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BIOLOGICAL PEST CONTROL: AN INTRODUCTION

David Orr, Steve Bambara, and James Baker
Department of Entomology, North Carolina State University

What Is Biological Pest Control?

Biological control is, generally, human's use of a specially chosen living organism to control a particular pest. This chosen organism might be a predator, parasite, or disease which will attack the harmful insect. It is a form of manipulating nature to increase a desired effect. A complete Biological Control program may range from choosing a pesticide which will be least harmful to beneficial insects, to raising and releasing one insect to have it attack another, almost like a "living insecticide".

Some Advantages of Biological Pest Control

Biological control methods can be used as part of an overall integrated pest management (IPM) program to reduce the legal, environmental, and public safety hazards of chemicals. In addition, it may be a more economical alternative to some insecticides. Some biological control measures can actually prevent economic damage to agricultural crops. Unlike most insecticides, biological controls are often very specific for a particular pest. Other helpful insects, animals, or people can go completely unaffected or disturbed by their use. There is less danger of impact on the environment and water quality.

Some Disadvantages of Biological Pest Control

Biological control takes more intensive management and planning. It can take more time, require more record keeping, more patience, and sometimes more education or training. Successful use of biological control requires a greater understanding of the biology of both the pest and its enemies. Many natural enemies are very susceptible to pesticides, and using them successfully in an IPM program takes great care. In some cases, biological control may be more costly than pesticides. Often, the results of using biological control are not as dramatic or quick as the results of pesticide use. Most natural enemies attack only specific types of insects - unlike broad-spectrum insecticides, which may kill a wide range of insects. Though often an advantage, this can also be a disadvantage.

The Three Main Approaches to Biological Control

Biological control uses naturally occurring predators, parasites and diseases to control pests. There are three main ways to use these natural enemies against unwanted insect pest populations.

Classical Biological Control (importation) involves traveling to the country or area from which a newly introduced pest originated and returning with some of the natural enemies that attacked it and kept it from being a pest there. New pests are constantly arriving accidentally or intentionally. Sometimes they survive. When they come, their enemies are left behind. If they become a pest, introducing some of their natural enemies can be an important way to reduce the amount of harm they can do.

Augmentation is a method of increasing the population of a natural enemy which attacks a pest. This can be done by mass producing a pest in a laboratory and releasing it into the field at the proper time. Another method of augmentation is breeding a better natural enemy which can attack or find its prey more effectively. Mass rearings can be released at special times when the pest is most susceptible and natural enemies are not yet present, or they can be released in such large numbers that few pests go untouched by their enemies. The

augmentation method relies upon continual human management and does not provide a permanent solution unlike the importation or conservation approaches may.

Conservation of natural enemies is an important part in any biological control effort. This involves identifying any factors that limit the effectiveness of a particular natural enemy and changing them to help the beneficial species. Conservation of natural enemies involves either reducing factors which interfere with the natural enemies or providing needed resources that help natural enemies.

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