

## Foreword

Plant breeding aims at the improvement of well defined characters of crops. In his research the breeder is often faced with complicated interactions between genotype and environment. A clear understanding of these interactions may be essential for the breeding methods to be used as well as for the interpretation of results.

Efficient research in this field requires that experiments be made under controlled conditions. Accurate control of light, temperature and humidity is only feasible in small isolated rooms and is extremely expensive. However, plant breeding research generally requires a good deal of space as experiments often involve many and rather large plants. Therefore a compromise has to be found between ideal environmental control, space and costs.

When in the early 1950's the equipment of the Institute for Horticultural Plant Breeding (IVT) was being considered a phytotron was judged to be indispensable. With 6 temperature-controlled glasshouses and 8 growth rooms it was expected that this phytotron would meet most needs of our plant breeders. Built in 1953 it was the most expensive gadget of our institute, and proofs of its value for breeding research were anxiously awaited.

Since then 25 years have elapsed. In this period the IVT phytotron, the oldest one in Wageningen, not only functioned very well technically but entirely lived up to our expectations and turned out to be a priceless tool for research. Up to now IVT research workers have already published 95 papers on investigations for which the phytotron was used.

The silver jubilee of our phytotron inspired the staff of IVT to publish another 15 original scientific papers that report the results of phytotron experiments. Dr L. Smeets, physiologist in charge of our phytotron, took the initiative. The widely different subjects treated in these papers prove once more in how many ways plant breeding can profit by the use of a phytotron when it is used in a creative and effective way.

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