

DISEASES OF FRUIT CROPS IN AUSTRALIA



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Queensland Primary Industries and Fisheries,
Department of Employment, Economic Development and Innovation



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FOREWORD

Australia is largely self-sufficient in fruit and vegetables. The industry is intensive, typically seasonal in operation, and dominated by small-scale farms. With fruit, nut and vegetable cropping worth \$5.5 billion, and other horticulture an additional \$1.7 billion in 2005–06, horticulture is Australia's third-largest agricultural industry, and a major employer in rural areas.

Most Australian production is for domestic markets, but the horticulture industries also contribute significantly to exports. In 2004–05, fresh fruit, vegetable and nut exports were worth \$800 million, wine exports were worth \$2.7 billion, and other processed horticultural produce was worth \$400 million. At the same time, fruit, nut and vegetable imports provided additional diversity, and met gaps in domestic production.

Effective, integrated disease-management and quarantine strategies have been essential for minimising losses and facilitating market access for Australia's development as a major producer and exporter of high-quality fruit, nuts and vegetables. In recent years, the threats of global warming to the sustainability of cropping, the limitations in water and land availability, and the rising costs of fuel and other inputs have reinforced the need for making production and marketing as efficient as possible through better disease control. Also, in line with community expectations for high-quality produce with minimal chemical residues, it has become critical for the rural community to manage pests and diseases responsibly as well as effectively.

Accurate identification of the plant diseases attacking horticultural crops is a key step in choosing safe and effective control options and in maintaining biosecurity preparedness. This need was addressed by publishing the

Handbook of Plant Diseases in Colour – Fruit and Vegetables by the Queensland Department of Primary Industries in 1978, and in subsequent separate volumes covering fruit and vegetables respectively in 1993 and 1994. This complete revision, *Diseases of Fruit Crops in Australia*, incorporates overviews of the causes and the main disease types attacking fruit crops, and 17 separate chapters covering particular fruit groups. The book illustrates the major diseases of fruit currently present in Australia, with concise information on their cause, symptoms, disease cycle and management. In addition, some key exotic diseases that represent biosecurity threats to Australian horticulture are covered.

Assembling the illustrations and preparing the text has been a national effort. Although most of the authors are from the Department of Primary Industries and Fisheries, Queensland, plant pathologists in all States have contributed either as authors or by providing images and information. The Australasian Plant Pathology Society, which represents the discipline of plant pathology in Australia and New Zealand, is very pleased to provide sponsorship and support for this important publication.

Previous editions in this series have proved popular and I am sure that this book will prove an essential resource for anyone involved in managing fruit production and quality.



Dr. Greg I Johnson
President
Australasian Plant Pathology Society

Plant Health is Earth's Wealth

PREFACE

Diseases of Fruit Crops in Australia is the third in a series of plant disease handbooks produced by plant pathologists from the Department of Primary Industries & Fisheries, Queensland. The purpose of each has been to provide a diagnostic guide and a key reference for diseases affecting fruit and nut crops in Australia. The first, *Handbook of Plant Diseases in Colour – Fruit and Vegetables*, was compiled by Noel Vock and published in 1978 with a second edition published in 1982. In the mid 1990s it was fully revised and published as two separate volumes: *Diseases of Fruit Crops* and *Diseases of Vegetable Crops*.

This current edition, written some 15 years later, is extensively revised and expanded.

With the contributions of colleagues throughout Australia, the editors and authors provide essential information and images of the important diseases affecting most fruit and nut crops grown across Australia's diverse horticultural production areas.

Diseases of Fruit Crops in Australia is for growers, their consultants and managers, horticulturists, plant pathologists, plant protection diagnosticians, integrated pest-management specialists, educators, students and agribusiness representatives, as well as the enthusiastic home gardener and hobby farmer.

The first chapter is an introduction to the causes, nature and principles underlying the management of plant diseases. It also includes a list of the extensive sources of information about pathogen groups and plant diseases in general. The second chapter is an overview of several diseases affecting many fruit crops and the information links to the chapters on specific crop diseases.

The remaining chapters discuss the diseases of specific crops. The diseases are organised first by pathogen type then by an alphabetical listing of diseases under each type of pathogen.

Each disease description includes information about symptoms, means of spread, disease development and survival, importance, and management. The latter emphasises the need to adopt an integrated approach to disease-management, applying all the appropriate cultural, crop-management and chemical methods to achieve a cost-effective and sustainable result.

The end of each chapter lists sources of more detailed information.

High-quality colour images support the disease descriptions throughout the book. The images selected help with disease identification, and include early symptoms or distinguishing features.

Early detection of exotic diseases that are a biosecurity threat to Australian horticultural industries is vital if they are to be contained or appropriately managed. To assist industry awareness, the major biosecurity threats for most crops have been included, using industry biosecurity plans as a guide.

A glossary and index complete the book.

Specific chemical recommendations are not included in the disease management sections because they change regularly, and can vary between regions and States. Current chemical recommendations are available elsewhere in specific crop management guides, and from government and private extension and consultancy services.

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