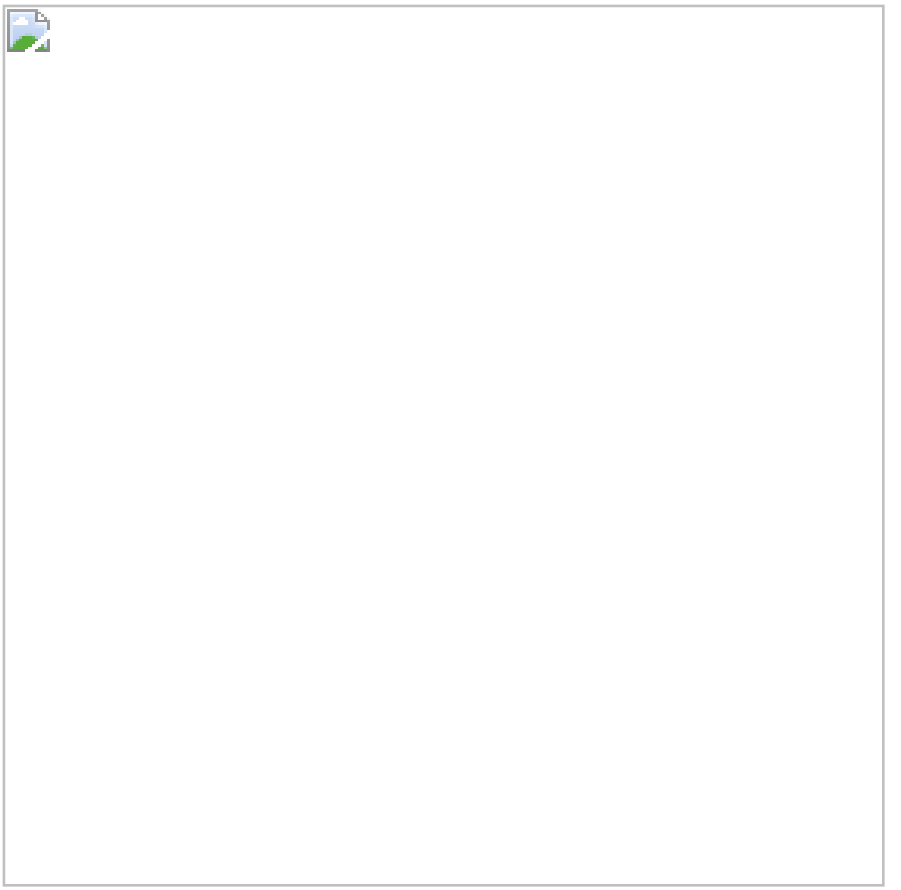

Tropical Fruit Pests and Pollinators: Biology, Economic Importance, Natural Enemies and Control

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PEÑA, J. E., J. L. SHARP, AND M. WYSOKI (eds.). 2002. Tropical Fruit Pests and Pollinators: Biology, Economic Importance, Natural Enemies and Control. CABI Publishing. Oxon, UK. 430 pp. ISBN 0-85199-434-2. Hardcover. $149.00.

This book is a series of chapters on the arthropod pests, natural enemies and pollinators of ten different tropical fruits as well as five "minor" fruits. Also included is a final chapter on quarantine treatments for exported fruits. The information is worldwide in scope; the authors are researchers from China, Thailand, Australia, Israel, Kenya, Uganda, South Africa, Brazil, Mexico, Puerto Rico and the United States. Being a tropical fruit enthusiast (I like to eat them), I was eager to start reading this book focusing on other things that eat them too!

The most inclusive chapters in the book are about the pests of avocado, citrus and bananas, followed by litchi/longan, passionfruit, mango, *Annona*, papaya, pineapple and guava. There is also a discussion of the pests of durian, carambola, Barbados cherry (or acerola), mangosteen and rhambutan, the minor tropical fruits. Since production of exotic tropical fruit outside their area of origin, both commercially and as backyard fruits, is increasing, it is important to find the information about the existing and potential pest problems.

The introduction (chapter 1) points out our lack of knowledge about tropical fruits as opposed to temperate fruits. Insect sampling protocols, population studies and economic impact of pests are poorly understood or unknown for most tropical fruit pests. This makes implementation of integrated pest management strategies difficult. However, some strategies, such as biological control, have great potential because of the perennial nature of many of the tropical fruit crops. Each chapter starts with a brief description of the fruit crop, cultivation characteristics and production and use information when appropriate. Control methods including cultural control, biological control and chemical control are included. The importance of insect pollinators and the consideration of the impact of pest management strategies on these insects is stressed.

Chapter 2 on pests of bananas is organized under subheadings of pests of the different plant parts (i.e., rhizome and pseudostem, foliage, fruits and flowers). This general organization was also used for chapter 4 (mango), chapter 5 (papaya), and chapter 7 (Annona). I liked this layout for diagnostic purposes. I did not like that family affiliations, in some cases, were not included. Chapter 3 on pests of citrus, chapter 9 on guava and chapter 12 on passion fruit were organized under the subheadings of key pests and other pests. I particularly liked table 3.1 which listed the pest species by geographic region as well as tables 3.2-3.8 which listed the major parasitoids for different insect groups on citrus and their area of origin. Other chapters had different organizational schemes. For example, chapter 8 on avocado used a taxonomic hierarchy in discussing the insect pests. Chapter 6 on pineapple was broadly divided into nematode and arthropod pests. Table 6.2 noted the geographic distribution of the key nematode pests as did table 6.3 for the arthropods. Particularly helpful was the information of the part of the plant attacked and an indicator of the pest status (major, minor) for different growing areas in table 6.3. Chapter 10 discussed the key pests of some minor tropical fruits (durian, mangosteen, rambutan, carambola, and Barbados cherry or acerola).

The book could have profited from more careful editing. For example, there is no rhyme or reason to the layout of the color plates. Some of the pages the order of the numbering of the figures is numerical across rows left to right, others it is numerical down columns and others the order is circular or seemingly random. Also, in the legends for the color plates, sometimes only the common name of the arthropod is given, sometimes the scientific name, other times both. For clarity, it would have been better if both were included when possible, at least for the first plate of a particular species. Plates 1-5 all are of the banana weevil, *Cosmopolites sordidus*, but the legends are banana weevil (plate 1) *Cosmopolites sordidus* (plate 2) and banana weevil (plates 3-5). In many chapters, references cited in the text were omitted from the citations at the end of the chapter. The order and genus of an insect was misspelled (Tessaritomidae instead of Tessaratomidae). It would have been helpful to have a common organizational structure for all the chapters.

This book would have been better if more figures, either line drawings or black and white photographs of the pests/damage had been included. When a pest species was common to a number of different fruits as are some of the tephritid flies, a lengthy description of the pest could have been included in one chapter and then just referenced in the other chapters.

The authors made a good effort to make this work worldwide in discussion of fruit culture, pests, pollinators and control. I appreciated the inclusion of not only primary literature in the references but also non-refereed publications as well as master's and Ph.D. citations. Even with the editing errors, the information is very easy to read, up to date and complete. This book will be a useful reference for tropical fruit producers and specialists.

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