

Achieving sustainable cultivation of potatoes

Volume 1: Breeding, nutritional and sensory quality

Edited by Professor Gefu Wang-Pruski
Dalhousie University, Canada



 burleigh dodds
SCIENCE PUBLISHING

Publication date

31 Dec 2017

Price

£150 / \$190 / €180

ISBN

Hardback: 978-1-78676-100-2

ePub: 978-1-78676-102-6

Mobi: 978-1-78676-101-9

PDF: 978-1-78676-103-3

Format

152 x 229 mm / 6 x 9 in, 320 pages

Illustrations

Colour tables, photos and figures

Series

Burleigh Dodds Series in Agricultural
Science: no. 26

BIC/THEMA classification

TVK - Agronomy & crop production,
PSTD - Plant physiology, PSTL - Plant
reproduction & propagation, TVF -
Sustainable agriculture, TVG - Organic
farming, TVKF - Fertilizers & manures



Print (exc. US and Canada) and e-books
(worldwide) distributed by NBN
International.

Updated 29/09/17

New title information

Achieving sustainable cultivation of potatoes Volume 1

Breeding, nutritional and sensory quality

Edited by: Prof. Gefu Wang-Pruski, Dalhousie University, Canada

Endorsement:

"Sustainable potato cultivation means simultaneously addressing and resolving a complex set of varied and interlinked context-specific constraints. These books promise to rise to the occasion with a talented cast of authors who span the disciplinary spectrum from genetics, pests and diseases, cropping systems all the way through to nutrition and consumer perspectives."

Graham Thiele, Director - CGIAR Research Program on Roots Tubers and Bananas, led by the International Potato Center (CIP), Lima, Peru

Description:

Potatoes are one of the world's key food crops. Their nutritional value, and the fact that they can be grown with relatively few inputs in a wide range of environments, makes them an important food security crop. However, yields in developing countries are held back by factors such as poor cultivation practices and the impact of pests and diseases, whilst more intensive systems need to become more 'climate smart' to minimise environmental impact and adapt to climate change.

This volume reviews developments in breeding, sensory and nutritional quality as well as the challenges facing potato cultivation in particular regions. Part 1 assesses recent research on plant physiology and genetic diversity and their implications for conventional, hybrid and marker-assisted breeding, as well as breeding varieties with desirable traits such as stress resistance. The book also looks at ways of enhancing nutritional properties before concluding back looking at ways of supporting smallholders in regions such as Africa and Latin America.

With its distinguished editor and international team of expert authors, this will be a standard reference for potato scientists, growers, government and non-government agencies supporting potato cultivation. Volume 2 looks at production and storage, diseases and sustainability.

Key features:

- Reviews latest research on understanding potato plant physiology and genetic variety
- Discusses major advances in conventional, hybrid and marker-assisted breeding as well as their application in improved varieties
- Focuses on ways of supporting smallholders in regions such as Africa and Latin America

Audience:

Academic researchers in potato science; potato growers; government and non-governmental agencies supporting potato cultivation

Editor details:

Dr Wang-Pruski is Professor of Molecular Biology in the Department of Plant and Animal Sciences at Dalhousie University, Canada. Her research focuses on potato genetics and its implications for quality and stress resistance, an area in which she has published widely. She is on the Editorial Board of Potato Research.

Table of contents:

Part 1 Plant physiology and breeding

1. Advances in understanding of potato plant physiology and growth: *Curtis M. Frederick, University of Wisconsin, Madison, USA, Masahiko Mori, Obihiro University of Agriculture and Veterinary Medicine, Japan and Paul C. Bethke, USDA-ARS Vegetable Crops Research Unit, USA*
2. Understanding ageing processes in seed potatoes: *Paul Struik, Wageningen University & Research, The Netherlands*
3. Ensuring the genetic diversity of potatoes: *John Bamberg and Shelley Jansky, USDA-ARS, USA; Alfonso del Rio, University of Wisconsin-Madison, USA; Dave Ellis, International Potato Center (CIP), Peru*
4. Advances in conventional potato-breeding techniques: *Jai Gopal, Central Potato Research Institute, India*
5. Hybrid potato breeding for improved varieties: *Pim Lindhout, Michiel de Vries, Menno ter Maat, Su Ying, Marcela Viquez-Zamora and Sjaak van Heusden, Solymta, The Netherlands*
6. Advances in potato varieties resistant to abiotic stresses: *Ankush Prashar, Newcastle University, UK*
7. Developing early-maturing, stress-resistant potato varieties: *Prashant G. Kwar, ICAR-Directorate of Floricultural Research, India; Hemant B. Kardile, Raja S, Som Dutt, Raj Kumar Goyal, ICAR-Central Potato Research Institute, India; P. Manivel, ICAR-Directorate of Medicinal & Aromatic Plants Research, India; B. P. Singh, P. M. Govindakrishnan and S.K. Chakrabarti, ICAR-Central Potato Research Institute, India*
8. Developing new sweet potato varieties with improved performance: *Peng Zhang, Weijuan Fan, Hongxia Wang, Yinliang Wu and Wenzhi Zhou, National Key Laboratory of Plant Molecular Genetics, CAS Center for Excellence in Molecular Plant Sciences, Institute of Plant Physiology and Ecology, Chinese Academy of Sciences, China and Jun Yang, Shanghai Chenshan Plant Science Research Center, Shanghai Chenshan Botanical Garden, China*

Part 2 Nutritional and sensory quality

9. Nutritional properties and enhancement/bio-fortification of potatoes: *Roy Navarre, USDA-ARS and Washington State University, USA*
10. Improving the breeding, cultivation and use of sweetpotato in Africa: *Putri Ernawati Abidin and Edward Ewing Carey, International Potato Center (CIP), Ghana*

Part 3 Translating research into practice: improving cultivation in the developing world

11. Potato production and breeding in China: *Liping Jin, Chinese Academy of Agricultural Sciences, China*
12. Improving potato cultivation to promote food self-sufficiency in Africa: *Moses Nyongesa and Nancy Ng'ang'a, Kenya Agricultural and Livestock Research Organization, Kenya*
13. Supporting small holders in potato cultivation: *Linley Chiwona-Karlton, Swedish University of Agricultural Sciences, Sweden*

Related products:

- Achieving sustainable cultivation of cassava Volume 1, 978-1-78676-000-5, 31 Jul 2017, USD 240.00, EUR 230.00, CAD 325.00, GBP 190.00, and AUD 340.00
- Achieving sustainable cultivation of cassava Volume 2, 978-1-78676-004-3, 31 Aug 2017, USD 175.00, EUR 170.00, CAD 240.00, GBP 140.00, and AUD 250.00
- Achieving sustainable cultivation of potatoes Volume 2, 978-1-78676-128-6, 31 Jan 2018, GBP 210.00, EUR 250.00, USD 265.00, CAD 360.00, and AUD 380.00