

Book reviews

Potato Genetics. J. E. Bradshaw and G. R. Mackay (eds). CAB International, Oxford. 1994. Pp. 552. Price £75.00, hardback. ISBN 0 85198 869 5.

The editors have attempted the difficult task of compiling a volume that covers all aspects of the genetics of a crop plant which is generally regarded as 'less than amenable' to straightforward genetical study. Inevitably they find themselves caught in a circle, trying to present the position with regard to the cultivated European potato, with reference to potato species in general and, at the same time, caught between actual knowledge of potato and the need to cover basic genetical theory. Overall I think the editors have made a valiant effort to 'square this circle' and thus balance these elements, although the reader must remember that generally the 'default setting' is *Solanum tuberosum* subsp. *tuberosum*.

The book is divided into six parts which together form this generally well constructed and carefully edited book. *Part One* unravels the origins, speciation and cytology, comprising two chapters which set the basic context against which potato genetics in general can be viewed. *Part Two* tackles both the theory and methods of genetical analysis and attempts to present a mixture of underlying theory and specific approaches as applied to potatoes. *Part Three* concentrates on tissue culture and molecular genetics (at this point I started to lose track of the status of the section headings, finding them confusing and sometimes misleading — some bold, some italics, some capitals, some left of margin, and some spaced from the text — there probably is a consistent pattern but I clearly had not been able to cope with it). *Part Four* covers a mixture of topics and is headed 'Environmental stress, Morphology and Quality', which simply reflects the 3 chapters included in this section. *Part Five* turns attention towards the important area of resistance to pests and diseases. Clearly this is a large area to cover and it tends to highlight some of the deficiencies in our knowledge of the underlying genetical determination of the characters of most interest in potatoes. For example, what, if anything, is the genetical relationship between resistance and tolerance? *Part Six*, the last of the book, is entitled Potato Breeding and covers general breeding, true seeds and gene introgression in 3 separate chapters.

As usual with a multi-authored book, there are some overlaps between chapters, some mis-matching and some gaps. There also tends, despite some effort, to be a lack of synthesis — but perhaps we are not yet at a stage where this could easily be achieved. Having said that, the book has obviously been compiled with care and thought. It represents a valuable source of references and a useful summary of our knowledge on the genetics of an

important crop species. Nevertheless, while reading the book one gets a feeling of amazement about how much we do know and equally how much we do not know about potato genetics.

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Methods to Assess DNA Damage and Repair: interspecies comparisons. Scientific Committee on Problems of the Environment (SCOPE) 52. R. G. Tardiff, P. H. M. Lohman and G. N. Wogan (eds). John Wiley & Sons Ltd. Chichester. 1994. Pp. 257. Price £45.00, hardback. ISBN 0 471 94256 1.

Any book which includes the words 'methods' and 'interspecies comparisons' in its title conjures up an image of long and turgid tomes recounting endless techniques and mind numbing lists of species differences in behaviour. It was, therefore, a delight to discover a concisely written review which conveyed the essence of an exciting and rapidly expanding field. The impetus for the book comes from the realization that our industrialized society produces increasing amounts of chemicals which pose a potential threat both to human health and the environment. A prime concern has arisen from the realization that many of these chemicals may react with DNA and therefore have 'the potential to cause cancer, mutations and adverse reproductive outcomes'. To evaluate these risks and to plan accordingly, it is necessary to understand how chemicals may interact with DNA, the rationale behind the available methods for measuring the formation of DNA damage, how cells repair and process DNA damage and how the deleterious outcomes arise from the original damaging event.

To cover this range of topics in a short and concise format would seem a near impossible task and the solution was to collect together an internationally renowned group of scientists that were the experts in each of these areas. Under the auspices of the World Health Organisation, the Scientific Group on Methodologies for the Safety Evaluation of Chemicals (sponsored by the International Program on Chemical Safety) held a Workshop at the National Institute of Environmental Health Sciences, Research Triangle Park, N.C. in March 1990. Each expert