BOOK REVIEWS

Fruit and Nut Crops: a disease management guide
Persley, D.M., Pegg, K.G. and Syme, J.R. (Eds)
Queensland Department of Primary Industries Information Series QIB8018. Department of Primary Industries, Queensland Government, Brisbane, Australia. Softcover, 1989. 68 pp. ISBN 0 7242 2555 2.

This book provides descriptions of the important diseases attacking fruit and nut crops grown in Queensland, and outlines both chemical and non-chemical recommendations for their management. It was compiled by officers of the Plant Pathology Branch, DPI, Queensland, most of whom have extensive experience with the management of the diseases listed. It will provide a useful and practical reference for growers, advisers and others involved in the production of these crops.

The book covers 19 temperate and tropical fruit and nut crops. The temperate crops include pome and stone fruit, citrus, grape, passionfruit and strawberry, while the tropical crops include avocado, banana, custard apple, macadamia nut, mango, papaw and pineapple. A table of contents and a short glossary are followed by the main section, which comprises 68 pages of descriptions of diseases and recommendations for their management. Crops are arranged in alphabetical order, and diseases which are listed by common name, are subdivided into those occurring in the field and those occurring post-harvest. Within these two divisions, diseases are arranged by causal agent in the order bacteria, fungi, nematodes, undetermined and virus.

Information on each disease includes its common name, scientific name, symptoms, source of infection, spread, importance and control.

The book is quite comprehensive, but minor improvements could include the addition of a list of common names of diseases (with alternatives) and their scientific names. This would minimise confusion when a local common name is not widely used elsewhere. For example, *Rhizoctonia solani* is listed as the cause of leather rot of strawberry, whereas in southern states and overseas, leather rot refers to a disease caused by *Phytophthora cactorum*. Another worthwhile addition which would be particularly helpful to growers would be a list of fungicides and their trade names. As the book contains many references to the use of agricultural chemicals, a general warning statement about their safe use should be included. Where especially hazardous chemicals are mentioned, a warning statement should appear in the same body of text. Such a statement is not used consistently where methyl bromide is recommended for control of *Armillaria* root rot (see pages 1 and 58). Other minor criticisms include reference to dead arm of grapes on page 30 (as there is no dead arm of grapes listed this presumably refers to Phomopsis cane spot); the reference to *Sclerotinia fructicola* rather than *Monilinia fructicola* as the cause of brown rot (the latter being accepted by most authorities as the valid name); and the occasional need for more precise wording, for example, the statement under control of anthracnose of passionfruit on page 43: 'Close inspection of fruit at packing is essential to prevent breakdown during transport'. Would that all plant diseases were so easily controlled!

Overall the book is well presented and easy to use, and should be a useful tool for all those interested in identifying, understanding and managing diseases of fruit and nut crops. It will be an excellent complementary volume to the planned revised edition of the already popular *Handbook of Plant Diseases in Colour*.

W.S. Washington

Viruses of Plants in Australia
Edited by Cornelia Buchen-Osmond, Karen Crabtree, Adrian Gibbs and George McLean
The VIDE Project, R.S.B.S., Australian National University, GPO Box 475, Canberra. 1988. 590 pp. ISBN 0 7315 0460 7. Price $40.00 (payable to Business and Technical Manager, R.S.B.S.).

There has long been a need for a comprehensive and authoritative record of plant viruses found in Australia. This need has been addressed by the VIDE (Vide Identification Data Exchange) project which has the ultimate aim of producing a single computer database of information on all 1200 or so named plant viruses world-wide. *Viruses of Plants in Australia* is the second book produced by the project (the first, in 1983, was *Viruses of Legumes*), and it was compiled with the assistance of over one hundred virologists from Australia and overseas.

The book is well set out, and the format allows ready access to the information. The chapters include: Indices of Known Natural Hosts of Plant Viruses in Australia, with alphabetical listings of plants by species and by families; Virus Descriptions, with detailed information on individual viruses and aspects relevant to Australia; and Virus Group Descriptions, with summaries of the properties of virus groups. The appendix contains a useful list of sources of commercially available diagnostic kits.

The editors are to be commended for undertaking a task as daunting as the compilation of this book. However, drawing information together from such diverse sources does have its limitations, as the editors well appreciated: 'although the very best available group of experts collated the information, the quality, accuracy and "age" of data available to them varied, as probably did their interpretation of it . . .' Some of the older virus records are of dubious accuracy, as the diagnoses were made with limited
confirmatory tests. The format of the book allows the readers to assess the accuracy of these records for themselves. Not surprisingly, some errors have slipped through and these appear to occur mostly in the host range and distribution data of the Australian records. Most of these errors could be detected and rectified in a later edition if the larger virology groups in Australia, with access to much unpublished information, were each to review the whole publication, rather than just the data on certain individual viruses. Again the editors are to be commended in their quest for accuracy as they note in the Preface:

'We invite comment on all aspects of the VIDE Project...We will be particularly grateful to hear of any errors found in collated information, and for advice or assistance in revising data for individual viruses.'

I would encourage readers to take up this request. These corrections would be desirable so that the book can be used with confidence especially in quarantine and regulatory fields for which it has obvious applications.

Overall this book provides a comprehensive and extremely useful record of plant viruses in Australia, and is an essential addition to the bookshelves of all those with an active interest in this area.

J.E. Thomas

The Biochemistry of Plants: Volume 15 Molecular Biology
Editors in Chief P.K. Stumpf and E.E. Conn
This volume edited by A. Marcus
Academic Press Inc., 1250 Sixth Ave, San Diego, CA 92101, USA. 1989. 707pp.
ISBN 0-12-675415-2 Price US $150.00
The fifteenth volume of this series is devoted to the molecular biology of plant proteins. It is a useful publication that brings together the wealth of new information generated during the 1980s. The book will be of interest to virologists, molecular biologists, plant pathologists, and those interested in keeping up with recent developments in the field.

The final four chapters of the book are of most relevance to plant pathologists. Chapter 14 is a concise and well written review of our current knowledge of the viroids, dealing with their structure, function, pathogenicity and possible origins. The biology and molecular aspects of DNA plant viruses (caulimoviruses and geminiviruses) are dealt with in chapter 15. Unfortunately, no treatment of the RNA plant viruses is given in the book.

Tumor formation in plants is reviewed in chapter 16, with sections on crown gall, virus-induced tumors and genetic tumors. This chapter is a useful introduction to the final chapter in the book, which deals with the genetic manipulation of plant cells by cell selection, protoplast fusion and the transformation of plants with foreign genes. Agrobacterium-mediated transformation, direct gene transfer and other transformation systems are summarised and placed in an agricultural perspective.

The earlier chapters are mostly not of immediate relevance to plant pathologists but are well written reviews of areas that researchers dealing with plants should be aware of.

Chapter 1 deals with the regulation of plant gene expression and contains useful summary tables detailing cloned plant genes, together with the size and abundance of their respective mRNAs. This chapter brings together recent work on tissue specific gene expression and summarises the known mechanisms of transcriptional and translational control. Chapter 2 is a review of transposable elements in plants, their influence on gene expression and their use in cloning experiments.

Chapters 3 to 5 deal with the chloroplast genome, RNA transcription, and protein synthesis in chloroplasts. The plant mitochondrial genome is dealt with in chapter 6.

The molecular biology of plant proteins is dealt with in chapters 7 to 13 with individual sections on seed storage proteins, stress-induced proteins, thaumatins, cytoskeletal proteins and their genes, calcium-binding proteins, hydroxyproline-rich glycoproteins and protein degradation.

Like most publications of this nature, it does not include the most recent reference material, but most authors have attempted to include the material available just prior to publication.

The book is printed on good quality paper and bound in a hard cover. The figures and photographs are generally clear and well produced. Although the price of the book (US$150.00) is probably too expensive for the individual, it would be a useful addition to any scientific library.

M.R. Gillings

Mango Pests and Disorders
J. Bagshaw, et al.
Queensland Department of Primary Industries Information
Series: Q189007. 1989. 56pp.
ISBN 0 7242 3216 8
Price: A$20.00
This book is an excellent technical publication on problems which can occur in mango (Mangifera indica L.). It is divided into three parts, the first two of which deal with diseases and insect pests while the third relates to physical and physiological disorders neatly segregated into those with external or internal fruit symptoms. Striking features of the book are the 72 high quality colour plates which aid in the correct identification of fruit ailments. These illustrations in association with the text, make it a valuable information resource for readers such as farmers, scientists, students, quality control inspectors, fruit sellers and housewives.
The technical detail in the disease section is well presented and accurate. It would have been good to have seen some references or a list of suggested further reading such as the Proceedings from the recent 3rd International Mango Symposium held in Darwin. The use of the term ‘resistant’ cultivars under the disease management for Bacterial black spot (Xanthomonas campestris pv. mangiferaeindicae) is slightly misleading. The cultivars indicated as ‘resistant’ all develop symptoms if grown in conditions favourable to disease. However, they are more ‘tolerant’ of infection and display less severe symptoms than other cultivars.

The authors correctly point out that control of post-harvest diseases begin in the field. To this end, greater emphasis could have been placed on protecting the new leaves after successive vegetative flushes. These leaves are highly susceptible and it is through them that diseases such as Anthracnose (Colletotrichum gloeosporioides var. minor), and Bacterial black spot build up inoculum in the tree canopy. Finally, not a lot of attention was drawn to the use of pruning or reducing canopy crowding to enhance penetration and coverage of pesticides applied by air blast sprayers.

The insect section provides a thorough spray guide for all the major mango pests. Included in this area is data on which specific pesticides to use, their rate and time of application, and withholding periods.

The section on disorders provides a comprehensive list of non-pathological/entomological problems found in fruit. This list was previously not available and will now provide a sound base to which common name terminology, so often used in the fruit post-harvest industry, can refer.

All in all, the authors deserve to be congratulated on a well written and presented document.

Ross Fitzell

Plant Protection and Quarantine
Vol I Biological Concepts, pp.226. ISBN 0-8493-6550-X
Vol II Selected Pests and Pathogens of Quarantine Significance, pp.265. ISBN 0-8493-6651-8
Vol III Special Topics, pp.216. ISBN 0-8493-6652-6
Edited by Robert P. Kahn.
CRC Press Inc. Boca Raton, Florida.
1989. Distributed by DA Books & Journals, Station St, Mitcham Vic. 3132.
This is almost the first major publication on plant quarantine as a method of plant protection. The author correctly points out in the preface of Volume one that quarantine is usually taught as part of plant pathology but there is no text book dedicated to the principles and practices of plant quarantine. Therefore, these volumes are long overdue and fill the void that existed in quarantine pathology, as a useful source of reference.

Volume one has been contributed solely by the author. It contains four chapters of which chapter 1 sets out the background: administrative, legal and international matters of quarantine. Chapters 2 and 3 present general biological information such as taxonomy, classification, and the economic importance of 12 different disease-causing agents including pests and pathogens of plants. While these sections are useful, the information contained is very broad and could be part of any text book in plant pathology. Chapter 4 is probably the most important section in this volume and provides some details of risk assessment including certain models available for estimating pest risk.

Volume two consists of edited contributions from specialists in a number of areas. There are sixteen chapters: four deal with specific pests of pathogens, five with group of pest or pathogens, one with pests and pathogens of one crop, two with pathogens of two crops, and four with plant quarantine pest and pathogen diagnostic problems. The selection of these chapters seems arbitrary and lacks a common theme for the volume and it is, therefore, difficult to conceptualise readily the thrust of the book. From the quarantine perspective, however, the last four chapters, which deal with diagnostic problems, present some useful practical aspects of quarantine regulation.

Volume three is also an edited book and is the last of the series. There are ten chapters covering a wide range of topics. As with the previous volume the selection of chapters is arbitrary. Two aspects, however, are significant in this volume. Chapters 1 and 3 cover protocols and administration of quarantine in the United States, while chapters 4, 8 and 9 deal with quarantine training. The final chapter presents aspects of plant inspection stations: concepts, facilities and staffing.

Because of the breadth of coverage, the organisation of the discussion in each volume is not coherent and there seems to be a great deal more information than is readily conceived as relevant to quarantine. Nevertheless, the series is a valuable reference for quarantine pathologists, PPQ officers, specialists and support personnel. The author, Robert Kahn, with many years of experience in quarantine and plant protection, is an appropriate choice to edit the series. The volumes are hardbound and each has the characteristic design of the CRC Press on the front cover. It is well worth investing in these books for libraries and individuals alike.

M. Chandrashekar

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