1. Record Nr. UNINA9910298335403321

Titolo	Biotechnological Approaches to Barley Improvement / / edited by Jochen Kumlehn, Nils Stein
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2014
ISBN	3-662-44406-2
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (431 p.)
Collana	Biotechnology in Agriculture and Forestry, , 2512-3696 ; ; 69
Disciplina	584.93
Soggetti	Agriculture Plant biotechnology Biotechnology Plant Biotechnology Chemical Bioengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	The world importance of barley and challenges to further improvements -- Genetic diversity and germplasm management - wild barley, landraces, breeding materials -- Domestication -- Shoot and inflorescence architecture -- Genetic control of reproductive development -- Improvement of mineral nutrition: a source and sink for candidate genes -- Photosynthesis and Leaf Senescence as Determinants of Plant Productivity -- Grain development -- Drought stress tolerance mechanisms in barley and its relevance to cereals -- Response to viral pathogens -- Host- and nonhost response to attack by fungal pathogens -- Response to phytophagous arthropods -- Molecular Farming -- Development of sequence resources -- Induced genetic variation, TILLING and NGS-based cloning -- Modulation of meiotic recombination -- The secondary genepool of barley – Hordeum bulbosum: Gene Introgression and Homoeologous Recombination -- Genome wide association scans (GWAS) -- Genomic selection in barley breeding -- Haploid technology -- Genetic engineering -- Whole plant phenomics.

Sommario/riassunto

This volume offers an up-to-date overview of biotechnologically oriented barley research. It is structured into two major sections: the first focusing on current agricultural challenges and approaches to barley improvement, and the second providing insights into recent advances in methodology. Leading scientists highlight topics such as: the global importance of barley; genetic diversity and genebanks; domestication; shoot and inflorescence architecture; reproductive development; mineral nutrition; photosynthesis and leaf senescence; grain development; drought tolerance; viral and fungal pathogens; phytophagous arthropods; molecular farming; sequence resources; induced genetic variation and TILLING; meiotic recombination; Hordeum bulbosum; genome-wide association scans; genomic selection; haploid technology; genetic engineering; and whole plant phenomics. Providing comprehensive information on topics ranging from fundamental aspects to specific applications, this book offers a useful resource for scientists, plant breeders, teachers and advanced students in the fields of molecular and plant cell biology, plant biotechnology, and agronomy.