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Integrated Management of Insect Pests on Canola and other Brassica Oilseed Crops

Author: Capinera, John L.

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Book Review

Reddy GVP [Ed]. 2017. Integrated Management of Insect Pests on Canola and other *Brassica* Oilseed Crops. CABI, Wallingford, Oxfordshire, UK. 394 pp. ISBN 978 1 78064 820 0, US$261 (hardcover).

The plant family Brassicaceae is well known as a source of vegetables (e.g., cabbage, turnip, bok choy, mustard greens) but the seeds from some brassica species also have been a source of oil for more than 4,000 years, with the oil used initially as lamp oil, then as an industrial lubricant, and more recently as edible oil. At least three species have been cultured for this purpose, namely *Brassica rapa* L., *B. juncea* (L.), and *B. napus* L., and collectively were called oilseed rape. The transformation to edible oil was accomplished when Canadian scientists identified a naturally occurring mutation that produced a seed rich in oil, but that was low in glucosinolates and erucic acid. Glucosinolates affect the palatability, and erucic acid is a potential health hazard. The new strain, producing more palatable oil, was named canola, and purportedly has some nutritional advantages relative to most other oils, including low levels of saturated fat, and high levels of monounsaturated fat. As was the case with rapeseed oil, several related plant species can be the source of canola oil, but the distinguishing character that defines their oils as canola oil is that the oil must contain less than 2% erucic acid and the leftover meal (used as animal feed) must contain less than 30 micromoles of aliphatic glucosinolates per gram. In recent decades, canola has developed into a major crop, with canola oil becoming one of the most important sources of vegetable oil in the world. The major producers are the European Union, Canada, and China, but significant production occurs in many areas of the world, including India and Pakistan, Australia, Russia, and USA. In North America, production is centered on Canada's Prairie Provinces, but canola production has spread south, with commercial production now found widely, and with significant productions as far south as Georgia and Oklahoma. However, the advent of canola oil was in the 1970s, so unlike most major crops, which have been the subject of scientific research for hundreds of years, canola production is still in its early stages of development, and there is still much to learn. This is especially true with respect to pests and pest management.

Thus, Gadi V.P. Reddy and CABI provide a valuable service by pulling together the world's leading researchers on *Brassica* oil seed pests, and publishing the most significant publication on this subject to date. This book contains the contributions of 50 authors distributed over 25 chapters. The authors are located throughout the world, including Australia, Canada, China, Finland, India, Iran, Mexico, Pakistan, Spain, and USA. Canada is exceptionally well represented, but authors from all the major canola-producing regions are included.

Most of the contributions seem to represent one of the following 3 categories: biology and management of a specific pest or related pests, a technique or technology applicable to *Brassica* protection, or regional approaches to pest management. Thus, among the 'specific pest' chapters you find contributions on flea beetles, diamondback moth, swede midge, cabbage seedpod weevil, pollen beetle, bertha armyworm, sucking insects, and noctuid pests. Among the 'technique' contributions are entomopathogenic nematodes, entomopathogenic fungi, cover crops, aster yellows detection, volatile organic compounds, features of glucosinolates, herbicide resistant plants, and pollination. Among the 'regional' contributions are chapters on pest management in the southern plains of USA, southeastern USA, northern USA and Canada, China, Pakistan, and Australia. Not all chapters conform to this scheme of classification, of course. For example, as you might expect, there are short treatments of pests, including 'other' pests, contained within the regional discussions, and likely for this reason the editor did not attempt to cluster the contributions into sections. Likewise, an important chapter on insect-transmitted viruses is included. Finally, although the preponderance of information concerns canola protection, there are some 'miscellaneous' chapters devoted to mustard, camelina, and crambe.

By bringing together these various contributions, this book provides a state-of-the-art treatment of canola protection from insects (and the plant pathogens they transmit). This book will prove very useful for practicing and future researchers, extensionists, and industry personnel interested in this important crop. Because oilseed *Brassica* crops share pests with many vegetable crops, this book may serve as a valuable reference for vegetable entomologists, too. Although vegetable entomologists are very familiar with flea beetles, diamondback moth, and cabbage aphid, they are much less familiar with species such as swede midge, cabbage seedpod weevil, and bertha armyworm — species treated in depth within this book.

This book is a nice addition to any entomologist's library. The cover and binding are sound, the paper is high quality, and all the images are provided in color. The text is well edited and seems to be error free. The index is well organized and comprehensive. I highly recommend it.

John L. Capinera
Entomology & Nematology Department
University of Florida
Gainesville, FL, USA
Email: Capinera@ufl.edu

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