Pessarakli, M. (ed.): **Handbook of Plant and Crop Stress.** - Marcel Dekker, New York - Basel 1999. 1254 pp. USD 235.00. ISBN 0-8247-1948-4.

Environmental and biotic stress is an inevitable component of any environment. It results in a less than optimal individual plant performance (growth and reproduction) but, consequently, also in optimization of plant forms and functions in evolutionary time scale.

Contributed by more than 100 co-authors the handbook represents a comprehensive compendium on vast majority of plant abiotic stress factors. 56 contributions on more than 1200 pages mostly review specific topics on plant response to adverse environmental conditions. Grouped into 11 chapters, they deal with salinity and sodicity stress, pH extremes of soil, phosphorus deficiency, various aspects of water stress, high and low temperature and light, UV radiation and oxidative stress, ozone, atmospheric pollution, and heavy metal stresses. There is a specific focus on herbicide action (agrochemical stress) in two contributions. Special chapter is devoted to photosynthesis, development, and water-use efficiency of plants grown under elevated carbon dioxide. Molecular, cell, tissue, and the whole-plant responses to the specific stress factor form a substantial part of the handbook. Stress signaling and genetic aspects of stress action are addressed in several contributions. This knowledge is scaled up in considerations of the beneficial aspects of stress in plant evolutionary success in the final chapter.

Crop response to various stress impacts is the leading motif of the book. The information on controlled stress application and its practical benefit in quality of plant production and in plant reproduction, on stress alleviation, soil amendments, and management and reclamation of salt-affected soils make the handbook a useful and attractive tool for agronomists, foresters and horticulturists. Regretfully, there is not a separate plant and crop species index. The general index, although very extensive, partly loose its applicability due to rather low specificity: for example the index words "conditions", "stress", "factor(s)", "high" or "level(s)" each with several hundred non-structured references seems to be too general.

Apart from the above criticism, the book is an invaluable source summarizing up-to-date and extensive information on abiotic stress responses in a single text and referenced with more than 7500 citations! It is the second, revised and extended edition, however, as almost two thirds of the original book have changed, the renewed edition embodies the latest original source of information. Every plant scientist and environmentalist will appreciate having the book in his/her bookshelf.

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