BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE

Achieving sustainable cultivation of grain legumes

VOLUMES 1 & 2

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Achieving sustainable cultivation of grain legumes - Vol.1 Advances in breeding and cultivation techniques

Edited by: Dr Shoba Sivasankar, Dr David Bergvinson, Dr Pooran Gaur, Dr Shiv Kumar Agrawal, Dr Steve Beebe and Dr Manuele Tamò

KEY FEATURES

- Reviews key developments in understanding crop physiology and genetic diversity and how they have informed advances in breeding new varieties
- Coverage of advances across the value chain for grain legume cultivation, from variety selection to post-harvest storage
- Discusses the latest trends in disease, insect pest and weed management

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Part 1 Plant physiology and breeding

- Advances in understanding grain legume physiology: stomatal behavior and response to abiotic stress: E. Troyo Diéguez and A. Nieto-Garibay, Centro de Investigaciones Biológicas del Noroeste, México; J.L. García-Hernández, Universidad Juárez del Estado de Durango, México; P. Preciado-Rangel, Instituto Tecnológico de Torreón, México; F. A. Beltrán-Morales and F. H. Ruiz-Espinoza, Universidad Autónoma de Baja California, México; and B. Murillo-Amador, Centro de Investigaciones Biológicas del Noroeste, México
- Advances in understanding grain legume physiology: understanding root architecture, nutrient uptake and response to abiotic stress: Vinglong Chen, The University of Western Australia, Australia and Northwest A&F University, China; Ivica Djalovic, Institute of Field and Vegetable Crops, Serbia; and Kadambot Siddique, The University of Western Australia, Australia
- Conserving and characterizing the genetic diversity of grain legumes: P. J. Bramel and H. D. Upadhyaya, Global Crop Diversity, Germany and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India
- Advanced breeding techniques for grain legumes in the genomics era: Juan M. Osorno and Phillip E. McClean, North Dakota State University, USA; and Timothy Close, University of California, USA
- Genetic modification of grain legumes: Pooja Bhatnagar-Mathur and Kiran Kumar Sharma, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India
- 6. Developing drought- and heat-tolerant varieties of grain legumes: Shoba Sivasankar, Former Director, CGIAR Research Program on Grain Legumes, India
- Developing pest- and disease-resistant cultivars of grain legumes: Diego Rubiales, Institute for Sustainable Agriculture, Spain
- 8. Biofortification of grain legumes: Bodo Raatz, International Center for Tropical Agriculture (CIAT), Colombia

Part 2 Cultivation

- Variety selection and seed quality management in grain legume cultivation: Jean Claude Rubyogo, Pan-Africa Bean Research Alliance (PABRA) and International Center for Tropical Agriculture (CIAT), Tanzania; and Wilfred Odhiambo, Seed Systems Consultant, Kenya
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- Soil and nutrient management in grain legume cultivation: S. Adjei-Nsiah, International Institute of Tropical Agriculture (CIAT), Ghana; and B.D.K. Ahiabor, CSIR-Savanna Agricultural Research Institute, Ghana
- 13. Diseases affecting grain legumes and their management: *Keith Thomas, University* of *Sunderland, UK*
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- 15. Weed management in grain legume cultivation: Don W. Morishita, University of Idaho, USA
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- 17. Drying, handling, storing and quality monitoring of pulses: C.B. Singh, University of South Australia, Australia; and D.S. Jayas, University of Manitoba, Canada
- Dietary health benefits, phytochemicals and anti-nutritional factors in grain legumes: Elizabeth Ryan, Colorado State University, USA; Indi Trehan, Kristie Smith and Mark Manary, Washington University, USA
- 19. The nutritional potential of grain legumes: an economic perspective: Alan de Brauw, International Food Policy Research Institute, USA

"This reference will greatly improve the visibility of, and access to knowledge about crops that play such a critical role in sustainable cropping systems, nutrition and income, yet which often remain under the radar of governments and policy makers and which do not always receive the investment they deserve." Jeff Ehlers, Program Officer in Agricultural Development, Bill & Melinda Gates Foundation

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Legumes Volume 1: Advances in breeding and cultivation techniques Bede by D' Shoba Sivasankar, Dr David Bergvinson, Dr Pooran Gaur, Dr Shir Kumar, Dr Steve Beebe and Dr Manuel Taxo

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cultivation of grain



Delivering knowledge for the global scientific community

Achieving sustainable cultivation of grain legumes - Vol.2

Improving cultivation of particular grain legumes

Edited by: Dr Shoba Sivasankar, Dr David Bergvinson, Dr Pooran Gaur, Dr Shiv Kumar Agrawal, Dr Steve Beebe and Dr Manuele Tamò

KEY FEATURES

- Detailed coverage of particular grain legumes
- Chapters on each key aspect of grain legume cultivation: improved varieties and advances in cultivation techniques
- International range of authors with specific expertise in each grain legume

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- Improving cultivation of lentils: Fred J. Muehlbauer, Washington State University, USA; 4. and Ashutosh Sarker, International Center for Agricultural Research in the Dry Areas (ICARDA), India
- 5 The use of marker-assisted selection in developing improved varieties of soybean: Y.-C. Lee, R. Lemes Hamawaki, V. Colantonio, M. J. Iqbal and D. A. Lightfoot, Southern Illinois University, USA
- Improving cultivation practices for soybeans in sub-Saharan Africa: Frederick P. Baijukya 6. and Harun M. Murithi, International Institute of Tropical Agriculture (IITA), Tanzania; and Fred Kanampiu, International Institute of Tropical Agriculture (IITA), Kenya
- Developing improved varieties of groundnut: C. Michael Deom, University of Georgia, 7 USA; David Kalule Okello, National Semi-Arid Resources Research Institute, Uganda
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- Preventing mycotoxin contamination in groundnut cultivation: David Jordan, Rick Brandenburg and Gary Payne, North Carolina State University, USA; David Hoisington, Nick Magnan and James Rhoads, The University of Georgia, USA; Mumuni Abudulai, Savanna Agricultural Research Institute, Ghana; Koushik Adhikari and Jinru Chen, The University of Georgia, USA; Richard Akromah, William Appaw and William Ellis, Kwame Nkrumah University of Science and Technology, Ghana; Maria Balota and Kumar Mallikarjunan, Virginia Polytechnic Institute and State University, USA; Kenneth Boote and Greg MacDonald, University of Florida, USA; Kira Bowen, Auburn University, USA; Boris Bravo-Ureta and Jeremy Jelliffe, University of Connecticut, USA; Agnes Budu, University of Ghana, Ghana; Hendrix Chalwe, Alice Mweetwa and Munsanda Ngulube,

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- 11. Improving cultivation of cowpea in West Africa: Alpha Y. Kamara, Lucky O. Omoigui and Nkeki Kamai, International Institute of Tropical Agriculture (IITA), Nigeria; Sylvester U. Ewansiha, University of Benin, Nigeria; and Hakeem A. Ajeigbe, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Nigeria
- Developing improved varieties of faba bean: Fouad Maalouf, International Center for Agricultural Research in the Dry Areas (ICARDA), Lebanon; and Seid Ahmed and Somanagouda Patil, International Center for Agricultural Research in the Dry Areas (ICARDA), Morocco
- 13. Efficient and sustainable production of faba bean: R. Redden, RJR Agricultural Consultants, Australia; X. Zong, Chinese Academy of Agricultural Sciences (CAAS), China; R. M. Norton, International Plant Nutrition Institute and University of Melbourne, Australia; F. L. Stoddard, University of Helsinki, Finland; F. Maalouf, International Centre for Agricultural Research in Dry Areas (ICARDA), Lebanon; K. Seid and M. El Bouhsseini, International Centre for Agricultural Research in Dry Areas (ICARDA), Morocco; Y. Tao and L. Rong, Chinese Academy of Agricultural Sciences (CAAS), China; and Li Ling, Liaoning Academy of Agricultural Science, China
- Developing improved varieties of pigeonpea: K. B. Saxena, United Arab Emirates; Y. S. Chauhan, Department of Agriculture and Fisheries, Australia; C. V. S. Kumar, A J. Hingane, R. V. Kumar, R. K. Saxena and G. V. R. Rao, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India
- Improving the cultivation of pigeonpea: K. R. Latha and L. Vimalendran, Tamil Nadu Agricultural University, India

Biblio information

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