

## BOOK REVIEW

H.F. VAN EMDEN & R. HARRINGTON (eds): *APHIDS AS CROP PESTS*. CABI Publishing, London, 2007, 717 pp. ISBN 978 0 85199 819 0. Price USD 290.00 / EUR 230.00 / GBP 147.00.

Sixty-eight leading specialists have written a new handbook on aphids as key pests of various crops. This book complements the aphid knowledge in the excellent monograph published about twenty years ago in three volumes – “*Aphids: Their Biology, Natural Enemies and Control*” (edited by A.K. Minks and P. Harrewijn) – as it concentrates on the applied aspects of aphidology. It does not provide comprehensive information on their morphology, physiology and ecology.

The material in this book is divided into thirty-one chapters, which can be aggregated into the following nine key topics:

A. Taxonomic issues (Chapter 1: by R.L. Blackman and V.F. Eastop) include the taxonomic and bionomical characteristics of fourteen aphid species of great agricultural importance. More extensive information on the identification of aphids on the world's crops, trees and herbaceous plants can be found in books previously published by the same authors (Blackman, Eastop, 1994, 2000, 2006).

B. New methods in aphid population genetics (Chapter 2: by H.D. Loxdale and G. Lushai) covers recent advances in population genetics, molecular markers, clonal studies, insecticide resistance, adaptation to host plants and geographic colonization. More detailed understanding of the mechanisms of aphid resistance to insecticides is included in Chapter 10 (by S.P. Foster, G. Devine and A.L. Devonshire).

C. Chapter 3 – Life cycles and polymorphism (by I.S. Williams and A.F.G. Dixon) focuses on types of life cycle, factors determining the production of different morphs and some aspects of virus transmission. Chapter 6 – describes Growth and Development (by C.S. Awmack and S.R. Leather) and Chapter 7 is on Aphid movement (by M.E. Irwin, G.E. Kampmeier, and W.W. Weisser).

D. Chapter 4 – Host-plant selection and feeding (by J. Pettersson, W.F. Tjallingii and J. Hardie) covers visual and olfactory responses, plant penetration and phloem feeding. In Chapter 5 – Nutrition and symbionts (by A.E. Douglas and H.F. van Emden) there is an account of microbial symbiosis in aphids and the development of artificial diets for aphids).

E. Chapter 9 – Chemical ecology (by J.A. Pickett and R.T. Glinwood) focuses on interactions between aphids, and their interactions with plants and natural enemies. Chapter 11 – Coping with stress (by J.S. Bale, K.L. Ponder and J. Pritchard) describes the reactions of aphids to stressors such as poor plant quality or extreme temperatures.

F. Chapter 8 – Predators, parasitoids and fungal pathogens (by W. Völkl, M. Mackauer, J.K. Pell and J. Brodeur) presents an account of the main groups of aphid predators, parasitoids

and pathogens, intraguild interactions and the role of mutualistic ants.

Chapter 12 – Population Dynamics (by P. Kindlmann, V. Jarošík and A.F.G. Dixon), discusses the various ways of mathematically modeling aphid population dynamics and the effectiveness of biological control agents, and the use of modeling in pest management.

G. Chapter 13 – Feeding injury (by S.S. Quisenberry and X. Ni) describes the injury caused to crops by aphid feeding (e. g. chlorosis, deformation, galling). Chapter 14 – Transmission of plant viruses (by N.I. Katis, J.A. Tsitsipis, M. Stevens and G. Powell) deals with virus-vector interactions, modes of virus transmission and strategies for disease management.

H. Next six chapters focus on theory and components of pest management.

Chapter 15 – Chemical Control (by A.M. Dewar) contains much new material on neonicotinoid compounds, which are especially effective against aphids. Chapter 16 – Cultural Control (by S.D. Wratten, G.M. Gurr, J.M. Tylianakis and K.A. Robinson) highlights the extent to which conservation biological control is used in practice. Chapter 17 – Host Plant Resistance (by H.F. van Emden) and Chapter 18 – Biological Control (by W. Powell and J.K. Pell) gives an account of the use of plant resistance, parasitoids, predators and entomopathogenic fungi for controlling aphids on various crops. Chapter 19 – Monitoring and forecasting (by R. Harrington, M. Hullé and M. Plantegenest). Chapter 20 – Integrated pest management and introduction to IPM case studies (by H.F. van Emden) provides an account of the history, the concepts and potential of IPM.

I. Remaining chapters describe IPM Case Studies: Chapter 21 – Brassicas, (by R.H. Collier and S. Finch); Chapter 22 – Berry Crops (by R. Isaacs and J.A.T. Woodford); Chapter 23 – Cotton (by J.P. Deguine, M. Vaissayre and F. Leclant); Chapter 24 – Leafy salad crops (by G.M. Tatchell); Chapter 25 – Grain (by H.M. Poehling, B. Freier and M. Klüken); Chapter 26 – Seed Potato (by E.B. Radcliffe, D.W. Ragsdale and R.A. Surányi); Chapter 27 – Sorghum (by G.J. Michels, Jr. and J.D. Burd); Chapter 28 – Cucurbits (by S.E. Webb); Chapter 29 – Deciduous fruit trees (by S. Barbagallo, G. Cocuzza, P. Cravedi and S. Komazaki); Chapter 30 – Tropical and subtropical fruit trees (by S. Barbagallo, G. Cocuzza, P. Cravedi and S. Komazaki); Chapter 31 – Decision support systems (by J.D. Knight and D.J. Thackray).

The book is well-organized and provides basic information on a spectrum of related subjects. It is recommended reading for those who are interested in aphids and aphid pest control. It is likely to be particularly useful for those researchers interested in ecologically friendly pest management and students of associated biological disciplines. The editors and authors are to be congratulated on producing an excellent book.

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