of the value of such approaches, for example community seed banks, without a rigorous evaluation of how they can be sustainably scaled up and a demonstration that their benefits can exceed costs.

J. R. Witcombe


DOI:10/1017/S0014479702233098

This book aims at providing a comprehensive source of information on various aspects of plant growth, development and interaction with the environment. It consists of articles, grouped into sections, that discuss the physiology of plant growth and development, plant growth regulators, physiological aspects of plant and crop production, cellular aspects of plant and crop physiology and genetic aspects of the development of lower and higher plants. The sections on interaction with the environment cover crop responses to climatic changes, stressful conditions (salt, drought, agrochemicals and heavy metals), crop growth under controlled environments and even in outer space. Some confusion arises from the decision to indicate the divisions between the sections only in the table of contents and not in the text.

The essays are well written and provide a good source of references, although more tables and, especially, figures would have been helpful. The combination of articles summarizing available information on the topic discussed with others discussing new findings, results in good coverage of most of the topics. However, coverage extends little beyond the realm of traditional plant physiology. Many newer approaches such as genomics, molecular breeding and genetic engineering that have had a major impact on our understanding and management of plant and crop physiology, are not covered. A section on molecular plant physiology sadly is also missing despite the fact that many major insights on genetic control of plant growth and development have, in recent years, been derived from this approach.

This book is informative and covers many aspects of traditional plant and crop physiology. It will be useful for educators’ and students’ collections of books on botany, agronomy and plant physiology. The lack of coverage of more modern advances, however, will make it less interesting to researchers and professional scientists.

Roberto Viola


DOI:10/1017/S0014479702243094

This is a good book, highly relevant to current activities in plant genotyping, whether for research, plant breeding or commercial purposes. There are over 30 contributors and, although heavily biased towards Australian contributors, it also includes internationally renowned authors. It covers a wide range of issues and techniques involved in plant genotyping with 21 chapters divided into five themes: (i) Molecular markers available for use in plant genotyping and the techniques; (ii) Genotyping plant genetic resource collections; (iii) Genotyping cultivated and wild germplasm; (iv) Development of molecular markers for use in plant genotyping; and (v) Technical developments and issues in plant genotyping.

Topics range from basic DNA extraction protocols to the issues in handling the ‘tidal wave’ of molecular information currently being generated. There is a good balance, with emphasis on simple sequence repeats (SSRs) markers, and sufficient coverage of the trends towards small nucleotide polymorphisms (SNPs) and sequence-based genetic marker technologies. Unfortunately, the book lacks a chapter on the evolution and comparison of genetic markers. There are outstanding chapters on: Plant genotyping by analysis of single nucleotide polymorphism; Plant genotyping based on
analysis of single nucleotide polymorphisms using micro arrays; and Using molecular information for decision support in wheat breeding.

Cross-referencing between chapters is poor and there is appreciable repetition of text among chapters. The book also lacks a glossary and a list of the many acronyms of genotyping, which would have been especially useful for new readers to this area. Nonetheless, it will attract a wide and varied readership of plant scientists and breeders and is to be recommended.

Brian Forster

DOI:10/1017/S0014479702253090

This is an interesting and, on the whole, a well presented book. It discusses a topical series of issues about the measures used to tackle the control of pollution derived from agricultural sources. It is organized into seven stand-alone chapters and reviews the background and contrasts the differences in policies currently adopted in North America and Europe. The book has a strong economic and social orientation, addressing the cost effectiveness of various control measures. For readers with a scientific background, some of the sections exploring the more theoretical aspects of the subject might be hard work. Having said this, it is important that anyone interested and directly involved in the general topic of pollution control should understand some of the economic principles behind remedial actions. After all, implementation of control measures and their success are likely to be judged from a mainly economic perspective. This book tackles a rapidly developing and challenging area of environmental science; developing so rapidly that through no fault of the authors, some of the details included are already out of date. I think this represents a useful addition to the subject and particularly encourage the more physically orientated scientists amongst us to read it.

Tony Edwards

DOI:10/1017/S001447970263097

Plants deposit organic material in the soil through dead root skeletons, sloughed off root cells, and mucilages and other compounds exuded from living roots. This material, whose combined mass is sometimes equivalent to the cumulative plant mass above ground, provides substrate and signals for the soil microbial populations and, thereby, facilitates their various functions in element cycling and soil genesis. The twelve invited chapters in this book together present a valuable statement of many of the processes involved. They deal in depth with the biochemistry of the organic substances in the rhizosphere, the active compounds released by roots and their effects on mineralization and immobilization of carbon and nitrogen, and on other soil microbial processes. A chapter each considers mycorrhizae and symbiotic nitrogen fixers. There is great detail here but, as the editors admit, the subject requires a functional synthesis. Much remains to be learned of the mechanisms by which rhizo-deposits control the balance between plant pathogens and benign micro-organisms, and of the way rhizo-deposits from one plant impinge on the functioning of another. One particular and important aspect of the root-soil interface is not fully taken into account in the book: the role of heterogeneity in fine soil structure hardly figures in most chapters, yet the dimensions and tortuosity of pores must determine the extent and the rate of interaction between roots and microbes by substrate or signal. The book prompts the conclusion that a deeper, functional understanding of rhizosphere biology and biochemistry is surely feasible. The potential practical importance of systematically manipulating the rhizosphere through crop genotype now needs to be investigated.

G. R. Squire
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*.


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