



## INFORMATION

# BIOLOGICAL PEST CONTROL



BIOLOGICAL

### INFORMATION

- + Florikan does not sell toxic chemicals
- + Florikan advocates the implementation of biorational pest control. As new beneficials are available they are added to our product line
- + Florikan is committed to help protect the environment and only sells "environmentally preferable" products
- + Florikan's product line is the most complete & consists of biorational sprays, water treatments, beneficial insects, predatory mites, and predatory nematodes
- + Florikan's beneficials are the highest quality available
- + Florikan's living beneficials are shipped overnight to growers, in coolers with cool packs to insure optimum performance
- + Florikan's insects, mites, and nematodes are laboratory reared. None are collected from the wild
- + Florikan will provide you with technical support on all of the products. This means service and support before, during, and after your purchase

### DEFINITIONS

#### BIORATIONAL

Products that are selective, fit into a biological program, and have low environmental impact

#### ENTOMOPATHOGENIC NEMATODES

Nematodes that attack insects by entering the insect gut or body and killing them. This is accomplished by nematodes entering the host's body and releasing a bacterium that is lethal to host. The nematodes then reproduce in the body cavity

#### FRASS

Plant particles made from wood-boring insects, usually combined with excrement

#### I.P.M.

A program set up to monitor pest problems, integrating all means possible to control pests. Scouting, chemicals, biological organisms, and resistant plants are all tools used to manage this type of program. This method of pest management is designed to maintain a pest population below an economic threshold

#### MOLTING

Process of shedding outgrown skin

#### NEMATODES

Very small worm-like organisms that are found worldwide. There are many species of nematodes that feed on a variety of hosts including plants, animals, and microorganisms. Some nematodes are harmful (e.g. rootknot nematodes), whereas others are beneficial, (e.g. entomopathogenic species)

#### PARASITES

Animals that live in or on the body of another living animal for at least part of their life cycle, eventually killing the host

#### PREDATORS

Animals that attack and feed on other animals. Host is usually consumed in its entirety. A predator will consume many prey

#### PUPA

Metamorphosis stage between the larva and adult

#### SELECTIVE RESISTANCE

When a chemical pesticide is used repeatedly, the insects and mites become genetically resistant. Their progeny carry this resistance, thus inhibiting chemical performance

### QUESTIONS AND ANSWERS

#### Does using beneficial insects or mites mean that I cannot spray any pesticides?

No. While it is important to consider each application carefully, many pesticides are compatible with biological control.

#### What pesticides CANNOT be used?

Talstar™ and others in the synthetic pyrethroid class, as well as some others like Vydate™ and Lannate™, are highly toxic to beneficials and should NOT be used.

#### Will my customers complain about "good" bugs on my crop?

Generally, if the plant is pest free it will not have any "good" bugs either. Predators and parasites will only be present if there is food for them. Many buyers and retail customers are very enthusiastic about reducing pesticide use.

#### Will I have to put up with more damage and pests on my plants?

No. Using our program you can have superior control and a cleaner crop.

#### When the predators run out of pests will they then feed on the crop?

No. Insect or mite predators are not capable of feeding on plants. They will run away or starve without their prey.

#### What other benefits can I expect from Florikan's SCOUT Program?

Your plants will be healthier and look better with fewer pesticide sprays. The chemical residue is unsightly and petroleum solvents and additives remove the glossy finish from the leaves. You can reduce labor costs and complaints, improve worker safety, save money on safety equipment and spray equipment, and not have to suffer from insecticide fumes and odors.

#### Besides modifying my Spray Program what other changes will be required?

A regular and thorough inspection and monitoring program is essential to a successful SCOUT Program.

#### How do I start using Biological Control?

Call Florikan today. Our experienced advisors can save you costly mistakes!

Modifications of your spray program will be recommended to be compatible with Biological Control. And, your staff will be trained to become Florikan IPM Scouts!

# BIOLOGICAL PEST CONTROL

## INFORMATION

Biologicals have been successfully used in many different types of nurseries throughout the Southeastern U.S. They have been used on palms, foliage plants, herbs, hydroponic systems, and interior landscapes. Following are some practical tips to ensure success in converting from a chemical program to a biological program

### CROP CLEAN-UP

The most important thing to remember about biological control is that it is essential to start with a clean crop at the beginning of the season. Keep the greenhouse and surrounding area weed-free

### DETECTION

Biological controls will be successful if a bio-compatible management strategy is practiced. It is important to accurately identify your pest population. Use cultural and physical control practices wherever possible and always use bio-compatible chemicals

### PLANNING

Plan your strategy 4 to 6 weeks in advance of the crop

### PEST MONITORING

Pest monitoring, proper identification and record keeping are essential to well-timed, effective control. This requires a dedicated person to carefully check the crop on a weekly basis

### THRESHOLDS

Determine the pest thresholds in advance. This will enable you to make management decisions quickly when pest problems arise

### ISOLATION

Isolate new stock and kill incoming pests before they infest your operation. Screen vents and doorways, rotate crops, and keep crop area free of debris and weeds

### PESTICIDES & A BIOLOGICAL CONTROL PROGRAM

The types of insecticides, miticides and fungicides used before and during a crop can have a profound effect on the biological control program. Heavy applications of pesticides on previous crops leave chemical residues in the structure and plastic of greenhouses that can remain toxic to the biological agent for many months



### POST-APPLICATION WAITING PERIOD

It is safest to wait up to 60 days after the application of some chemicals before introducing beneficials. Consult with your Florikan representative about your chemical usage prior to releasing beneficials to determine the proper interval

It is essential that you stop using pesticides having long residual toxicity in plenty of time so that the nursery will be safe for biologicals when you want to start introducing them

In general, all conventional insecticides are extremely toxic to persimilis and should be used with caution

Consult with your Florikan representative to identify your specific post-application waiting period

### IPM PRACTICAL SCIENCE

Use Yellow Sticky Cards. The yellow color attracts whiteflies, winged aphids, thrips, leaf miners, and fungus gnats. The sticky surface holds the insects once caught. Use sticky cards to monitor the presence and number of insect pests. Available in size 3x5, 100/box

Blue Sticky Cards for detecting Western flower thrips. Available in size 3x5, 100/box

10x Doublet Loupe Magnifiers for scouting pests

## PESTICIDES

Following is a list of relatively safe pesticides that can be used prior to introduction of biologicals:

	MITICIDES	INSECTICIDES	FUNGICIDES
Target	X		X
Avid	X		X
BotaniGard		X	
Impede	X		X
Mattch		X	
Triact	X	X	
Sanmite	X	X	
Daconil			X
Dithane			X
Kocide			X
Manzate			X
Chipco			X

\*14 day recommended waiting period for all pesticides listed

Biocontrol programs are most reliable when no pesticides are used on the crop. If absolutely necessary, pesticides can be used with a biocontrol program to control fungus diseases or as spot-sprays to kill excess adults, but they should be chosen and used very carefully to minimize harm to the biocontrol. Never use a spreader-sticker in these sprays because most are very toxic to the biological controls