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Improvement Challenges of Climate Change: The Adaptation Range of Crops

Introduction Genetic 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

Environments Introduction; 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 strategies Discussion; 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.
