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Nota di contenuto	SECTION 1: OPERATIONAL AREA-WIDE PROGRAMMES. Development and Area-Wide Application of Biological Control Techniques Using the Parasitoid <i>Aphidius gifuensis</i> to Control <i>Myzus persicae</i> in China. Biological Control: Cornerstone of Area-Wide-Integrated Pest Management for the Cassava Mealybug in Tropical Asia. Holistic Area-Wide Approach for Successfully Managing Citrus Greening (Huanglongbing) in Mexico. Technology Used by Field Managers for Pink Bollworm Eradication with its Successful Outcome in the United States and Mexico. The Suppression of the False Codling Moth in South Africa Using an AW-IPM Approach with a SIT Component. Putting the Sterile Insect Technique into The Modern Integrated Pest Management Toolbox to Control the Codling Moth in Canada. Area-Wide Management of Mediterranean Fruit Fly with the Sterile Insect Technique in South Africa: New Production and Management Techniques Pay Dividends. The Chinese Citrus Fly, <i>Bactrocera minax</i> (Diptera: Tephritidae): A Review of its Biology, Behaviour and Area-Wide Management. Area-Wide Fruit Fly Programmes in Latin America. Area-Wide Management of Fruit Flies in a Tropical Mango Growing Area Integrating the Sterile Insect Technique and Biological Control: From a Research to an Operational Programme. MOSCASUL Programme: First Steps of a Pilot Project to Suppress the South American Fruit Fly in Southern Brazil. SECTION 2: ANIMAL AND HUMAN HEALTH. Area-Wide Management of Stable Flies. Advances in Integrated Tick Management for Area-Wide Mitigation of Tick-borne Disease Burden. Area-Wide

Integrated Management of a *Glossina palpalis gambiensis* Population from the Niayes Area of Senegal: A Review of Operational Research in Support of a Phased Conditional Approach. Phylogeography and Insecticide Resistance of the New World Screwworm Fly in South America and the Caribbean. Area-Wide Mosquito Management in Lee County, Florida, USA. *Aedes aegypti* Control Programmes in Brazil. Combining the Incompatible and Sterile Insect Techniques for Pest and Vector Control. Combined Sterile Insect Technique and Incompatible Insect Technique: Concept, Study Design, Experience and Lessons Learned from a Pilot Suppression Trial in Thailand. Ecology, Behaviour and Area-Wide Control of the Floodwater Mosquito *Aedes sticticus*, with Potential of Future Integration of the Sterile Insect Technique.

SECTION 3: CLIMATE CHANGE, GLOBAL TRADE AND INVASIVE SPECIES. Buffalo Flies (*Haematobia exigua*) Expanding Their Range in Australia Facilitated by Climate Change: The Opportunity for Area-Wide Controls. GIS-Based Modelling of Mediterranean Fruit Fly Populations in Guatemala as a Support for Decision- Making on Pest Management: Effects of ENSO, Climate Change, and Ecological Factors. Trends in Arthropod Eradication Programmes from the Global Eradication Database, GERDA. Successful Area-Wide Eradication of the Invading Mediterranean Fruit Fly in the Dominican Republic. Area-Wide Management of Invading Gypsy Moth (*Lymantria dispar*) Populations in the USA. Successful Area-Wide Programme that Eradicated Outbreaks of the Invasive Cactus Moth in Mexico. Area-Wide Eradication of the Invasive European Grapevine Moth, *Lobesia botrana* in California, USA. Area-Wide Management of *Lobesia botrana* in Mendoza, Argentina.

SECTION 4: REGULATORY AND SOCIO-ECONOMIC ISSUES. Area-Wide Management of Rice Planthopper Pests in Asia through Integration of Ecological Engineering and Communication Strategies. Brief Overview of The World Health Organization "Vector Control Global Response 2017-2030" and "Vector Control Advisory Group" Activities. New Molecular Genetic Techniques: Regulatory and Societal Considerations. Will the "Nagoya Protocol on Access and Benefit Sharing" Put an End to Biological Control?. Barriers and Facilitators of Area-Wide Management Including Sterile Insect Technique Application: The Example of Queensland Fruit Fly. Industry-Driven Area-Wide Management of Queensland Fruit Fly in Queensland and New South Wales, Australia: Can it Work?. A Successful Community-Based Pilot Programme to Control Insect Vectors of Chagas Disease in Rural Guatemala. Citizen Science and Asian Tiger Mosquito: A Pilot Study on Procida Island, a Possible Mediterranean Site for Mosquito Integrated Vector Management Trials. Community Engagement for *Wolbachia*-based *Aedes aegypti* Population Suppression for Dengue Control: The Singapore Experience.

SECTION 5: NEW DEVELOPMENTS AND TOOLS FOR AREA-WIDE INTEGRATED PEST MANAGEMENT. Technical Innovations in Global Early Warning in Support of Desert Locust Area-Wide Management. Mating Disruption with Pheromones for Control of Moth Pests in Area-Wide Management Programmes. CRISPR-Based Gene Drives for Combatting Malaria: Need for an Early Stage Technology Assessment. Genome Editing and its Applications for Insect Pest Control: Curse or Blessing?. Synthetic Sex Ratio Distorters Based on CRISPR for the Control of Harmful Insect Populations. The Use of Species Distribution Modelling and Landscape Genetics for Tsetse Control. Agent-Based Simulations to Determine Mediterranean Fruit Fly Declaration of Eradication Following Outbreaks: Concepts and Practical Examples. Real-Time Insect Detection and Monitoring: Breaking Barriers to Area-Wide Integrated Management of Insect Pests. Prospects for Remotely Piloted Aircraft Systems in Area-Wide Integrated Pest

Management Programmes. Enterobacter: One Bacterium Multiple Functions. Author Index. Scientific Name Index. Subject Index.

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Sommario/riassunto

Over 98% of sprayed insecticides and 95% of herbicides reach a destination other than their target species, including non-target species, air, water and soil. The extensive reliance on insecticide use reduces biodiversity, contributes to pollinator decline, destroys habitat, and threatens endangered species. This book offers a more effective application of the Integrated Pest Management (IPM) approach, on an area-wide (AW) or population-wide (AW-IPM) basis, which aims at the management of the total population of a pest, involving a coordinated effort over often larger areas. For major livestock pests, vectors of human diseases and pests of high-value crops with low pest tolerance, there are compelling economic reasons for participating in AW-IPM. This new textbook attempts to address various fundamental components of AW-IPM, e.g. the importance of relevant problem-solving research, the need for planning and essential baseline data collection, the significance of integrating adequate tools for appropriate control strategies, and the value of pilot trials, etc. With chapters authored by 184 experts from more than 31 countries, the book includes many technical advances in the areas of genetics, molecular biology, microbiology, resistance management, and social sciences that facilitate the planning and implementing of area-wide strategies. The book is essential reading for the academic and applied research community as well as national and regional government plant and human/animal health authorities with responsibility for protecting plant and human/animal health.

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