

Advances in breeding techniques for cereal crops

Edited by Frank Ordon, Julius Kühn Institute, Germany
Wolfgang Friedt, University of Giessen, Germany



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Advances in breeding techniques for cereal crops

Edited by: Professor Frank Ordon, Julius Kühn Institute, Germany and Professor Wolfgang Friedt, Justus-Liebig University of Giessen, Germany

Endorsement:

"This book provides an excellent resource since it brings together leading experts in both the development and application of new technologies. It provides the reader with an authoritative explanation of the technologies and a critical assessment of their implementation in cereal improvement."

Professor Peter Langridge, University of Adelaide, Australia; Chair of the Scientific Board of the Wheat Initiative

Description:

This book provides a comprehensive review of recent advances in breeding techniques for cereals such as wheat and barley.

It discusses developments in conventional techniques such as backcross breeding, the use of doubled haploids (DH) and hybrid breeding. The book then reviews the latest advances in phenotyping to facilitate selection and in identifying genetic markers for marker-assisted breeding (MAS). This provides the foundation for summaries of advances in MAS techniques such as genome wide association studies (GWAS), nested association mapping (NAM) and genomic selection (GS). The final part of the book looks forward to emerging techniques such as gene editing (GE).

Key features:

- Assesses performance of conventional techniques such as backcross and hybrid breeding in introducing new traits
- Maps current progress in methods to identify quantitative trait loci (QTL) linking phenotypic traits with genetic information for selection
- Shows comparative strengths and weaknesses of marker-assisted selection (MAS) techniques such as genome wide association studies (GWAS) and nested association mapping (NAM)

Audience:

Academic researchers in cereal science; international and national agencies supporting cereal production; cereal breeding companies

Editors' details:

Professor Frank Ordon is Vice-President of the Julius Kühn Institute (JKI) (Germany's Federal Research Centre for Cultivated Plants) and Head of the Institute for Resistance Research and Stress Tolerance at the JKI. He is Honorary Professor at the Martin-Luther University at Halle-Wittenberg, Editor-in-Chief of Plant Breeding, a member of the editorial board of several other journals and Chair of the Wheat Initiative Research Committee.

Professor Wolfgang Friedt is Emeritus Professor of Plant Breeding at the Justus-Liebig University of Giessen, Germany. Professor Friedt has published widely on crop genetics and breeding and has received a number of international awards for his research on cereal and other crops. He has served as a consultant and reviewer for many national and international research centres and is Scientific Advisor to the Canadian research centre Phytola.

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