

(D. Robertson). As usual, functional genomics is important.

Literature on visualizing chromosome structure and organization is reviewed by E. Lam *et al.* The main technique is fluorescence probe-based hybridization enabling by modern microscopic instruments detailed studies of chromatin organization and dynamics. Selective removal of short-lived regulatory proteins controls many processes of growth and development of plants (J. Smalle and R.D. Vierstra). The pathway involves ubiquitin and a 2-MDa protease complex.

The last review (S.P. Long *et al.*) deals with an important problem of future human life: rising of atmospheric CO<sub>2</sub> concentration and its effect, global

change of climate. The review is based on the highest amount of references per chapter in this volume (222). Important are results from the Free-Air CO<sub>2</sub> Enrichment (FACE) studies using controlled elevation of CO<sub>2</sub> concentration in special enclosures. Comparison of relative changes of many photosynthetic and other parameters in different plant types (Fig. 6) gives clear view on eventual down-regulation and acclimation of stomatal and photosynthetic production functions.

All reviews end with description of future perspectives of the given research field. A detailed subject index is supplemented. Helpful is also the cumulative index of authors of volumes 45 - 55 and chapter titles in these volumes.

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Otegui, M.E., Slafer, G.A. (ed.): **Physiological Bases for Maize Improvement.** - Food Products Press, New York - London - Oxford 2000. 218 pp. USD 69.95. ISBN 1-56022-889-X.

The book is based on original presentations made by the speakers at the international workshop which took place at the University of Buenos Aires in Argentina in 1998 (October 8 - 9). The principal aims of this workshop and of this book, too, are to integrate new scientific views and ideas on the physiological bases of genetic improvement of maize yield and to define prospective physiological characteristics that might be useful in realistic breeding programmes. Authors of this publication addressed several important topics. They are analysing tools to maximize yield potential under different environmental regimes (for instance characteristic of high latitude, temperate, and tropical regions), as well as physiological keys modifying crop responses to environmental stresses (such as water, nutrients, pests and weeds). They are also striving for description how these traits are identified and used in breeding programmes, and how crop modelling can help in these processes.

The book is divided into eleven chapters. Majority of them are focused on the physiological bases of maize breeding for higher yield potential (chapter 2 through 5: Improving maize grain yield potential in a cool environment, Processes affecting maize grain yield Potential in temperate conditions, Improving maize grain yield potential in the tropics, Factors affecting kernel number in maize) and on tolerance to biotic and abiotic stresses (chapter 6 through 9: Maize improvement for drought-limited environments, Strategies to maintain ovary and kernel growth during drought, Variation in apical dominance and its implications for herbivory resistance, Competitive ability, and biomass partitioning,

Breeding maize to face weed problems). These chapters are preceded by an introductory chapter discussing roles of physiology in future maize breeding (chapter 1: Is there a niche for physiology in future genetic improvement of maize yields?). The last but one chapter deals with mathematical models (chapter 10: Use of simulation models for crop improvement). Chapter 11 offers a synthesis of the workshop discussion, based on selected poster presentations on yield potential and stress tolerance (Recent research on maize grain yield in Argentina).

Contributions of the authors from research centres in Argentina, Australia, Canada, Mexico, USA and Zimbabwe were prepared in a similar layout. They consist of an introduction, main part, summary, conclusions and a bibliography. They are written by comprehensible language, clearly arranged, supplemented with simple pictures and charts appropriate for this type of publication. There is only missing, in my opinion, a chapter discussing and integrating all results of scientific research, ideas and visions from workshop contributions into a general conclusion.

This book is worth reading. I can recommend it mainly to researches, plant physiologists and breeders, working in different fields related to maize yield as well as to other cooperating specialists (*e.g.* agronomists, crop ecologists, entomologists, weed scientists). This book could be also very helpful for advanced undergraduate and postgraduate students in courses on plant/crop physiology, plant breeding, crop production, and other related subjects.

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