Developing drought-resistant cereals

Edited by: Professor Roberto Tuberosa, University of Bologna, Italy

Endorsement:
"This new book titled Developing drought resistant cereals edited by Professor Tuberosa will be an important resource for scientists worldwide, especially with climate change increasing the frequency of drought conditions. Professor Tuberosa and the contributing authors are among the leading authorities in the cutting-edge science of crop improvement for drought tolerance. I look forward to using this important resource in my research program."
Professor Mark Sorrells, Cornell University, USA

Description:
Drought remains the biggest single threat from climate change to the production of key cereal crops, such as wheat and barley. Cereals also respond in complex ways to drought stress, making improved drought tolerance a challenging trait to achieve. With many cereals recognised as staple food crops due to their nutritional value, more research is required into improving drought tolerance as a means of ensuring the future food security of millions.

Developing drought-resistant cereals reviews the wealth of research which addresses how to overcome this challenge in order to mitigate climate change effects in cereal production. This collection details our understanding of the mechanisms of drought tolerance, as well as the development of techniques for improving resistance, including phenotyping, genome-wide association studies (GWAS) and genome editing.

Key features:
- Provides a comprehensive overview of the effect of drought on cereal crop yield and yield stability
- Explores recent developments in techniques for improving drought resistance, such as nested association mapping (NAM) and phenotyping
- Assesses the role of physiological traits (e.g. root characteristics, canopy architecture) on cereals response to drought stress

Audience:
University and other researchers in cereal science; arable farmers and breeders; as well as government and private sector agencies supporting sustainable cereal production

Editor details:
Dr Roberto Tuberosa is Professor of Plant Biotechnology and Breeding in the Department of Agriculture and Food Science at the University of Bologna, Italy. Professor Tuberosa is internationally renowned for his genomic studies to dissect the genetic basis of drought resistance in cereals and how to leverage this knowledge toward the release of climate-resilient cultivars. He is on the editorial board of several leading journals, has been involved in many European and international research projects in cereal breeding, represents Europe in the International Crop Science Society (ICSS) and has published over 170 articles as well as edited a number of books. Amongst other honours, Professor Tuberosa has been elected a Fellow of the Crop Society of America.
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