

BOOK REVIEW

Zwierzykowski Z., Kosmala A. 2005. Recent Advances in Genetics and Breeding of the Grasses. Institute of Plant Genetics, Polish Academy of Sciences, Poznań, 222 pp. ISBN 83-89887-30-4

This book resulted from the activities of the PAGEN – “Centre of Excellence in Plant Agrobiolgy and Molecular Genetics” established at the Institute of Genetics of the Polish Academy of Sciences in Poznan, Poland. The Center is supported by the European Union under Framework V: “Quality of Life and Management of Living Resources, Key Action 5: Sustainable Agriculture, Fisheries and Forestry, and Integrated Development of Rural Areas Including Mountain Areas”.

In the “Preface” (p. 7) the Editors emphasize that grasslands cover about 40% of the European total land area and there is a great demand of their development towards multifunctional and sustainable systems. In order to achieve this goal it is necessary to work out an efficient strategy based on precision breeding and on using of several biotechnology methods.

Out of twenty-one chapters of this book plant protection specialists will find interesting the following five, which concern interesting, and important aspects of susceptibility and resistance of grasses and cereals to pathogens.

In chapter “Physiological basis of plant response to pathogens with focus on grasses and cereals” (p. 167–176) A. Płażek discusses plant resistance mechanisms based on PR proteins, phenolic compounds, hormones and other grounds. Particular attention is given to barley plants hypersensitive reaction to leaf spot infection caused by fungal pathogen *Bipolaris sorokiniana* and its dependence on many physiological factors of host plant.

In chapter “The role of endophytes *Neotyphodium* spp. in breeding of grasses for resistance to stress at the Grassland Research Station Rožnov-Zubří” (p. 177–190) B. Cagaš reports that no correlation was found between the degree of contamination of host plants with endophytes (*Neotyphodium* spp.) and the resistance to stem rust (*Puccinia graminis* ssp. *graminicola*), re-growth after cutting and tolerance to the ryegrass mosaic virus (RGMV) and barley yellow dwarf virus (BYDV) in varieties of perennial ryegrass and meadow fescue.

In chapter “Susceptibility to pathogens of meadow fescue (*Festuca pratensis* Huds.) infected with endophyte (*Neotyphodium uncinatum*)” (p. 191–195) – D. Panka reports inhibition effect of *N. uncinatum* on growth of phytopathogenic fungi *Bipolaris sorokiniana*, *Gaumanomyces graminis* and *Fusarium equiseti* at three temperatures – 10, 20 and 30°C.

In chapter “Activation of phenylpropanoid pathway and catalase in leaves of barley and meadow fescue infected by *Bipolaris sorokiniana* (Sacc.) Shoen” (p. 197–201) – A. Płażek and E. Dubas report that infection with *B. sorokiniana* significantly influenced level of phenylalanine-lyase (PAL) activity in leaves of barley (*Hordeum vulgare*) and meadow fescue (*Festuca pratensis*).

In chapter “A preliminary study of rust resistance in *Lolium perenne* L. introgression line” (p. 203–208) – E. Czembor, Z. Zwierzykowski and M. Zajac report on evaluation of rust resistance in *L. perenne* introgression lines derived from backcrosses of partly fertile, triploid hybrids *Festuca pratensis* (2n = 2x = 14) x *L. perenne* (2n = 4x = 28) with diploid *L. perenne* (2x) cultivars, and the effect of *Puccinia* spp. on their green mass production.

Certainly, this book will have a broad educational and practical value for: (1) specialists in planning share and structure of grasslands in the agricultural and recreational landscapes; (2) specialists in plant protection at planning healthy and sustainable grasslands and meadows.

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