Hübl, E., Kutschera-Mitter, L., Lichtenegger, E., Sobotik, M. (ed.): **Root Ecology and its Practical Application.** - International Society of Root Research, Klagenfurt 1991. 187 pp. Softcover, AUS 100.00.

The publication contains the abstracts from the 3rd Symposium of the International Society of Root Research held in Vienna, Sept. 2-6, 1991. More than 310 abstracts cover a great variety of the problems starting with the root cell level and ending with the simulation of the root system complexity. The publication is divided into several parts according to the sessions taking place at the Symposium. Great attention is devoted to the root growth and development under water stress, the lack of nutrients, the heavy metal deposition and other environmental stresses.

The relations between below and aboveground plant parts are mostly discussed in the terms of the root/shoot ratio, biomass production and carbon allocation within the plant body. The root tropisms of the crop plants are mostly described as the models presented by several authors. A historical review of research on the root tropisms is given by Prof. L. Kutschera-Mitter (Klagenfurt), the organizer-in-chief of the symposium.

The second part of the publication consists of the abstracts focused on a practical application of root research in agriculture, horticulture, agroforestry and forestry. Last but not least attention is focused on mycorrhiza, the nitrogen fixing bacteria and soil animals. The ecological consequences of the root growth in natural conditions are also discussed (*e.g.* root competition, biomass production, nutrient cycling). The last part of the publication represents an excellent review of the most recent methods and techniques used in root research. Some of the first results are presented to support a more general application of these methods. The publication can be recommended to all researchers who are dealing with plant roots both at theoretical and practical levels.

M. BARTÁK (*Brno*)

Dennis, E.S., Llewelyn, D.J. (ed.): **Molecular Approaches to Crop Improvement.** - Springer Verlag, Wien - New York 1991. 166 pp.

The book consists of eight articles by different authors and deals with different aspects of the plant gene engineering. It was not written as proceedings of a symposium, but just to give the up-to-date information in several topics related to the plant breeding impacts of the gene engineering.

One of the most interesting chaptors deals with genetic transformations in potato and it was written by authors from the Luisiana State University and the International Potato Center in Peru. The article describes the introduction into the potato genome of the synthetic gene constructed to code a new potato storage protein with an optimal amino acid composition to complete the natural patatins, which are slightly deficient in methionine and cysteine. The other interesting genes introduced into the potato genome are the insect genes for antibacterial and antifungal proteins lysozymes, attacins and cecropins. A considerable improvement of the potato protein quality and pest resistance can be expected in new transgenic cultivars, which will certainly appear in the near future.

Another very interesting chapter, written by M.A. Shatwer and B.A. Larkins deals with the present experiments and possible future prospects improving the protein quality of the seeds by means of genetic engineering. Another chapter, written by B.R. Lyon, compiles the results in the engineering of the microbial herbicide detoxifying genes in the plants. Another one, written by W. Schuch, deals with the manipulation of the plant gene expression using antisense RNA. One chapter is devoted to the molecular biology of flavonoid pigment biosynthesis in the plants.

This short content shows that this book is a very useful summary of the contemporary results achieved in the plant molecular genetics, branch which has an important impact in the plant breeding.

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