

## Niagara College Greenhouse Pests and Biological Solutions

The fungus gnat is a resilient pest that feeds on plant roots. It is so vigorous that it is nearly impossible to control with even the most powerful chemical pesticide. At Niagara College, we take advantage of the gnat's vulnerability to a certain type of predatory mite (hypoapsis), thus controlling the gnat population naturally, with a biological solution.

### Greenhouses and Pests

A greenhouse is a natural breeding ground for many types of pests. With so many plants so close together, and with the presence of tender cuttings, a greenhouse is any plant pest's fantasy. Furthermore, many common pests cannot survive our cold Canadian winters, and prefer to vacation in our greenhouse than to die an icy death. Given pests' attraction to greenhouses, pest damage is a serious concern to greenhouse growers.

### Pest Damage

Pests can cause stunted growth, deformation, leaf and root damage, and plant death. Some pests—fungus gnats, for example—eat root hairs and soft root tissue. Indirect damage occurs when they spread disease, either fungal spores or viruses.

### Biological Controls

At Niagara College, we prefer not to use chemical pesticides, which can damage the environment and are not as safe to work with as biological pest controls. Biological controls, called bios for short, are natural predators of plant pests. Bios are generally associated with insect pests and predators.

### A Pest and a Predator

One of the most common and destructive insect pests that can invade a greenhouse is the mealybug. It is a tiny, whitish, waxy insect that feeds on a plant's juices. The mealy bug can cause leaves to become withered and yellow, and can lead to premature dropping of fruit.

Niagara College uses predatory beetles called "mealybug destroyers" (*Cryptolaemus montrouzieri*), which would eat mealybugs for breakfast, lunch, and dinner, and come back for dessert. These attractive beetles are in the ladybug family (*Coccinellidae*). Mealybug destroyers consume over 250 mealybug larvae before they reach maturity, which makes them an impressive mealybug control device. Oddly enough, mealybug destroyer larvae strongly resemble mealybug adults, and one is easily mistaken for the other.

### Reminder

Niagara College uses many other biological controls in the greenhouse even though they require time and specific conditions to reach their potential as effective pest solutions. Don't be concerned about the presence of predators on the plants—all of our biological controls are harmless and will eventually die without pests to feed on. Pesticides offer immediate pest-control results to the grower but do not keep handlers, purchasers, and the environment safe from toxic chemical exposure.

Christina Campbell, Class of 2002

### Niagara College Greenhouse & Nursery

Niagara-on-the-Lake Campus, 135 Taylor Road, Niagara-on-the-Lake, ON L0S 1J0  
phone: (905) 641-2252, ext. 4082; fax: (905) 988-4307 e-mail: [mnewell@niagaracollege.ca](mailto:mnewell@niagaracollege.ca)  
Website: <http://greenhousenursery.niagaracollege.ca>