

Trying to integrate data from disparate fields inevitably leads to misinterpretation of some information. For example, Mangelsdorf's tripartite hypothesis is so-called because of its three postulates: he did not suggest a tripartite *origin* of maize. Each chapter begins with a glossary; the terms are not always those most needed by the reader. Thus, agriculture is defined but *alicole* is not.

Mangelsdorf's view that 'the ancestor of maize is maize' has given way to the current orthodoxy that the ancestor of maize is teosinte. This owes much to John Doebley and his group, who unfortunately have not contributed to this book. Instead, Hugh Iltis argues for a 'maizoid Eve' (origin of maize from a single plant of teosinte carrying a rare mutation of the gene *tga1*).

Current controversies are fuelled by discrepancies between dates on macrobotanical remains (none older than about 6250 years) and microbotanical remains (pollen and phytoliths purportedly 7000 years old from outside the range of teosinte). Analyses of  $^{13}\text{C}/^{12}\text{C}$  ratios in human skeletal remains may show whether  $\text{C}_4$  plants (in effect, maize) were important in the diet and have been used to trace the spread of maize into temperate climates where indigenous plants are mostly  $\text{C}_3$ .

Readers of *Experimental Agriculture* are unlikely to want to do more than dip into some of the chapters of this book.

Barbara Pickersgill

*Genetic Improvement of Solanaceous Crops. Volume 2. Tomato.* Edited by M. K. Razdan and A. K. Mattoo. Enfield, NH, USA: Science Publishers (2007), pp. 637, US \$108.00. ISBN 978-1-57808-179-0. doi:10.1017/S0014479707005443

Among the Solanaceous crops tomato is an important vegetable crop in the world. This book includes contributions of 34 authors from six countries. Sixteen chapters cover history, origin, genetic resources, cytogenetics, heterosis, breeding for quality traits, nutritional value, use of molecular markers in selection, genetic engineering, hormonal control of fruit maturation, fruit ripening, breeding for resistance to bacterial, fungal and viral diseases, resistance to insects and mites, and tolerance to abiotic stresses. All the chapters emphasize molecular genetics, genetic engineering and genomics.

The quality, extent of coverage, the method of presentation, and cross-reference to other chapters in the book by most authors are very good. The chapter on molecular markers in selection of tomato germplasm has been cleverly written even though markers are used in many other chapters. The first two chapters compete in many areas and present the same information.

Poor editing resulted in typographical errors from the first page, use of abbreviations (e.g. AVDRC and ARDC), poor placement of Table (Table 2.1 in page 36 but referred to on page 47), and omissions as in Figures 8.2 (legend says open and closed squares but no open square appears in Fig. 8.2). Table legends and/or contents are garbled (pages 358, 394, and 397).

In spite of the above flaws this book is a valuable reference material with the latest information for students, teachers and researchers interested in the genetic improvement of tomatoes.

S. Shanmugasundaram

*GM Crops. The Impact and Potential.* By J. A. Thomson. Collingwood, Vic, Australia: CSIRO Publishing (2006), pp. 158, AU\$39.95 (paperback). ISBN 0-643-09160-2. doi:10.1017/S0014479707005455

Much of the debate about GM crops is ill-informed with opinion often quoted as scientific fact. This detracts from what may well be genuine matters of concern. Jennifer Thomson's latest book is undoubtedly of benefit to all readers, supporters of GM crops or otherwise. It is clearly set out, with an excellent introduction and chapters dealing with the main areas of development in GM crops and possible matters of concern. Each chapter ends with an excellent summary and references.

The differing stances of wealthy well-fed people in the western world, who can afford the luxury of choice, contrast with the need of those struggling on the edge of starvation in Third World countries. Though the author focuses on the yield and cost advantages of GM crops, there are useful explorations of indirect benefits to the environment from growing these crops.

The book recognizes that *no* form of pest or disease resistance, however it is produced, will last forever. However, the author introduces interesting biotechnology strategies to extend the life of resistance, which are difficult and costly for the conventional plant breeder to achieve.

In an era of rising labour costs, falling availability of water and increases in the gaseous emissions implicated in global warming, the book looks at the considerable benefits from the use of biotechnology to ameliorate such problems.

I have a few minor quibbles, e.g. the questionable percentages on increases in the growth of Bt-modified GM cotton (p. 8), and would like greater clarity on cost savings in Table 2.6, but these do little to detract from an excellent book which is a must for all interested in the GM debate.

W. H. McFarlane Smith

*DNA Banks – Providing Novel Options for Genebanks?* M. C. de Vicente and M. S. Andersson (Eds). Rome: IPGRI (2006), pp. 84, \$10. ISBN-13: 978-92-9043-702-4. doi:10.1017/S0014479707005467

This book draws on a workshop to consider plant and animal DNA banks organized by Biodiversity International, then IPGRI. One chapter also presents the results of a survey investigating the application of DNA methods in genebanks worldwide. By the time of the survey in 2004 only 20 % of collections were storing DNA, with many more aspiring to do so. In Chapter 3 the complementarity of living and DNA collections is explored. DNA or preserved tissue archives for research with a molecular focus are particularly useful for material which is difficult to maintain in living form. This chapter strays beyond the topic to discuss genome sequencing projects. In Chapter 4 platforms for DNA storage are explored. DNA often outlasts the individual associated with it, sometimes by many thousands of years, but in many types of archived tissue DNA is seriously degraded. In this context the cited useful storage life of DNA for PCR of 4–7 years at  $-18^{\circ}\text{C}$  is often less than the life of conventional seeds in the same conditions. In additional chapters, introductions are given to the role of bioinformatics, DNA banks as tools for conservation genetics, animal genetic resource DNA banks and models for the interaction of international centres and nodes in DNA banking. The need for novel means of DNA storage is raised, including in dry form on paper, but this useful book limits itself to a broad overview rather than cover the detailed technical aspects of DNA banks.

Gavin Ramsay

*Agricultural R & D in the Developing World. Too little, too late?* Edited by P. G. Pardey, J. M. Aston and R. R. Piggott. Washington DC: International Food Policy Research Institute (2006), pp. 398, no price quoted. ISBN 0-89629-756-X. doi:10.1017/S0014479707005479

This book is full of policy and institutional details regarding agricultural R&D in the developing world. Stock-taking of what is happening in less-developed countries is based on nine case-study countries across Asia, Latin America and Africa, providing extensive descriptive information on the history and current status of the national agricultural research systems, although not enough use is made of the information in terms of a strategic assessment. Despite a generally positive analysis of the CGIAR's past efforts to provide agricultural R&D, the conclusion regarding its current state is that the CGIAR is in need of 're-engineering'. The main conclusion is an obvious one in that given the continuing shift in the balance of global agricultural investments away from the developing regions, the countries of the South will have to become more self-reliant in the development of agricultural technologies, as is already occurring with the largest developing countries.

The book represents a heroic attempt to rationalize the evolution of agricultural R&D from a mainly economic perspective. The sub-title 'Too little, too late?' is not seriously addressed as no attempt is made to define what is adequate and timely. There is an assertion running through the book that agricultural R&D offers a *sufficient condition* for agricultural development, which is often not the case. Also, the discussion and conclusions appear to be trapped within the limits of the 'genetic ghetto' mindset. In reality, agricultural R&D plays a much broader and exciting social, economic, ecological and environmental role in national and international development than is implied in the book. This notwithstanding, the book should appeal to a wide audience.

Amir Kassam

*Demand for Products of Irrigated Agriculture in sub-Saharan Africa.* By P. J. Rodell, M. Westlake and J. Burke, Rome: Food and Agriculture Organisation of the United Nations. (2006), pp. 127 pages, US\$45.00. ISBN 92-5-105581-5. doi:10.1017/S0014479707005480

This report, prepared by FAO consultants and staff, reviews the contributions which 'irrigated production' can make to food security and economic growth in sub-Saharan Africa. Five international organisations – the