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In last several decades there is great demand for increasing food production. The present book includes eight chapters that cover extensively both theoretical and practical aspects of crop physiological processes that have profound effects on production potentials of major agricultural crops.

The first two chapters deal with plant canopy architecture (plant dimensions, leaf characteristics, tillering, breeding and management strategies for ideal plant architecture) and root architecture (shoot-root ratios and root morphology, growth parameters, methods of measurement, distribution in soil, development, drought resistance, strategies for maximizing root systems, *etc.*). Further chapter is devoted to physiology of growth and yield components: dry matter production and grain yield, duration of reproductive growth period and grain filling period, management strategies for ideal yield components, *etc.*

The following four chapters discuss crop yield with connection to photosynthesis, source-sink relationships, and carbon dioxide. The impact of global climate change, mainly the still increasing atmospheric CO₂ concentration, and photosynthesis are the main problems discussed (crop and canopy photosynthesis, C₃ and C₄ plants, radiation use efficiency, leaf area index and partitioning of assimilates, respiration during photosynthesis, and management strategies for maximizing photosynthesis).

Chapter 5 deals with problems of source-sink relationships with respect to crop yield (source-sink

transition, physiological aspects of source-sinks relationships in annual crop plants, source-sinks concepts relative to nitrogen and crop development, relationship between sink and respiration, formation of yield sinks, cultivar improvement, *etc.*). Further chapter summarized carbon dioxide and crop yields (total carbon in soils of the world, carbon dioxide and plant growth, photosynthesis and water use efficiency, radiation use efficiency, and sequestration of carbon dioxide).

Seventh chapter is devoted to physiology of drought in crop plants (water use efficiency, crop yield relative to water stress, drought and nutrient acquisition, drought resistance mechanisms, shortened growth duration and reduced leaf area, root growth, osmotic adjustment, nonstomatal water loss, *etc.*). Physiology of mineral nutrition is dealt with in the last chapter (root morphology, active and passive ion transport, ion uptake mechanisms, ion absorption measurement, ion translocation, physiological functions of nutrients, beneficial and toxic elements, *etc.*).

The book is well edited and produced. It is supplemented with an appendix "Plant Species", presenting 45 agricultural plants with their English and Latin names. Bibliographical references accompany every chapter (altogether more than 1200 references), and Index containing almost 780 items.

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J. ČATSKÝ (*Praha*)