

BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE

Understanding and improving crop photosynthesis

Edited by Dr Robert Sharwood
Western Sydney University, Australia



 burleigh dodds
SCIENCE PUBLISHING

AVAILABLE NOW

About the book

The book explores our understanding of the general components of C_3 photosynthesis, including its biochemistry, as well as the recent advances in techniques for improving photosynthesis, focussing primarily on light harvesting and optimising chloroplast function/light conversion.

It showcases how farmers can utilise their understanding of the science behind this key process to optimise their yields and achieve successful crop production.

About the editor

Dr Robert Sharwood is Senior Lecturer and Vice Chancellor's Fellow in the Hawkesbury Institute for the Environment and the School of Science at Western Sydney University, Australia. He was formerly an ARC DECRA Fellow at the Australian National University.

Understanding and improving crop photosynthesis

Available in print and digital formats:

ISBN - print 978-1-80146-129-0

Pages 304

Pub. Date January 2023

Price £140/\$180/€170/C\$240

Series No AS130

For a complete list of titles visit www.bdspublishing.com

T: +44 (0) 1223 839365

E: info@bdspublishing.com

www.bdspublishing.com

 @bdspublishing

 Burleigh Dodds Science Publishing

 burleigh dodds
SCIENCE PUBLISHING

Understanding and improving crop photosynthesis

Edited by: Dr Robert Sharwood, Western Sydney University, Australia

Part 1 General

1. Understanding the biochemistry of C_3 photosynthesis in crop plants: *C. A. Raines, A. P. Cavanagh, C. Afamefule, K. Chibani, H. Gherli, P. Lopez, V. Mengin, B. Moreno-García and S. Wall, The University of Essex, UK*
2. Understanding the genetics of C_3 photosynthesis in crop plants: *P. Carvalho, G. Elias da Silva and N. J. M. Saibo, Instituto de Tecnologia Química e Biológica António Xavier da Universidade Nova de Lisboa (ITQB NOVA), Portugal*
6. Modifying mesophyll conductance to optimise photosynthesis in crops: *Coralie E. Salesse-Smith, University of Illinois at Urbana-Champaign, USA; Steven M. Driever, Wageningen University and Research, The Netherlands; and Victoria C. Clarke, The Australian National University, Australia*
7. Modifying canopy architecture to optimize photosynthesis in crops: *Anthony Digrado and Elizabeth A. Ainsworth, Global Change and Photosynthesis Research Unit, USDA-ARS and University of Illinois at Urbana-Champaign, USA*

Part 2 Improving photosynthesis: light harvesting

3. Interactions between photosynthesis and the circadian system: *Marina Viana Queiroz, Universidade de São Paulo, Brazil; and Martin William Battle and Matthew Alan Jones, University of Glasgow, UK*
4. Modifying photosystem antennas to improve light harvesting for photosynthesis in crops: *Min Chen, The University of Sydney, Australia; and Robert E. Blankenship, Washington University in St Louis, USA*
5. Relaxing non-photochemical quenching (NPQ) to improve photosynthesis in crops: *Johannes Kromdijk, University of Cambridge, UK and Carl R. Woese Institute for Genomic Biology, University of Illinois at Urbana-Champaign, USA; and Julia Walter, University of Cambridge, UK*

Part 3 Improving photosynthesis: optimising chloroplast function/light conversion

8. Modifying photorespiration to optimize crop performance: *Xinyu Fu, Kaila Smith, Luke Gregory, Ludmila Roze and Berkley Walker, Michigan State University, USA*
9. Maximizing the efficiency of ribulose bisphosphate (RuBP) regeneration to optimize photosynthesis in crops: *Thomas D. Sharkey, MSU-DOE Plant Research Laboratory, Michigan State University, USA*
10. Improving proteins to optimize photosynthesis: *James V. Moroney, Ashwani K. Rai, Hiruni Weerasooriya and Remmy Kasili, Louisiana State University, USA; and Marylou Machingura, Georgia Southern University, USA*