BOOK REVIEW

Integrated Pest Management in the Tropics

Editor: Dharam P. Abrol

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The increase in human population in the coming decades calls for the imperative need to produce more food. However this is beset with a host of problems including the ravages of both insect and non insect pests. Pests cannot be contained by any one method but require integrated pest management strategies. Ecofriendly and sustainable IPM technologies have to be developed, disseminated and implemented on a large scale especially in the tropics. The traditional indigenous technical knowledge on pest control has also to be validated and included in the strategies.

The present book “Integrated Pest Management in the Tropics” in two volumes edited by Dr. Dharam P. Abrol addresses the above issues in a comprehensive manner. It contains 26 diverse chapters written by authors with considerable expertise in their areas of interest. In chapter 1 of volume 1, the editor reviews the pest problems and losses caused by them in the tropics. The emerging pest problems in the tropics with important examples especially in fruit and field crops are explained in chapter 2. Chapter 3 deals with the methods in biological control of crop pests and the bio agents deployed. Biological control will be the cornerstone of IPM programmes in the years to come. The use of chemical pesticides for control of insect pests has been discussed in chapter 4. The authors have explained the use of chemicals for control of major insect pests, proper use of insecticides, insecticide resistance, resistance management, resurgence of pests etc. We cannot completely exclude chemicals from IPM as they might have to be applied in pest outbreak situations. The importance of cropping systems and crop diversity as a component of IPM is overviewed with examples in chapter 5. The impact of climate change on crop pests and disease scenario is discussed with examples in chapter 6 whereas in chapter 7, the future components of IPM involving biotechnology and other emerging technologies are briefly overviewed. Chapter 8 contains compilations of affordable technologies for IPM in selected tropical vegetables whereas IPM strategies developed in the tropics for cereals are dealt in chapter 9. The pest problems, various tools of IPM developed for legumes, roots and tubers, banana, citrus, sugarcane, cocoa, tea and coffee are comprehensively covered in chapters 10 to 15 by the respective authors. However IPM technologies in crops like mango have been omitted.

In volume 2, chapter 16 deals with the major pest problems of palms and the IPM measures undertaken in the palm growing countries. Cotton, a fibre crop grown in temperate as well as tropical regions is infested by a number of pest species. The pest problems, IPM technologies, their adoption and related issues like use of Bt cotton have been highlighted in chapter 17. The major pests and IPM methodologies in two important plantation crops viz; cashew and rubber have been in chapter18. The role of insect sex pheromones in IPM have been discussed with case studies in chapter 19. Chapter 20 also relates to the application of chemical ecology in IPM. The different types of semiochemicals, its source and function have been listed. Pheromones will have a major role in IPM of economically important crops in the future. More research and development has to be undertaken in this line. Plant chemicals mostly volatiles are important in insect behaviour and insect plant interactions and this aspect finds place in chapter 21. The problems of chemical pesticide abuse are dealt in chapter 22 and the need for alternative and sustainable ecological IPM is promoted by the authors. Chapter 23 exposes the reader to examples of cultural and physical methods in IPM in the tropics.

The role of taxonomy and systematics in providing an essential scientific fool proof basis for IPM especially biological control is stressed in chapter 24. The importance of accurate identification of insect pests and bio control agents in IPM is paramount. The collection of data, methods adopted and statistical analysis to obtain tangible results in IPM experiments are invaluable
and discussed in chapter 25. A brief analysis of the future of IPM in the tropics, the constraints and suggestions to alleviate them is the theme of the last chapter.

The book in two volumes with the foreword of Prof Marcos Kogan, Director Emeritus, Integrated Plant Protection Center, Oregon State University, USA, reiterates the need for IPM to be multidisciplinary, to integrate all tools and practices and to involve all concerned stakeholders. The authors have taken tremendous effort in compiling the information on pests, their management and presenting the same in a lucid manner. The references listed will be useful for deeper insight into the realm of IPM. This book will serve as an invaluable resource to students, researchers, scientists and extension specialists associated with entomology and IPM in agriculture and will be an asset to the Libraries of all the Universities.

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BOOK REVIEW

Mealybugs and their management in Agricultural and Horticultural Crops

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Mealybugs are common sap feeding pests that infest a wide range of agricultural and horticultural crops. Besides weakening the plants, the honey dew secreted by mealybugs allow the growth of sooty mould, giving the plants a blackened appearance. Severe infestations can reduce plant vigour and lead to stunted growth and premature leaf fall. In India, different species of mealy bugs (viz. Planococcus citri, Planococcus lilacinus, Macrollicoccus hirsutus, Paracoccus marginatus, Phenacoccus solenopsis etc.) have become major pests on various crops. Recently, invasive species like Phenacoccus madeirensis and Pseudococcus jackbeardsleyi have been recorded as serious pests on several host plants. The cassava mealy bug Phenacoccus manihoti, one of the most serious pests of cassava worldwide, has recently reached Asia, raising significant concern over its potential spread throughout the region and entering India. The area of infestation include undersurface of leaves, plant stems, entire fruits or fruit clusters, etc. The tendency of mealy bug nymphs and adults to live and multiply in semi-concealed parts of plants and their waxy coating make them “hard to kill” insects using chemical insecticides. Excessive use of insecticides for management of mealybug infestations on horticultural crops can lead to serious issues of pesticide residues, affecting the export market. At this juncture, this book on “Mealybugs and their management in Agricultural and Horticultural Crops” (Edited by M. Mani and C. Shivaraju) is an excellent attempt to compile all available information identification, biology, cytogenetics, population dynamics and management of mealybugs with an emphasis on the Indian perspective. The senior editor Dr. M. Mani has over three decades of experience in mealybug research, especially biological control and has contributed some of the significant initial chapters in the book. The contributing authors of the different chapters have succeeded in presenting information on the basic aspects and also on the seasonal occurrence and management of mealy bugs on different crops. This book would be highly relevant as a reference book for students, researchers and extension workers and can be recommended as a useful addition in Libraries of all Agricultural Universities, Research Institutes and state Departments of Agriculture and Horticulture.

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