Biological Control Strategies for Vegetable Crop Pests

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Preface

Vegetable crops constitute an essential component of global food systems, providing valuable nutrients, income and livelihood opportunities for millions of farmers. However, their productivity and quality are continually threatened by a diverse range of insect pests that can cause substantial yield losses and reduce market value. Increasing concerns regarding pesticide residues, pest resistance, environmental contamination and impacts on beneficial organisms have strengthened the need for safer, sustainable and ecologically compatible pest-management approaches.

Biological Control Strategies for Vegetable Crop Pests presents biological control as a key component of integrated pest management, emphasizing the use of naturally occurring and commercially developed biological agents to suppress pest populations. The book explores major groups of biological control agents, including predators, parasitoids, entomopathogenic fungi, bacteria, viruses, nematodes and microbial metabolites. It also discusses their biology, mechanisms of action, mass production, formulation, field application and compatibility with other pest-management practices.

Particular emphasis is placed on conserving natural enemies, augmentative and classical biological control, microbial biopesticides, botanical products and emerging technologies that can improve the effectiveness and precision of biological interventions. The book also highlights challenges associated with field performance, environmental factors, pest resistance, regulatory considerations, and farmer adoption.

This book is intended to serve as a useful resource for students, researchers, teachers, professionals and practitioners involved in entomology, plant protection, horticulture and sustainable agriculture. It aims to promote scientifically informed approaches that protect vegetable production while supporting biodiversity, environmental health and long-term agricultural sustainability.

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