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Wild Crop Relatives: Genomic and Breeding Resources. Cereals. Edited by C. Kole. Heidelberg, Dordrecht, London, New York: Springer (2011), pp. 497, £153.00. ISBN 978-3-642-14227-7.

This book forms part of a series on the relevance of wild relatives in crop improvement, in this case cereals. All major and most minor cereals are included, including the ‘pseudocereal’ buckwheat. Specialist authors have provided the individual chapters, which follow a general layout with sections on: Taxonomy, Species description, Species distribution, Genome relationships, Genetic stocks, Uses, Examples of traits of interest, Problem issues and Future recommendations. However, knowledge varies enormously between species/genera, e.g. a classic overview is given for wheat, recent updates are included for maize, but only basic information is available for *Dasyphyrum*. An introductory chapter would have been useful, chapter order is random, there is no cross-referencing and no quality control with some chapters being disproportionate in size (e.g. over 100 pages devoted to the weedy group *Dasyphyrum* and only 11 to barley). Taxonomic dilemmas are overcome by diligent authors listing synonyms. There are some notable omissions in crop improvement schemes, e.g. little or no comment on F1 hybrids in rye and alien introgression in wheat; there is also a tendency for American authors to overlook European literature and *vice versa*. The quality of individual chapters is variable, the better ones describe domestication events, mutation, methods of gene transfer, databases, repositories of genetic stocks and production of varieties with wild traits (wild relatives are as yet largely untapped as genetic resources). The book is best regarded as an introduction to each genus.

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Principles of Ecology in Plant Production. 2nd edition. By T. R. Sinclair and A. Weiss. Wallingford UK: CABI (2010), pp. 186, £37.50. ISBN 13-978-1-84593-654-9.

This is a second edition of a book published in 1998. It has 14 chapters written and illustrated in a consistent style that is both straightforward and authoritative. The thread begins with a background on the needs of human populations, consequent environmental issues, ecological perspectives and the origin of crops. It moves through climatic factors, mainly solar radiation and temperature, and their effects on crops, then on to constraints by soil, water and plant nutrients. Two chapters dealing with in vogue topics – anthropogenic global warming and biofuels – serve well as case studies through which to illustrate the principles. This reviewer would have welcomed more in a similar vein on nitrogen and phosphorus in crop production, and in particular more on nitrogen fixation and its increasing contribution to agroecosystems in some parts of the world. A word in qualification is needed, however. Despite the title, the treatment is largely based on the methods of crop physiology and physics, and in this respect the book is excellent as an introductory text to plant production. But while ecological principles are outlined in one of the early chapters, the emphasis subsequently is on monocultures. So there is little on functional biodiversity in agro-ecosystems, the division of resource among, say, soil microorganisms, weeds and food webs, on the multiple outputs or ‘ecosystem services’ expected from croplands, or on the integrated management needed to provide such outputs – all topics that are now well within the mainstream of agro-ecological research.

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Invasive Plant Ecology in Natural and Agricultural Systems. 2nd edition. By B. D. Booth, S. D. Murphy and C. J. Swanton. Wallingford, UK: CAB International (2010), pp. 214, £37.50 (Paperback). ISBN 978-1-84593-605-1.