

Book reviews

Senescence processes in plants

edited by Susheng Gan

Annual Plant Reviews 26 (2007) Blackwell Publishing Ltd, Oxford, UK; Ames, Iowa: and Carlton, Australia. xviii + 322 pages

The 13 chapters in this book cover a broad range of senescence topics some of which will be excellent starting points for beginning graduate students, but three of them (Chapters 1, 6 and 12) should be particular interest to any one teaching beginning plant physiology or to provide a teacher of general botany with a clear sense of the current state of the field.

Much of the recent, technology-driven research will require some catch-up homework, but chapter 1 should be required reading for all plant biologists, many of whom seem to have become determined to find a historically unifying definition. As with most 'theme' publications, there are points where the theme gets lost in author enthusiasm for a pet approach, but there is considerable reward waiting for those who work to grasp the considerable achievements of the last 10-20 years.

The Physiology of Crop Yield, 2nd Ed. 2006

Robert KM Hay and John R Porter

Blackwell Publishing, Oxford, UK; Ames, IA; Carlton, Australia

The book was first published in 1989 as *An Introduction to the Physiology of Crop Yield*. I am mystified why the authors and the publisher chose to make it a 2nd edition when neither of the original authors contributed and the contents are substantially different from the so-called first edition. The book is indeed an introductory text and a well organized presentation. However, I am surprised that it does not point more forcefully to the future

especially given the authors' hope that it "will contribute to the education, training and perhaps the inspiration of the new generation of crop scientists, who will need to have broad perspective from the ecosystem through the crop and plant to the gene." Given that the target is advanced undergraduates it is reasonable to assume that users of the book will have a sound understanding of basic ecology and at least know the basics of modern genetics and the techniques that are being considered as steps to engineering crop plants for increased yield. If this is indeed the case then it is likely that the reader will find the book useful in spite of the fact that there is little consideration of potentially new crops.

This leads me to my only concern with the book. By 2005, when presumably the book was going to press, it was clear that we needed to understand native species as crops. Long term work by ecologists such as David Tilman (University of Minnesota) to cite just one example, point to a really important redirection for the way of thinking for crop yield and productivity (for most recent work see references cited below). It seems that the agronomy community is none too keen on this idea, which makes it essential for other plant biologists to put this book on their shelves and on their students' reading lists. That way the messages will be more widely read and students and colleagues in all areas of plant sciences will have some understanding of the background and the opportunities in studying crop biology. Without such broad awareness, I fear that the molecular biologists' efforts to increase yield through gene engineering will remain isolated and soon become mired in controversies about ecological and agricultural harms and benefits.

References:

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- Clark, C.M. and D. Tilman. 2008. Loss of plant species after chronic low-level nitrogen deposition to prairie grasslands. *Nature* 451:712-715.
- Tilman, D. et al. 2006. Carbon-negative biofuels from low-input high-divers-