

# Getting Started with Greenhouse IPM

## Definition of IPM

**Integrated Pest Management (IPM)** is an approach to managing pests by using appropriate physical, cultural, biological, and chemical tactics that are safe, profitable, and environmentally compatible. One of the tactics included in IPM is using biocontrols—enlisting predators, parasites, or pathogens of pest organisms to help manage the pests. IPM allows growers to use fewer chemical pesticides and still produce a quality product.

## Biocontrol

IPM/biocontrol requires a hands-on approach over an extended period to learn and apply successfully. Growers need to learn pest monitoring techniques, pest and parasite life cycles, timely release of parasites, population assessment of both parasitized and nonparasitized pests, how to determine economic pest thresholds, appropriate biocontrols available, and, when necessary, the blending of compatible chemical controls with biocontrols to manage the pest complex.

This manual enables growers to develop a practical management strategy within the production constraints of their own greenhouses. Experience has shown that growers using IPM/biocontrol systems have been able to increase crop quality and yield. The program also reduces pesticide resistance in target pests, creates a safer working environment, and reduces grower dependence on pesticides, thus potentially lowering costs of production and increasing income levels through the marketing of high-quality, higher-yielding crops.

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## HISTORICAL ACCOUNT OF EUROPEAN BIOCONTROL

Most past successes in greenhouse biocontrol have occurred in the Netherlands and the United Kingdom, mainly because at one time these two countries contained more than half of the world's greenhouse vegetable acreage. In the late 1960s, cucumber grower Jan Koppert cautiously started experimenting with predatory mites to control red spider mites. The success of these experiments laid the foundation for biological crop protection. Koppert is currently the international market leader in biological greenhouse crop protection. Large-scale production of natural enemies such as *Encarsia formosa* and *Aphidius colemani* takes place in the main facility located in the Netherlands. In addition to Koppert, several other large producers include Biobest (Belgium), a leader in bumble bee pollination and biocontrol production; Syngenta Bioline (England and California); and Applied Bio-Nomics Ltd., Canada's largest producer of biocontrols.