

BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE

Achieving durable disease resistance in cereals

Edited by Professor Richard Oliver, formerly Curtin University, Australia



 burleigh dodds
SCIENCE PUBLISHING

AVAILABLE NOW

About the book

This collection provides an authoritative review of key advances, from better understanding of pathogen biology/epidemiology and plant-pathogen interactions, to identifying sources of resistance and advances in techniques for breeding new varieties. It reviews research on achieving durable resistance to diseases such as leaf rust, Fusarium head blight and Septoria tritici blotch.

About the editor

Professor Richard Oliver has recently retired from his position as John Curtin Distinguished Professor in the Centre for Crop Disease Management at Curtin University, Australia. Amongst other honours, Professor Oliver is an Honorary Fellow of the National Institute of Agricultural Botany (NIAB).

Achieving durable disease resistance in cereals

Available in print and digital formats:

ISBN - print 978-1-78676-601-4

Pages 970

Pub. Date October 2021

Price £180/\$235/€215/C\$305

Series No AS106

Order via our online bookshop at <https://bdspublishing.com>, your usual book supplier, or pass to your librarian.

Enquiries to info@bdspublishing.com

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

Achieving durable disease resistance in cereals

Edited by: Professor Richard Oliver, formerly Curtin University, Australia

1. Global patterns of cereal diseases and the impacts of breeding for host plant resistance: Serge Savary and Laetitia Willcoquet, Institut National de Recherche pour l'Agriculture, l'alimentation et l'Environnement (INRAE), France

Part 1 Fungal diseases of cereals: rusts

2. Advances in understanding the biology and epidemiology of rust diseases of cereals: Vanessa Bueno-Sancho, Clare M. Lewis and Diane G. O. Saunders, John Innes Centre, UK
3. Advances in identifying stripe rust resistance genes in cereals: Tianheng Ren, Zhi Li, Feiqun Tan, Cheng Jiang and Peigao Luo, Sichuan Agricultural University, China

Part 2 Fungal diseases of cereals: Fusarium head blight

4. Advances in understanding the epidemiology of Fusarium in cereals: Stephen N. Wegulo, University of Nebraska-Lincoln, USA
5. Cereal-Fusarium interactions: Improved fundamental insights into Fusarium pathogenomics and cereal host resistance reveals new ways to achieve durable disease control: Claire Kanja, Ana K. Machado Wood, Laura Baggaley, Catherine Walker and Kim E. Hammond-Kosack, Rothamsted Research, UK
6. Advances in genetic improvement of durable resistance to Fusarium head blight in wheat: Guihua Bai, USDA-ARS, USA

Part 3 Fungal diseases of cereals: Septoria tritici blotch

7. Advances in understanding the epidemiology of Septoria tritici blotch in cereals: Stephen B. Goodwin, USDA-ARS, USA
8. Understanding plant-pathogen interactions in Septoria tritici blotch infection of cereals: Y. Petit-Houénot and M.-H. Lebrun, UMR Bioger, Université Paris Saclay, INRAE, AgroParistech, France; and G. Scalliet, Syngenta Crop Protection AG, Switzerland
9. Advances in breeding techniques for durable Septoria tritici blotch (STB) resistance in cereals: Harsh Raman, NSW Department of Primary Industries, Australia

Part 4 Fungal diseases of cereals: Septoria nodorum blotch and spot blotch

10. Understanding the plant-pathogen interaction associated with Septoria nodorum blotch of wheat: Gayan K. Kariyawasam, North Dakota State University, USA; and Timothy L. Friesen, Edward T. Schafer Agricultural Research Center, USDA-ARS, USA
11. Advances in genetic mapping of Septoria nodorum blotch resistance in wheat and applications in resistance breeding: Min Lin and Morten Lillemo, Norwegian University of Life Sciences, Norway
12. Advances in breeding techniques for durable resistance to spot blotch in cereals: Ramesh Chand, Institute of Agricultural Sciences, Banaras Hindu University, India; Sudhir Navathe, Agharkar Research Institute, India; and Sandeep Sharma, Institute of Agricultural Sciences, Banaras Hindu University, India

Part 5 Fungal diseases of cereals: net blotch

13. Advances in understanding the epidemiology, molecular biology and control of net blotch and the net blotch barley interaction: Anke Martin, Barsha Poudel and Buddhika Amarasinghe Dahanayaka, Centre for Crop Health, University of Southern Queensland, Australia; et al.
14. Understanding plant-pathogen interactions in net blotch infection of cereals: Karl M. Efertz, Shaun J. Clare, Sarah M. Harkins and Robert S. Brueggeman, Washington State University, USA
15. Breeding barley for durable resistance to net and spot forms of net blotch: Jerome D. Franckowiak, University of Minnesota, USA; and Gregory J. Platz, Hermitage Research Facility, Agri-Science Queensland, Australia

Part 6 Fungal diseases of cereals: tan spot, blast and Ramularia

16. Tan spot disease under the lenses of plant pathologists: Reem Aboukhaddour and Mohamed Hafez, Agriculture and Agri-Food Canada, Canada; Stephen E. Strelkov, University of Alberta, Canada; and Myriam R. Fernandez, Agriculture and Agri-Food Canada, Canada
17. Towards an early warning system for wheat blast: epidemiological basis and model development: J. M. Fernandes, Embrapa Trigo, Brazil; E. M. Del Ponte and J. P. Ascari, Universidade Federal de Viçosa, Brazil; T. J. Krupnik, International Maize and Wheat Improvement Center (CIMMYT), Bangladesh; et al.
18. Investigating the biology of rice blast disease and prospects for durable resistance: Vincent M. Were and Nicholas J. Talbot, The Sainsbury Laboratory, University of East Anglia, UK
19. Ramularia leaf spot in barley: Neil Havis, Scotland's Rural College (SRUC), UK

Part 7 Barley yellow dwarf virus

20. Advances in understanding the biology and epidemiology of barley yellow dwarf virus (BYDV): Douglas Lau, Embrapa Trigo, Brazil; Talita Bernardon Mar, National Council for Scientific and Technological Development Fellow (CNPq) (Embrapa-CNPq), Brazil; et al.
21. Resistance breeding in barley against Barley yellow dwarf virus (BYDV): avoiding negative impacts on anatomy and physiology: Torsten Will, Frank Ordon and Dragan Perovic, Julius Kühn-Institute (JKI), Federal Research Centre for Cultivated Plants, Germany;

Part 8 Fungal diseases of cereals: Regional strategies

22. Key challenges in breeding durable disease-resistant cereals: North America: Christina Cowger, USDA-ARS, USA
23. Achievements in breeding cereals with durable disease resistance in Northwest Europe: James K. M. Brown, John Innes Centre, UK
24. Key challenges in breeding durable disease-resistant cereals: North Africa and West Asia: Sarrah Ben M'Barek, Regional Field Crops Research Center of Béja and CRP Wheat Septoria Phenotyping Platform, Tunisia; and Seyed Mahmoud Tabib Ghaffary, Safiabad Agricultural and Natural Resources Research and Education Center (AREEO), Iran