1. Record Nr. UNINA9910616357603321

Titolo	Plant Male Sterility Systems for Accelerating Crop Improvement / / edited by Abhishek Bohra, Ashok Kumar Parihar, Satheesh Naik SJ, Anup Chandra
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2022
ISBN	981-19-3808-3
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (286 pages)
Disciplina	929
Soggetti	Agriculture Agricultural biotechnology Botany Agricultural Biotechnology Plant Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Male sterility and hybrid technology for sustainable production: Status and prospects -- 2. Advances in male sterility systems and hybrid breeding in rice -- 3. Male sterility in maize: Retrospect, status and challenges -- 4. Male sterility technologies to boost heterosis breeding in pearl millet -- 5. Sorghum improvement: Male sterility and hybrid breeding approaches -- 6. Advances in male sterility systems and hybrid breeding in sunflower -- 7. Discovery and application of male sterility systems in pigeonpea -- 8. Achievements, Challenges and Prospects of Hybrid Soybean -- 9. Recent Progress in Brassica Hybrid Breeding -- 10. Cytoplasmic male sterility: A robust and well proven arsenal for hybrid breeding in vegetable crops -- 11. Male sterility and hybrid breeding strategies in Safflower -- 12. Insect Pollinators and Hybrid Seed Production: Relevance to Climate Change and Sustainability.
Sommario/riassunto	This book covers all aspects of hybrid breeding technologies applied for crop improvement in major field crops. The different male sterility systems such as genetic male sterility (GMS), cytoplasmic male sterility (CMS), cytoplasmic and genetic male sterility (CGMS), and male sterility

induced by the photoperiod (PGMS), temperature (TGMS), and chemicals are discussed in detail. The different chapters in this book provide a timeline of the key breakthroughs witnessed in the field of plant male sterility technologies, their application in hybrid breeding, and the relevance to the current need for food security. In-depth insights into the genetic and regulatory mechanisms of plant male sterility have been presented. This includes discussion on a variety of molecular players that induce male sterility and rescue male fertility in the hybrid plants. To enhance this book's appeal, more emphasis has been given on the modern emerging approaches such as construction of heteroticpools that could boost hybrid breeding for enhanced crop performance amid climate change and growing population worldwide. This book is a guide for growers and industries related to field and horticultural crops. Further, it is a useful reference for plant breeders, researchers and extension workers, and students. The material can also be used for teaching undergraduate and postgraduate courses.