

Spangenberg, G. (ed.): **Molecular Breeding of Forage Crops**. - Kluwer Academic Publisher, Dordrecht 2001. 337 pp. EUR 135.00. ISBN 0-7923-6881-9.

The book contains proceedings presented on the 2nd International Symposium "Molecular Breeding of Forage Crops", held November 19-24, 2000 at Hamilton, Australia. The aim of this book is to review the current progress and understanding of molecular breeding of forage crops.

The book consists of 21 chapters and its scope covers a wide variety of themes. Authors of the most chapters are from Australia, USA, U.K. and New Zealand. After an introductory chapter with an emphasis on transgenesis and genomics in forage plant improvement, the Chapters 2 and 3 deal with molecular breeding methods for forage and amenity grasses, and for forage legumes, respectively. Chapter 4 discusses computer simulation based approaches for modelling plant breeding programs with emphasis on molecular marker-based selection strategies, although much of the content also applies to transgenic trait manipulation. Bioinformatics as a core technology in genomics and post-genomics research is described in Chapter 5. The current status of the development and implementation of molecular marker technology for forage crops is reviewed in Chapter 6, with regard to genetic mapping, marker assisted selection, DNA profiling and molecular taxonomy. Chapter 7 and 8 deal with the application of molecular markers to examine genetic diversity and identity in forage crops and in the genetic characterization of heterogeneous plant populations in forage, turf and native grasses. In Chapter 9, the development of molecular markers for the analysis of apomixis is described. Molecular breeding approaches for herbage quality improvement in forage grasses, forage legumes as well as cereal crop residues involving

transgenesis and molecular marker technology are reviewed and discussed in Chapters 10 to 12. Chapters 13 and 14 deal with molecular breeding of forage legumes for resistance to biotic stresses, with an emphasis on virus diseases and insect pests; while Chapter 15 focuses on molecular breeding for tolerance to abiotic and edaphic stresses in forage and turf grasses. Chapter 16 and 17 describe progress in understanding the molecular interactions of forage grasses with their fungal endosymbionts, and the molecular genetics of symbiotic nodulation in forage legumes; they also highlight the potential use of that knowledge in molecular breeding of forage plants. Molecular farming as a "green technology" is discussed in Chapter 18, with a particular emphasis on the production of value-added proteins in transgenic alfalfa, and highlights opportunities for the molecular breeding of forage crops for non-forage uses. Chapters 19 and 20, with an Australian focus and perspective, describe past accomplishments and opportunities for biotechnology in forage plant breeding; as well as biosafety and risk assessment considerations and the regulatory framework for the release of transgenic forage plants. Chapter 21 concludes the book and provides a future outlook on molecular breeding of forage crops with a more global perspective.

The book is edited and produced in good standard of Kluwer publications. Every chapter is accompanied by extensive bibliography providing a valuable source of almost complete information from the field. This book representing up-to-date information from the field of molecular breeding of forage crops is useful for scientists, breeders and students.

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