
 Book Reviews

Van Harten, A.M. and Zeven, A.C. (eds.): Proceedings of the Conference Broadening the Genetic Base of Crops.

Wageningen, the Netherlands: Pudoc 1979. 347 pp. Cloth bound Dfl. 80,—

This book contains 52 lectures given at a conference of scientists of different disciplines 'looking for the best way to maintain genetic variation in collections and facing the practical consequences of genetic erosion' (the editors). The conference was held from July 3-7, 1978, at the Institute of Plant Breeding of the Agricultural University Wageningen. Members of the organizing committee had been J. Sneep, J.G. Hawkes, G.Th. Hermsen, H. Lamberts, N.G. Hogenboom, H.F. van Dissel, A.C. Zeven and A.M. van Harten. The 8 main topics dealt with in this book are: 1. Genetic poverty of major crops in Europe; 2. Collecting within Europe; 3. State, maintenance and use of European and other genebanks; 4. Contribution of wild species and primitive forms to the performance of modern cultivars; 5. Transfer of quantitative characters from wild and primitive forms; 6. Biosystematics and evolution of species barriers; 7. Genetic methods of overcoming breeding barriers; 9. Future: advanced and new breeding methods.

The first conference on European and Regional Gene Banks in 1970 was organized by the European Association for Research on Plant Breeding (Eucarpia), and in a sense the 1978 conference at Wageningen can be looked upon as a continuation of this. The genetic poverty of major crops in Europe is judged differently. While for example the poverty of the potato is stressed (Hawkes), the present gene pool of sugarbeet is not regarded as dangerously narrow. On the other side, the almost cytoplasmic uniformity in sugarbeet is disturbing (Bosemark). Though the first two topics are confined in the first place to European situations the book contains, in these as well as in the following sections, many valuable contributions to the important aim of broadening the genetic base of crops. These are discussed from different points of view e.g. of evolutionists, plant breeders, population geneticists and 'gene bankers'. In addition interesting historical notes on plant introduction are given in many papers.

The contribution of wild species and primitive forms to the performance of modern cultivars is described for species of *Agropyron*, *Solanum*, *Tripsacum*, *Secale*, *Triticum*, *Hordeum* and grasses. Within the chapter on transfer of quantitative characters from wild forms, Demarly gives a survey of his concept of linkat and discusses the impact of domestication on the structural organization of genes.

Species barriers and the overcoming of breeding barriers are discussed for *Lycopersicon*, *Solanum*, *Secale* and *Hordeum*. The last chapter deals with advanced and new breeding methods in the future, such as somatic hybridisation and transfer of genes via plasmids. Cocking stresses that new breeding methods 'may be available, but for various sound reasons, economic or otherwise, they may not be implemented'. J. Sneep, in his concluding remarks as well as in his introductory paper, gives a realistic assessment of the significance for plant breeding of gene transfer and broadening the genetic base. This will demand a great effort from breeders to build up a useful variety. Such efforts are only crowned with success after extensive breeding work.

These proceedings show the importance that genetic erosion could have for plant breeding and how it could be overcome. It is not only valuable for 'gene bankers' and plant breeders, but also for geneticists and all biologists who are interested in variation with respect to the important aspects of genetic resources for cultivated plants.

G. Wricke, Hannover

Sengbusch, P. v.: Molekular- und Zellbiologie.

Berlin-Heidelberg-New York: Springer 1979. 671 pp., 616 figs., 68 tabs. Hard bound DM 88,—

Molecular biology was predicted by Gunther Stent to be at an end by 1968. But it appears to have revived in the seventies and evolved to cell biology as a high intensity science. This justifies another textbook in the field, demonstrating that evolution in the title. This book has a fine lead-in to the most fascinating aspects of modern biology. It does not pretend to be an introduction to molecular biology or even to general biology, rather, it is intended to be an advanced guide for postgraduates and interested colleagues in the field. In 70 well documented chapters the following topics are treated: nucleic acids, proteins, membranes, cytoskeletons and contractile structures, supramolecular structures, cells, multicellular systems. The book is up to date throughout (July 1979), very well written, clear and without arrogance. It is an excellent base for an objective evaluation of the emotionally loaded discussion about genetic engineering.

H.F. Linskens, Nijmegen

Kiepe, H.: Vergleichende Untersuchungen zur Färsenvornutzung in Reinzucht und Kreuzung. Gießener Schriftenreihe Tierzucht und Haustiergenetik, Heft 40.

Berlin-Hamburg: P. Parey 1978. 108 pp., 1 fig., 29 tabs. Soft bound DM 20,—

The author of this book, which is part of the well-known 'Giesener Schriftenreihe' series of concise publications, deals with experimental efforts directed towards preutilizing heifers, a method of increasing beef production which is of great current interest. The number of available calves has been, and still is, the limiting factor in beef production. Since profitable fattening of heifers is not possible under current economic conditions, an economical method is proposed in which fattened and crossbred heifers are additionally utilized through the production of one calf. A control group of Frisian or black and white heifers was compared with black and white crosses with spotted and Charolais sires, and their superiority in economically important characteristics (fattening and slaughtering performance, weight at birth, grading or classification according to quality, degree of fattening, and evaluation of live and slaughtered carcasses) was established. Further fattening subsequent to calving does not produce any additional economic advantage, so that it is advisable for the animals to be slaughtered without continuing fattening. Understandably, experimental results to date cannot answer all questions. The number of heifers in each group, the breeds used and their individual genotypes, the restriction to intensive fattening of stock, the time of insemination, etc. raise questions which will be discussed in later publications. Mention must also be made of the remarkable method of determining the optimum date for insemination from the moving average of four intravaginal measurements of electrical resistance, which in this work led to a non-return rate of 90.5 percent, as well as of the observation that, after the fading away of readiness for service, inseminated heifers produced 77.8 percent of bull calves. The book is aimed at both scientists and practical men, interested in questions of beef production and reproduction, respectively.

H. Brandsch, Leipzig