



# INSECT PREDATORS IN PEST MANAGEMENT

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## **12 Weed Bio-Control Agents**

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### **LEARNING OBJECTIVES**

1. To have a good understanding of weeds and factors that make them the most costly group of agricultural pests.
2. To understand the categories of weed management tactics and the use of ecofriendly methods to maintain the quality of the environment.
3. To learn the biocontrol of weeds using natural enemies.
4. To learn the beneficial characteristics of insects in the management of weeds.
5. To learn how insects have been used as biocontrol agents of weeds with examples of successful management of major weeds.
6. To learn the antagonistic potential of insect bioagents against weeds with examples.

### **12.1 INTRODUCTION**

There is no universally accepted definition for a weed; the European Weed Research Society defined a weed as “any plant or vegetation, excluding fungi, interfering with the objectives or requirements of people.” Weeds have always been with us since the advent of settled agriculture some 10,000 years ago. The battle between humans and weeds is endless; even today, there are acres of valuable land subjugated by weeds. They exude harmful phytotoxins, which reduce the growth of many crop plants. Worldwide, weeds are the most costly group of agricultural pests, as weeds cause more yield loss and add to farmer’s production cost than insect pests, pathogens, nematodes, birds, rodents, etc. The Weed Science Society of America has identified 17 important early publications on weeds (1895–1965), 12 of which dealt with their destruction, control or eradication. Chemical, mechanical, cultural and biocontrol methods have been the core for the management of weeds, particularly in agricultural fields. However, biological control of weeds using natural enemies and native organisms is an important approach in the weed management techniques. Insects have been most frequently used as biocontrol agents of weeds and this is likely