1. Record Nr. UNINA9910830795003321

Titolo	Crop wild relatives and climate change / / edited by Robert Redden [and five others] ; project communication coordinator, Shyam S. Yadav
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley Blackwell, , 2015 ©2015
ISBN	1-118-85427-6 1-118-85439-X 1-118-85437-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (1184 p.)
Disciplina	571.82
Soggetti	Native plants for cultivation Crops - Germplasm resources
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	Cover; Table of Contents; Title Page; Copyright; Tribute in the Memory of Manav Yadav; About the Editors; Guest editor; Team of editors; List of Contributors; Foreword by Prof. Geoffrey Hawtin; Foreword by Dr. R S Paroda; Preface; Acknowledgments; Chapter 1: Impact of Climate Change on Agriculture Production, Food, and Nutritional Security; Introduction; Population versus food demand by 2050; Conclusions; References; Chapter 2: Challenge for Future Agriculture; Introduction; Climate change; Temperature effects; Radiation use efficiency; Water use and water use efficiency Linkage of management practices and climate changeImplications for crop management; References; Chapter 3: Global Warming and Evolution of Wild Cereals; Introduction; Domestication: a gigantic human evolutionary experiment; Wild cereals during 28 years of global warming in Israel; Evolution of wild cereals during 28 years of global warming in Israel; Global warming in Israel; The progenitors of cultivated rice; Evolution in response to climate; Conclusions and Prospects; References; Chapter 4: Wild Relatives for the Crop Improvement Challenges of Climate Change: The Adaptation Range of Crops

IntroductionGenetic diversity strategies; Current distribution of the staple carbohydrate crops; Rice; Maize; Barley; Millet; Sorghum (Sorghum bicolor (L.) Moench); Rye (Secale cereale L.); Oats (Avena sativa); The major grain legume crops and their distribution; Temperature optima and limits by crops; Implications of climate change; The importance of crop wild relatives; Ecogeographic diversity in wild relatives compared with the domestic gene pool; Conclusion; References
Chapter 5: The Importance of Crop Wild Relatives, Diversity, and Genetic Potential for Adaptation to Abiotic Stress-Prone EnvironmentsIntroduction; The advantages and disadvantages of using CWR in crop breeding; Adapting crops to climate change with CWR traits; From domestication to modern cultivars: the role of CWR; Case study: Wheat genetic enhancement with CWR; Outlook; References; Chapter 6: Conservation Planning for Crop Wild Relative Diversity; Introduction; Planning crop wild relative conservation; Gap analysis; Defining complementary CWR conservation actions
CWR conservation strategiesDiscussion; References; Chapter 7: Research on Conservation and Use of Crop Wild Relatives; Introduction; Crop wild relative diversity; Challenges faced by CWR; In situ conservation research; Ex situ conservation; Utilization of crop wild relatives; Conclusion; References; Chapter 8: Research on Crop Wild Relatives in Major Food Crops; Introduction; Wheat; Rice; Maize; Potato; Chickpea; Lentils; Conclusions; References; Chapter 9: Utilization of Wild Relatives in the Breeding of Tomato and Other Major Vegetables; Introduction; Tomato
Achievements with classical tomato breeding using crop wild relatives

Sommario/riassunto

Two major challenges to continued global food security are the ever increasing demand for food products, and the unprecedented abiotic stresses that crops face due to climate change.Wild relatives of domesticated crops serve as a reservoir of genetic material, with the potential to be used to develop new, improved varieties of crops. Crop Wild Relative and Climate Change integrates crop evolution, breeding technologies and biotechnologies, improved practices and sustainable approaches while exploring the role wild relatives could play in increasing agricultural output. Crop Wild Relative and Climate Change begins with overviews of the impacts of climate change on growing environments and the challenges that agricultural production face in coming years and decades. Chapters then explore crop evolution and the potential for crop wild relatives to contribute novel genetic resources to the breeding of more resilient and productive crops. Breeding technologies and biotechnological advances that are being used to incorporate key genetic traits of wild relatives into crop varieties are also covered. There is also a valuable discussion on the importance of conserving genetic resources to ensure continued successful crop production. A timely resource, Crop Wild Relative and Climate Change will be an invaluable resource for the crop science community for years to come.