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Biodiversity, Biofuels, AgroForestry and Conservation Agriculture. Edited by E. Lichtfouse. Heidelberg: Springer (2011), pp. 391, £135.00. ISBN 978-90-481-9512-1.

Biodiversity, Biofuels, AgroForestry and Conservation Agriculture is the fifth in the Sustainable Agriculture Review series from Springer. This is a useful wide-ranging book covering many areas of interest to the thinking agriculturalist of the 21st century operating on a global scale. It covers a number of issues in sustainable agriculture well, through a series of 12 individual chapters covering areas such as sustainable bioenergy use and the role of biotechnology, agro-ecology, carbon sequestration, conservation agriculture in the Mediterranean and semi-arid dryland agriculture, synergism between crops, efficient irrigation, sustainable practices in India, microbial soil quality, and silvopastoralism and biodiversity conservation.

With such a wide ranging disparate series of chapters a unifying overview introduction would have been a useful addition to the review to give a more unifying sense of perspective, position and place for the various areas covered. The opening chapter on agro-ecology is the longest and provides a wide ranging overview of this increasingly talked about relatively 'new' discipline and application and philosophy thereof. Those with any practical experience of farm machinery and farming might question the assertion that optimum field size of 1–2ha is the ceiling for operational machinery efficiency, but in general the chapter provides a useful overview despite its dense language at times. It includes a section on agro-ecology in the curriculum that educationalists will find of interest. The book is well referenced throughout as one has come to expect from the series and it is a useful addition to its partner volumes.

Keith Dawson

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Industrial Crops and Uses. Edited by B. P. Singh. Wallingford, UK: CAB International (2010), pp. 528, £115.00, ISBN-13: 978-1-84593-616-7.

Crops are playing an increasing role as industrial raw materials as they can yield a wide range of products, are renewable and are associated with positive environmental impacts, in contrast to petroleum-based materials. This book describes in detail the range of industrial crops and uses.

Industrial Crops and Uses is divided into eight parts with the first part giving a useful overview. The other parts are split according to the different uses that are made of industrial crops, namely: bioenergy, industrial oil, industrial starch, fibre and dye, rubber and related compounds, insecticide and land rehabilitation. There are several chapters within each part as appropriate to the subject.

Chapters have been provided by some 53 contributors, predominantly from the USA, but also from many other nations. A multidisciplinary approach has been taken to include an insight in to the agronomy, plant breeding, biotechnology, biochemistry and process engineering for the different industrial uses.

The book succeeds in its aim of providing information on industrial crops suitable for a textbook for graduate-level students and to present current research and developments of interest to researchers and professionals involved in the industrial utilization of plants. The reader might have benefited slightly by the split into different parts being shown more distinctly – in the text it is only the chapters rather than the parts of the book that are defined. With different chapters written by different authors, it is inevitable that there is some repetition in terms of background, but this does not detract from this extremely useful book as a whole.

Elaine Booth

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Banana Breeding: Progress and Challenges. Edited by M. Pillay and A. Tenkouano. Boca Raton, FL, USA: CRC Press (2011), pp. 363, US$139.95. ISBN 978-1-4398-0017-1.

At last, a book that focuses on banana breeding. Not only are *Musa* breeding techniques, strategies and philosophies detailed in ways not done before, but there are also comparisons made with breeding three other clonally propagated tropical crops and the lessons they can teach banana scientists. In addition, there are chapters by various authors covering such topics as *Musa* genetic resources, morphology, pests and diseases, fruit quality, propagation and dissemination of hybrid cultivars, as well as the latest developments in biotechnology and genomics. They complement one another and point the way forward to the development of new cultivars with disease and pest resistance, while satisfying consumer expectations.

The chapters reflect the personal and practical experiences of the authors and the editors are to be congratulated on compiling an excellent new resource on bananas and banana breeding. This book provides basic as well as advanced information for those interested in learning more about banana, as well as those pursuing further research in the crop. Excellent bibliographies in many chapters provide a valuable documentation of the diverse research activity that has taken place in the past few decades and should be of use to serious scholars. I recommend this book to all interested in the genetic improvement of tropical crops, particularly those interested in banana breeding and production.

Mike Smith

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Barley: Production, Improvement and Uses. Edited by S. E. Ullrich, Chichester, UK: Wiley-Blackwell (2011), pp. 637, £170.00. ISBN 978-0-8138-0123-0.

This book aims to present the current 'state of the art' in all aspects of barley from DNA sequences associated with key traits for breeding, cultivation and utilization, and biotic and abiotic threats. Chapters are provided by expert individuals or groups, ensuring accurate and up-to-date information, but generating some problems not fully overcome, e.g. considerable repetition of some themes, such as applications of molecular breeding techniques, across several chapters. This demonstrates a generally limited cross-referencing between chapters, although the linking between malting and brewing and both endosperm mobilization and other end-uses is effective. Good overviews, with references for the expert to access more detail are, as indicated by one contributor, appropriate for a book of this type, but there is some variation, in depth and detail, between chapters.

The book is aimed at an academic rather than a general readership and should achieve wide approval amongst barley scientists, although familiarity with techniques and terminology may be necessary for some specialist areas. The geographical subdivision of chapters on breeding and agronomy will enhance international appeal, although extension of this approach to food and feed uses would have been a useful addition. Information on varieties and products from less-developed countries, where barley remains an important food crop, would balance the emphasis on improving nutritional quality, or reducing diffuse pollution, in developed areas. Overall, therefore, the book is not without flaws, but it remains a comprehensive source of information and a valuable addition to the literature on a hugely important crop species.

J. Stuart Swanston

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Sesame: The Genus Sesamum. Medicinal and Aromatic Plants – Industrial Profiles. Edited by D. Bedigian. Boca Raton, Fl, USA: CRC Press (2011), pp. xxiii + 532, £82.00. ISBN 978-0-8493-3538-9.

Medicinal and aromatic properties of sesame do not spring to mind before, or indeed after, perusal of this volume. Nine chapters discuss seed chemistry, six review cultivation in various countries and four concern topics such as genetics of yield and molecular biotechnology. There are also six chapters by the editor.

Currently, medicinal interest centres on sesame lignans, antioxidants responsible for the keeping qualities of sesame oil, which reportedly reduce plasma cholesterol and curb development of some cancers. However, several chapters conclude that more work is needed before extrapolating laboratory results to humans.