towards the former; how to counter-argument critics regarding clonal forestry not being natural; how to use clonal forestry to the benefit of conservation; and a necessary chapter on the legal aspects of deployment as currently legislated in various countries in the world.

The editors have fulfilled their role well in making sure there are excellent cross-references between chapters and volumes and that the same terminology is employed consistently. There are good but different glossaries in each volume and both are well indexed. The mark of one of the editors, Bill Libby, occurs throughout as there are constant references to WIMPS (Widespread Intimately Mixed Plantations) and MOMS (Mosaics of Mono-clonal Stands) across a range of chapters. As sources of references to take research into the subject further the volumes will prove invaluable to both students and researchers. However, like most volumes produced today they are expensive and probably out of the reach of a student's pocket. It is to be hoped that libraries will be foresighted enough to provide for their needs.

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Biodiversity and Wheat Improvement. Edited by A. B. DAMIANA. Wiley, 1993. 434 pages. Price £59.95. ISBN 0 471 94137 9.

This book falls into the genre of the book of the conference, the latter in this case being a workshop on the 'Evaluation and Utilization of Biodiversity in Wild Relatives and Primitive Forms for Wheat Improvement' which was organized jointly by the International Center for Agricultural Research in Dry Areas (ICARDA) and the University of Tuscia, Italy and held near Aleppo, Syria in October 1992. The aims of the workshop, and thus presumably of the book, were to review progress made in evaluating and utilizing non-conventional wheat germplasm, to discuss the constraints to their use and to identify areas for future research. The emphasis of the book is thus not on summarizing what is known about wheat diversity but rather on the results of the newest research. In that respect the title is misleading. The book is divided into eight sections (Cytogenetics of the Triticeae; Taxonomy of the Triticeae; Wide-crossing and hybridization; Resistance to diseases; Abiotic stress tolerance; Evaluation of biodiversity; Utilization of diversity; Research by national programmes) sandwiched between an introduction and a summary and list of recommendations for future research. The papers within each section read like journal contributions in that the only connection between them is that they fall in the same section. The 39 contributors have generally presented the results of their latest research and whilst this is an effective approach at a workshop where there are opportunities to debate the conclusions, it is less appropriate in a book which has to stand on its own.

The difference between a special issue of a journal and a book is that although both should have a well-defined aim, the latter should reflect the aim in its structure, the contributions should complement each other, preferably by means of cross-references, and there should be a good index. This book falls down on each of these criteria although many of the papers are excellent in their own right.

Anyone familiar with the aims of ICARDA and who had read the introduction explaining the problems of agriculture in West Asia and North Africa and the importance of assessing and preserving the diverse wheat germplasm of the region, would be disappointed in the book as a whole. Editing conference proceedings is difficult. The editor normally has a clear idea about what he or she wants to achieve but is inhibited by the amount of editing needed to transform the individual contributions into a book, particularly when there are constraints of time and money and recalcitrant authors who fail to deliver manuscripts on time or who object to changes being made. In the present case, there seems to be a more comprehensive, but perhaps shorter, book struggling to get out. The key questions seem to be: what are the important attributes of wheat plants cultivated in water-stressed, low-input agricultural systems? How can the genes controlling for these attributes be discovered? What are the populations in which these genes are found? How can these genes be brought into commercial varieties? The introduction could usefully have explicitly discussed these issues in detail. As an aside, it might also have been useful to define biodiversity. At the end of the book there is an interesting list of 33 summary points and recommendations for further research which emerged from discussions at the workshop. These items could also be considered as the answers to questions which should have been posed at the start of the book. If this had been done, the structure of the book would have been rather different. Biologists often adopt a 'bottom-up' approach, starting with the fundamental level and then attempting to integrate the components in order to predict the performance of the whole plant or plant community. Work on farming systems, as at ICARDA, is based on a different paradigm. In the 'top-down' approach, the problem is first analysed in global terms by identifying the key limiting factors for further investigation. The former approach is good for investigating narrowly defined problems in depth while the latter enables progress to be made in complex issues and provides a clear intellectual framework for readers unfamiliar with the subject. The present book has an implicit 'bottom-up' viewpoint since the first sections are about cytogenetics and taxonomy while the evaluation of biodiversity has to wait till part six. If the book had been structured in

a 'top-down' manner, its impact in terms of communicating the important ideas to workers in related areas as well as to the politicians whose decisions have an enormous impact on the preservation of biodiversity might have been considerably increased. The achievement of ICARDA's goals depends on specialists in many disciplines working together and it would have been good to see more evidence in this book that this was also happening within research programmes. As a non-geneticist, I find it curious how rarely experimentation seems to be carried out to establish how far a character is stable under a range of environmental conditions. Much research still seems to be at the stage of summarizing data sets statistically rather than moving on to understanding the mechanism linking the possession of a particular complement of genes to the performance of the genotype in a farmer's field. Mechanistic crop models are by no means perfect but at the very least force us to ask how a particular feature of a genotype leads to a higher, or lower, yield in particular circumstances.

The individual papers vary in quality, as is often the case with such compilation works. The presentation is excellent which suggests hard work behind the scenes by the editor or by an editorial panel, although there are no acknowledgements to referees. At the end of each paper there is a short discussion, based on comments made at the workshop and in some cases the information would have been better incorporated within the paper. Speed of publication is an admirable goal but it is sometimes better to spend a little more time ensuring that authors take account of new ideas at the conference, perhaps by cross-referencing to other papers. The book contains a considerable amount of useful information. Unfortunately, the worst feature of the book is its index which consists almost entirely of entries for species of wheat, places, organizations, pests and diseases. Terms such as restriction fragment length polymorphism, vernalization and water use efficiency are conspicuous by their absence. In a book such as this, the titles of the individual contributions are insufficient to explain their contents in detail and a good index is essential. It is particularly unfortunate that a volume with evaluation as one of its aims does not include in the index any reference to the wide range of techniques employed. Nor indeed are biological processes such as photosynthesis indexed, thus reducing the value of the book to scientists who are neither geneticists nor taxonomists.

In summary, this is a book that specialist geneticists and taxonomists working on wheat systematics and breeding may be able to justify ordering for their Institute library. However, there is an important book with the same title still waiting to be written for a wider readership.

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Chromosome Microdissection and Cloning, A Practical Guide. By NABIL G. HABAB and MICHAEL V. VIOLA. Academic Press. 1993. 160 pages. Comb-bound. Price £27.00. ISBN 0 12 313320 3.

Another cookbook full of recipes. There are many now on the market, none really holding a candle in scope to the three volumes of what is colloquially known as 'Maniatis' (Sambrook, Fritsch & Maniatis). And it is with that veritable 'Mrs. Beeton' of the genetic laboratory that any newcomers must be compared. This book has the merit, at least, of tackling the technically difficult topic of microdissection and microcloning not treated at all in the magnum opus. That being said, the question remains 'does it do it well?', and here there is a resemblance to the proverbial egg of Mr Jones the curate.

Take the first chapter, which attempts to give an overview of chromosome morphology and structure in a space which cannot hope to do justice to the subject. Surely a pointer to the more standard texts would have been adequate, allowing an expansion of the much more important practical chapters in what is a self-designated practical book. In addition one of the important figures is decidedly unclear and poorly edited, detracting from the otherwise high standard of production. Similarly I could see little point in having a glossary of terms that will already be all too familiar to the person who is likely to use this manual. However, the chapters on the actual nitty-gritty of microdissection from chromosome preparation through to final analysis and use of the clone libraries are clearly written and useful. There are some areas that would have benefited from more detail. For instance there are very pretty pictures of a microforge and a micropipette grinder and it would also have been helpful if the text had provided some help on how to actually get these machines to make nice bends and ampullae on micropipettes. Ampullae-ended micropipettes can also be accurately calibrated as to volume using radioactivity, a useful alternative to their method of extrapolating from tip diameter. In passing there is also a (surely redundant) picture of a printer which seems to be producing, if I am not mistaken, an obstetric ultrasound image! The range of the equipment they describe is also somewhat limited. Many de Fonbrune micromanipulators are still to be found in the many labs in the U.K. and Europe, and very good they are too (de Fonbrune's name is also appended to a widely used microforge), and more modern motor-driven devices such as the Eppendorf are almost vibration free. There are also more important areas that are understressed. After telling us that phase contrast optics are essential when acquiring a microscope for microdissection I can find no mention of phase contrast imaging, which has its own problems when used at high power, and the tricks and adaptations that go towards solving them. Such microscopy can be very useful in imaging chromo-