

A biplane is shown from a front-on perspective, flying over a vast field of green crops. The plane is equipped with a large cylindrical tank under the fuselage and numerous small nozzles along the wings, which are actively spraying a fine mist of pesticide. The background consists of a dense line of trees under a clear sky.

Use and Management of Insecticides, Acaricides, and Transgenic Crops

EDITED BY
**John N. All
Michael F. Treacy**

ENTOMOLOGICAL
SOCIETY OF
AMERICA

Contents

About the Editors/Contributing Authors	iv
Preface and How to Use This Handbook	1
Section 1. Deployment of Insecticides, Acaricides, and Transgenic Crops	3
Chapter 1. Relevance of Pesticides in the Management of Arthropod Pests	4
Chapter 2. Regulations Governing Insecticides, Acaricides, and Transgenic Crops: Implications of Federal and State Regulations for Users	7
Chapter 3. Insecticides, Acaricides, and Transgenic Crops and Integrated Pest Management (IPM)	14
Chapter 4. Arthropod Sampling and Decision Making	20
Section 2. Classification, Formulation, and Application of Insecticides and Acaricides	25
Chapter 5. Physiological Targeting of Insecticides and Acaricides	26
Chapter 6. Classification and Properties of Commercial Insecticides and Acaricides	36
Chapter 7. Formulations	68
Chapter 8. Deployment of Insecticides and Acaricides	73
Section 3. Management of Pest Resistance to Insecticides and Acaricides	81
Chapter 9. Insecticide/Acaricide Resistance and Management Strategies	82
Chapter 10. Insecticide Resistance Action Committee (IRAC)	93
Section 4. Safety of Insecticide/Acaricides and Transgenic Crops to Nontarget Species in the Environment	95
Chapter 11. Environmental Safety of Insecticides and Acaricides	96
Chapter 12. Mammalian Toxicology: Insecticides, Acaricides, and Transgenic Crops	99
Chapter 13. Assessment of Environmental Toxicology to Arthropod Natural Enemies	106
Section 5. Development, Utilization, and Management of Insecticidal-Transgenic Crops	109
Chapter 14. <i>Bacillus thuringiensis</i> Cry Proteins	110
Chapter 15. Crop Development with <i>Cry</i> Gene Constructs	113
Chapter 16. Market Development of Bollgard Cotton	117
Chapter 17. YieldGard Transgenic Corn Insect Technologies	122
Chapter 18. Grower Acceptance and Utilization of Transgenic Corn in IPM Programs	124
Chapter 19. Status and Basis of Insect Resistance to Transgenic <i>Bt</i> Crops	129
Chapter 20. Resistance Management Programs for Transgenic Crops	134
Abbreviations and Acronyms	139
References	140
Index	146