

Seedborne Diseases and Their Control

R. B. Maude, Horticulture Research International, Wellesbourne, UK

This book describes the principles derived from our knowledge of the biology of seedborne pathogens and how these are applied in the practical control of seedborne diseases. The pathogens covered are seedborne fungi, bacteria and viruses which attack temperate and some tropical field crops.

The main part of the book is concerned with the processes of infection of seeds, the location and the survival of inoculum, and the transmission and spread of seedborne pathogens. The author then describes how, with this knowledge, strategies and methods have been developed and employed at national and international levels to exclude and eradicate seed-transmitted diseases. Effective methods for the detection of seedborne inoculum are necessary throughout and a specific chapter is devoted to these technologies. The book is written for practising plant pathologists as well as for advanced students of plant pathology seeking a general review text of this subject area. It is also highly relevant to workers in this agrochemical industry with special interests in seed treatment and seed treatment methods.

Contents:

- Seed Pathology
- The infection of seeds
- Longevity of seedborne organisms
- Seed transmission of disease
- The epidemiology of the spread and survival of pathogens
- Disease control: exclusion and reduction of inoculum
- Disease control: eradication and reduction of inoculum by seed treatment
- Disease control by cultural measures and sanitation practices
- The detection of seedborne organisms

Readership: Practising plant pathologists & advanced students of plant pathology.

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New Diagnostics in Crop Sciences

Edited by J H Skerritt and R Appels,
CSIRO Division of Plant Industry, Canberra, Australia

Biotechnology in Agriculture Series, No. 13

This book describes the theory and practical aspects of a number of "diagnostic" techniques that have evolved over recent years to assess variety, yield, quality and stress by pathogens or environment pre- and post harvesting of crops. Useful diagnostic methods can be based on molecular probes such as antibodies or gene probes, physical methods based on spectroscopy or by simplifying and refining long-established enzymological approaches.

A systems approach is taken, leading from diagnostic methods for the whole plant and its soil environment, to the chromosome, gene and molecular protein levels. Aspects of harvested crop quality and purity can also be rapidly assessed by physical or chemical diagnostic methods. Some of the diagnostic methods will remain for the foreseeable future as being suited only to a limited number of well-equipped laboratories, others can have immediate application, possibly in the form of test kits in the field. Some progress and constraints in making diagnostic methods widely available either commercially or through research collaborations are discussed. Authors from Europe, North America and Australasia share their expertise on an exciting variety of technologies which will take plant agriculture into the next century.

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- An overview of the development and application of diagnostic methods in crop sciences *J H Skerritt and R Appels*
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- Monoclonal antibody technology *A Schots et al.*
- Antibody probes in cereal breeding for quality and disease resistance *N K Howes*
- The interface between RFLP techniques, DNA amplification and plant breeding *P M Gresshoff*
- Nucleic acid techniques in testing for seedborne diseases *J C Reeves*
- Fungal immunodiagnosics in plant agriculture *F M Dewey and C R Thornton*
- Antibody approaches to plant viral diagnostics *R J Sward and D R Eagling*
- Nucleic acid based approaches to plant virus and viroid diagnostics *P Waterhouse and P Chu*
- Monitoring safety of plant foods: Immunodiagnosics for mycotoxins and other bioactive compounds
M R Morgan
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B V McCleary
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Readership: Research workers, graduate students in crop science, plant breeding and biotechnology, and crop protection.

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Azuki Bean: Botany, Production and Uses

T A Lumpkin and D C McClary, Department of Crop and
Soil Sciences, Washington State University, USA

Azuki is one of the twelve most important grain legumes in the world and is grown widely in China, Japan, South Korea and Taiwan. It has also been produced or studied in several other countries, including the USA (Minnesota and Washington States), Argentina and Australia. In Japan, azuki is an essential ingredient of both *seki-han*, a festive rice dish, and *an*, a sweetened bean paste. Botanically, it formerly belonged to the genus *Phaseolus*, but it has recently been transferred to the genus *Vigna* with relatives such as mungbean, black gram and rice bean.

This book is the first comprehensive work on this crop. It draws extensively on the Chinese, Japanese and other East Asian literature and is based on a review of approximately 800 published references. It is a definitive reference work that should greatly enhance interest in the crop. It is aimed at researchers throughout the world working on grain legumes, as well as others in agronomy and plant science.

Contents

- Foreword *Kazumi Maeda (Kochi University, Japan)*
- Introduction
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- Insects and nematodes
- Diseases
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- Food chemistry and processing
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