

Nátr, L.: **Fotosyntetická Produkce a Výživa Lidstva**. [Photosynthetic Production and Nutrition of Mankind.] - ISV Nakladatelství, Praha 2001. 423 pp. CZK 389.00. [In Czech.] ISBN 80-85866-92-7.

The life on earth is absolutely dependent on green plant photosynthesis – the key process forming saccharides from carbon dioxide, and solar radiation as a source of energy. The author of this textbook, a professor of plant physiology on Charles University in Prague, and former chief scientist studying photosynthetic production has summarised the history of studies, as well as our recent knowledge on the topics.

The book contains 9 chapters. The first three ones deal with the growing number of inhabitants on the Earth, and consequences of their activities (impacts of climatic changes, sources and use of energy, changes in atmosphere, waters, and land, biodiversity and species extinction, migration and introduction of species, human health, global food production, photosynthetic production of plants on land, history of plant utilisation by man, yield increase of agricultural plants and its future, soil characteristics, mineral elements in soils, uptake of mineral elements by plants, *etc.*).

The extensive chapter 4, “Photosynthetic principles of agricultural yield”, focuses on photosynthesis as basis of biomass formation (mechanism, absorption of photon energy, carbon dioxide fixation, C₃, C₄, and CAM plants, limiting factors of photosynthesis, plastid pigments, photosynthesis and growth, *etc.*). Further, characteristics of solar radiation (photon energy, light and photosynthetically active radiation, absorption, transmission, and reflection of radiation, emission of radiation and its spectral composition), radiation absorption in canopy, and utilization of radiation energy are dealt in this chapter.

Finally, the last part of this chapter is devoted to transport and distribution of assimilates (source and sink, photosynthesis and sink, assimilate transport and distribution, dry matter production, harvest index, *etc.*).

The reasons for long-term increase in yields in the past are discussed in the chapter 5: the role of breeding in growing yields (selection, new cultivars, ideotype), application of mineral elements (fertilisers and production, protein production, energy in agriculture), protection against weeds, diseases and pests (integrated plant protection, biological control, pesticides), and irrigation (water relations, water use efficiency). The final part of this chapter deals with other problems (growth regulators, stressors, adaptation syndrome, weather effects, “green revolution”, Jevons paradox, *etc.*).

Chapters 6 and 7 present perspectives of agricultural production (utilisation of non-renewable natural resources, rationalisation of nitrogen nutrition, enhancement of harvest index, alternative agriculture, gene engineering and use of transgenic plants, improvement of food quality, energetic crops, biotechnologies, utilisation of CO₂ enhancement, precise agriculture, mathematical models, sustainable development, future agriculture, *etc.*).

The book is accompanied with relevant literature (almost 700 references), however, the readers would surely welcome even a short subject index. The book may bring useful information on plant physiology not only to general, Czech and Slovak speaking readership, but also to undergraduate and postgraduate students, post-doctoral fellows, and teachers.

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