

1. Record Nr.	UNINA9911035057303321
Autore	Wani Shabir Hussain
Titolo	Accelerated Plant Breeding, Volume 5 : Forage Crops // edited by Shabir Hussain Wani, Satbir Singh Gosal
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-032-04527-4
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (0 pages)
Collana	Biomedical and Life Sciences Series
Altri autori (Persone)	GosalSatbir Singh
Disciplina	571.82
Soggetti	Plants - Development Plant physiology Plant biotechnology Agriculture Plant Development Plant Physiology Plant Biotechnology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Forage Genetic Resources—An Indian Scenario -- Utilization of genetic resources through molecular and genomic approaches for forage barley improvement -- Genomics-assisted Breeding for fodder quality improvement in forage sorghum -- Accelerated Breeding in Bajra Using Genomic Approaches -- QTLomics approach for improvement of Finger Millet -- Current Status and Prospects of Genomics in Guar Breeding Program -- Guinea grass (<i>Megathyrus maximus</i>): Crop Diversity and Genetic Improvement -- Genomic Approaches for Alfalfa breeding: Advances and future prospects -- Utilization of genetic and genomic resources for accelerated breeding for millet improvement -- Accelerated breeding approaches for improved productivity and quality in dual-purpose oats -- Breeding approaches for Maize improvement to enhance its forage potential -- Genome editing tools for improving yield of forage crops.
Sommario/riassunto	Human population growth and potentially irreversible climate changes have raised worldwide concerns regarding food and nutritional security. Plant breeding that once considered “art and science for changing and

improving the characteristics of plants” is now heavily dependent on biotechnologies. The endeavor is a continuous process which results in new varieties required by farmers to improve their crop yields and quality of the produce. On the other hand, in the current scenarios of challenging environmental impact, there is emergence of new insect-pests and new pathotypes of disease causing agents. Accordingly what used to be minor insect-pests/pathogens are rapidly becoming major biotic stress factors. Along with heat and drought, they pose serious threats to crop productivity in many parts of the world. Current WTO analysis reveals that farmers want new high yielding varieties suitable not only for local consumption but also for commercial export. Conventional breeding approaches at this juncture seem inadequate to meet the growing demand for superior varieties. Efficiency improvement of existing cultivars is one way to meet these challenges. Historically, plant improvement has been largely confined to improving yield, quality, resistance to diseases and insect-pests and tolerance to abiotic stresses. Now growers demand high yielding varieties that possess early maturity, higher harvest index, dual purpose forages, varieties with nutrient-use efficiency/water-use efficiency, wider adaptability, suitable for mechanized harvesting, better shelf life, better processing quality, with improved minerals, vitamins, amino acids, proteins, antioxidants and bioactive compounds. Conventional plant breeding methods aiming at the improvement of a self-pollinating crop, such as wheat, usually take 10-12 years to develop and release of the new variety. During the past 10 years, significant advances have been made and accelerated methods have been developed for precision breeding and early release of crop varieties. This multi-volume work summarizes concepts dealing with germplasm enhancement and development of improved varieties based on innovative methodologies that include recent omics approaches, marker assisted selection, marker assisted background selection, genome wide association studies, next generation sequencing, genetic mapping, genomic selection, high-throughput genotyping, high-throughput phenotyping, mutation breeding, reverse breeding, transgenic breeding, speed breeding, genome editing, etc. It is an important reference with special focus on accelerated development of improved forage crop varieties.
