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**Book review**

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Lange, W.; Zeven, A. C.; Hogenboom, N. G. (eds.): **Efficiency in Plant Breeding. Proceedings of the 10th Congress of the European Association for Research on Plant Breeding, Eucarpia, Wageningen, The Netherlands, 19–24 June 1983.** Wageningen: Pudoc 1984. 383 pp., several figs. and tabs. Hard bound Dfl. 110,-.

The 10th triennial Congress of Eucarpia was held in Wageningen, where this European plant breeders' association had been founded in 1956. For the anniversary meeting the Dutch organizers had invited a number of outstanding scientists to lecture on the status and recent developments in the methods of plant breeding which crucially determine the genetic efficiency of the desired selections. The programme was divided into two groups of topics, one dealing with the Improvement of Selection Methods applicable in the daily nursery work and the other dealing with Breeding at the Cell Level by which new horizons for the genetic manipulation of crop plants were recently opened.

The classical selection methods, which have been and will continue to be the essential basis of all plant breeding efforts are still far from being optimized. This results from the fact, that many details of the complex genetic structure at the individual and/or populational level of crop plants are not yet sufficiently understood. Six of such areas were treated by four contributions each: (1) The effects of intergenotypic competition on selection in a population of genotypes for high performance in monoculture or mixture, (2) the use of indirect selection and (3) of selection in early generations, (4) the improvement of harvest index, (5) the development of better selection criteria and finally (6) the breeding of crops which more efficiently utilize energy, nutrients, and water.

Breeding at the cell level has been applied by plant breeders for decades in selections within populations of gametes (7). Admittedly, many of these classical approaches remained obscure here also. But so far, modern *in vitro*

techniques have achieved hardly more insight into the genetic complexity and the possible chances of controlled changes. Even pure genetic reproductions for germplasm storage by *in vitro* techniques (8) still include many problems. Notwithstanding, there is a high potential in the selection for plant variation using millions of cultured cells on appropriate media in a few petri dishes (9); and it is only after plant cell techniques have arrived at the successful production of protoplasts that isolated organelles and genes can be assumed to become subject to directed transfer between even distantly related species (10). Such a potential of cell and gene techniques in crop plants was competently reviewed in a summarizing lecture by R. A. Schilperoord.

Indeed, the ten sessions of the Congress in their written version are well-suited for presenting an adequate picture of aspects of modern crop selection methods. Each contribution is well-illustrated and furnished with many relevant references for further consultation. But although the topics were competently selected to be representative they do show only a part of today's plant breeding research. This limitation of a congress report accepted, the present one can be estimated as a most informative, comprehensive and actual edition, which will be welcomed by active plant breeders as well as by those who are interested in the rapid progress of this area of applied science.

The final fifth of the book is filled in an alphabetical order of the authors with the abstracts of 75 posters which were exhibited in the congress halls. The purpose of such posters is to attract the participants of a meeting by intelligible sketches and research drafts in order to initiate personal discussions. It may be questioned, whether the abstracts without such illustrations (and mostly without references) will create similar stimulations to the reader of the present proceedings.

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