

Pessaraki, M. (ed.): **Handbook of Plant and Crop Stress**. - Marcel Dekker, New York - Bassel - Hong Kong 1994. 697 pp.

It is well known that salinity, drought, heat, cold, flooding, pathogenesis and other environmental stresses considerably decrease plant growth and yield. Nevertheless, the mechanisms by which stresses affect plant metabolism are still not completely understood. Therefore these problems are in the centre of interest of agricultural scientists and each new book in this field is welcomed. This handbook is a comprehensive, up-to-date reference that effectively addresses all the factors and their interrelationships related to plant stress that are very rarely combined in a single text. It has been prepared by fifty most competent specialists from twelve countries.

The book is organized into eight parts. The Part I consist of three chapters dealing with salinity and sodicity in soils. The further three chapters of the Part II concern general aspects of salinity and mechanisms involved in salt tolerance. Part III and further parts concern not only responses of plants to salinity but also to other environmental stresses (drought, heat, chilling, cold, anaerobiosis, pathogenesis, wounding). The chapters of Part III are devoted to effect of stresses on nutrient uptake, nitrogen metabolism, protein synthesis, photosynthesis and growth. Also possibility of application of seawater is discussed here. The chapters of the Part IV try to elucidate effects of stresses on the cellular and molecular level. They deal with the analysis and control of cell elongation, the cell water relations including osmotic adjustment, cell wall extensibility, variations in genome size, changes in transcription and translation, plant hormone systems and especially the abscisic acid. The surveys of responses of individual crops (beans, alfalfa, maize, soybean, forage legumes, fodder shrubs of arid lands, fiber- and fodder-producing halophytes) to environmental stresses and evaluation of their tolerance are presented in the Part V. The Part VI introduces plants suitable for future cultivation under stressful conditions and strategies for improving plant tolerance. The Part VII presents information on irrigation of crops with low-quality water: saline water or effluent water. Finally, the attention is paid to beneficial aspects of stress on plants (Part VIII).

The book is well arranged: the readable text is accompanied by many illustrative figures and tables. It is referenced with nearly 3000 bibliographic citations. It can serve as a good source of information for soil scientists, plant physiologists, agronomists, foresters, environmental scientists, as well as teachers and students in agricultural disciplines.

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