

BOOK REVIEWS

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Adaptation to Climate Change in Southern Africa: New Boundaries for Development. Guest edited by S. Bauer and I. Scholze. London: Earthscan (2010), pp. 118, US\$199.00. ISBN 978-1-84971-163-0.

The stated focus of this special issue in the Climate and Development series ‘is on adaptation to climate change in Southern Africa in relation to [the] region’s overall development prospects.’ The book fails to keep to this focus, presumably because of the elusive nature of the spatial impact predictability of climate change models, on the one hand, and the difficulty of linking such undefined impact to the region’s overall development prospects, about which the book has little to say, on the other. Thus, the book, with a misleading cover photo, is a polemical attempt to assert ‘*why*’ national governments should act but offers little on ‘*what*’ should they act upon and even less so on ‘*how*’.

The Guest Editors admit that climate change impact ‘projections mostly depend on uncertain assumptions regarding future precipitation patterns, which are notoriously difficult to model.’ To this, I would add that none of the climate change models in their predictions consider the positive impact conservation agriculture or no-till farming systems (now practiced on some 8% of global cropland and increasing) can have on adaptation to climate change regardless of any specific predictions on precipitation patterns, not to mention its impact on mitigating climate change through additional carbon capture and sequestration and significant reductions in greenhouse gas emissions.

The concluding article calls for, without adequately reflecting on the ‘*what*’ and the ‘*how*’, mainstreaming of climate change adaptation into development policy and donors’ development strategies; learning from best practices as experienced by the OECD countries and the EU; and increasing funding from the industrialized world. The institutional and personal book prices set at US\$640 and US\$199 respectively seem unreasonably high.

Amir Kassam

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Soils of South Africa. By M. Fey. Cape Town: Cambridge University Press (2010), pp. 287, \$60.00. ISBN 978-1-107-00050-6.

Seventy years ago C. R. van der Merwe’s masterly *Soil Groups and Sub-groups of South Africa* was published. Its preface stated that it was based on meagre information, but ‘... as more detailed and more reliable information become available, the map and list will be reviewed and amended’. That hope has now been realized. Martin Fey with help from several colleagues has provided us with an equally masterly book packed with information. It contains succinct accounts of all 14 main groups of soil in the country. For each group there are summaries of the morphology and chemical and physical properties, a map of its distribution, a discussion of its genesis, and appraisals of its quality for use and its ecological significance. There are also descriptions of actual profiles with supporting analytical data, and an appendix on the methods used to obtain them. Inevitably there is jargon, but a glossary explains. Several pedological features specific to South Africa are described in coloured panels, and a whole chapter is devoted to animals and their function in making the soil what it is. The book is richly illustrated with numerous colour photographs of soil profiles and the landscapes in which they occur, pedogenic features such as concretions and stone lines, subterranean fungus gardens and spectacular termite mounds. Some of the photographs are too small, and some are lurid. This is a small criticism of a book that will appeal

to students and professional scientists alike, one that is destined to be the definitive text on South African soils for many years to come.

R. Webster

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Food Security and Soil Quality. By R. Lal and B. A. Stewart. Boca Raton, FL, USA: CRC Press (2010), pp. 416, US\$139.95. ISBN 978-1-4398-0057-7.

The contents of the 12 chapters of uneven quality comprising this volume bear only a passing resemblance to the title. Food security is defined in the preface but then largely abandoned as a topic in favour of crop production. There is little mention of soils as factors in livestock production, or their roles in shaping access to food, or in contributing to the nutritional quality of food or in determining food preferences. The two chapters on China concentrate on the use of chemical fertilizers to boost crop production and the consequences of inappropriate and over-use of nutrients. Surprisingly there is no mention of the contributions of soil biology and physical conditions to the fertility and health of China's soils. The chapter on Brazil explores the management of soil quality through the expansion of no-tillage practices over the past two decades with a detailed account of effects on soil organic matter. It concludes that no-tillage, pasture and reforestation are the best options for achieving sustainable soil use. Bill Payne's and Paul Vlek's chapters exploring land degradation and consequences for food security in sub-Saharan Africa are thoughtful and interesting explorations of the book's stated theme. I was struck by the statement that 'approximately 65% of . . . unsustainable land management (in sub-Saharan Africa) goes unnoticed, as atmospheric fertilization is compensating some of the depletion processes'. So, there are real problems with the maintenance of soil health if we are to increase yields and production to the values that will be required by 2050.

P.J. Gregory

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Cotton – Biotechnological Advances. Vol. 65. Biotechnology in Agriculture and Forestry. Edited by U. B. Zehr. Berlin, Heidelberg: Springer-Verlag (2010), pp. 245, £135.00. ISBN978-3-642-04795-4.

This book updates Volume 42 (1998) – also on cotton, in Springer's Agriculture and Forestry Biotechnology series. It draws its inspiration, examples and half its authors from India. And why not? With the explosion of biotech Bt cotton in India since 2002, India now has the world's largest GM cotton area and second largest cotton production (after China) and is the only country to have commercialized GM cottons in hybrids rather than varieties, with major impacts, for good and ill, on breeding requirements. The well-chosen panel of internationally renowned authors give us chapters on cotton's history; breeding systems; genomics; transformation; breeding for fibre and yield enhancement, nematode resistance; the use of single and multiple action abiotic stress genes from antioxidants to ubiquitins and explanations of DNA markers, QTL mapping, genome wide introgression, etc, with excellent and up-to-date references. Almost half the book, though, deals with insect-resistant (Bt) cotton and particularly in the Indian context – its history, efficacy, regulation, economic impact, risk of resistance development, etc. A fascinating story, but the world's other major current GM trait in cotton – herbicide tolerance – (which is not commercialized in India) rates barely a page. This is a readable and thorough guide for those who wish to understand the history, development and future prospects for advanced breeding in cotton globally (and not only of transgenic cotton). It is not a handbook of practical biotechnological techniques. It would, however, have benefitted from much tougher editing, with language, grammar and spelling errors (even in Latin names) on most pages, and multiple repetition of information across chapters.

Derek Russell