

## The Benefits of and Keys to Establishing a Successful Biological Control Program

As pest problems evolve, and traditional chemical controls become less effective or less available, more and more growers are looking to biological control programs to meet their pest control needs. Some of the benefits to a biological control program include:

- Safety issues are non-existent and protective clothing is not required.
- There is no re-entry interval (REI) or phytotoxicity associated with traditional pest control products.
- The chance of a pest developing resistance to a biological control program is also non-existent.

Biological controls are best introduced before pest populations reach a problem level. To establish a biological control program, there are 3 core building blocks that need to be implemented and followed:

### 1. Establish and maintain a sanitized growing environment -

It is important to establish Pre/Post and In-season cleaning programs for your facility to ensure you keep your growing environment free of weeds and other host environments for the unwanted pests. There are a number of products available to help you with this such as the following:



**KleenGrow**

A mild quaternary ammonium chloride compound designed to kill bacteria, and provide excellent mildew control in your greenhouse.



**Strip-It**

A combination cleaning and wetting agent helps remove white wash, algae, dirt, and calcium deposits from your greenhouse.



**Horti-Klor**

An active chlorinated detergent designed to help meet the highest greenhouse sanitation standards.

### 2. Monitoring & Scouting –

It is important to know what pests you are dealing with and when to introduce your beneficial biological control agents. Establishing a weekly scouting and monitoring program is essential. Use yellow and blue sticky cards (1 card/1,000-2,000ft<sup>2</sup>) and an eye lens to monitor flying insects such as Western Flower Thrip, whitefly, fungus gnats, shoreflies and winged aphids, as well as your beneficial populations.



Keeping records of your observations will go a long way to ensuring the success of your biological program. Also use *ThriPher* (Thrip pheromone) lures at a rate of 1 per 1,000 ft<sup>2</sup> to help detect Thrip populations earlier and get a jump on your program.

### 3. Commitment to the Program -

It is essential that once you commit to a biological program you stay with it. Unlike traditional chemical control programs your results may be slower to develop and it is imperative that you begin the program ahead of your pest pressure and form a preventative perspective, as opposed to the curative mentality that is associated with most chemical control programs.

Commitment to a biological control program does not mean that all chemical controls are eliminated from your program. There is an ever-growing assortment of “bio-friendly” pest control products. You just need to be more diligent in your choice and application timing the chemical control products needed to control other problems or pests.

The following product charts will provide you with concise, to-the-point information about the leading biological control products available to combat the most common greenhouse pests. These include Fungus Gnats, Shoreflies, Aphids, Whitefly, Western Flower Thrip, Mealy Bug, and Spider Mites.

The **Biobest** website ([www.biobestgroup.com](http://www.biobestgroup.com)) is also a great resource and has complete descriptions of the products listed in and the side effects of horticultural chemicals on beneficial insects.

Greenhouse/Nursery - Miscellaneous

Recommended RE-ENTRY INTERVALS (R.E.I.) for Commonly Used Greenhouse Ornamental Insecticides and Fungicides							
Insecticides				Fungicides			
PRODUCT	R.E.I.	PRODUCT	R.E.I.	PRODUCT	R.E.I.	PRODUCT	R.E.I.
Altus (spray)	12 Hours	Kontos	12 Hours	Acrobat 50WP	12 Hours	Phyton 27	24 Hours
Avid 1.9 EC	When Dry	Nemasys	N/A	Actinovate SP	1 Hour	Prestop	4 Hours
Beleaf 50SG	12 Hours	Pounce 384EC	When Dry	Aliette Ornamental	When Dry	Previcur N	12-24 Hours
BotaniGard 22WP	4 Hours	Pylon	12 Hours	Compass 50WG	12 Hours	Regalia Maxx	When Dry
DeltaGard SC	12 Hours	Safer's Soap	0 Hours	Cueva	4 Hours	Rhapsody ASO (spray)	When Dry
Dipel 2X DF	0 Hours	Shuttle 15SC	12 Hours	Decree	4 Hours	RootShield (all formats)	4 Hours
Distance IGR	12 Hours	Success 480SC	12 Hours	Milstop	4 Hours	Senator SC 50	N/A
Endeavor 50WG	12 Hours	SuffOil-X	12 Hours	Mycostop	0 Hours	Subdue Maxx	24 Hours
Enstar EW	12 Hours	TriStar 70WSP	12 Hours	Nova 40W	12-24 Hours	Truban 25EC	12 Hours
Floramite SC	12 Hours	Trounce	When Dry	Phostrol	12 Hours	ZeroTol	When Dry
Forbid 240SC	12 Hours	Velifer	4 Hours	<i>NOTE: Products indicated as N/A – no label information available at time of publication.</i>			

Above information provided only as a quick reference guide – PLEASE READ PRODUCT LABEL for complete R.E.I. instructions and precautions.



**Stim-Root Rooting Powder**

- Helps stimulate rapid rooting of cuttings.
- Easy-to-Use: Dip cutting in powder, tap off excess, plant into rooting medium.
- Available in three strengths - #1 (softwood), #2 (semi-hardwood), and #3 (hardwood) to meet your propagating needs.
- Sold in 500-gram jars and 10-kilogram drums.

Stim-Root is a registered trademark of Master Plant-Prod Inc.



**Stim-Root Liquid**

Liquid Stim-Root effectiveness comes from higher concentrations of IBA, more uniform application to cuttings, and better penetration into woody cuttings.

Available in three strengths:

- Stim-Root 2500 – Easy-to-root cuttings
- Stim-Root 5000 – Moderately difficult to root species
- Stim-Root 10000 – Slow to root species
- All sizes 1-Litre



**AquaGro 2000L Greenhouse Soil Surfactant**

AquaGro 2000L helps you achieve uniform soilless media moisture levels by combating water repellency.

- Easily incorporated into a fertilizer injector program.
- Reduce water and fertilizer leaching – save water and labour costs, increase efficiency and profits.
- Maintenance Rate: 10 PPM (10 ml/ litre in stock tank with injector set at 1:100 or 1%).
- 10 L jug

Structural & Equipment Sanitation/Cleaning Products – A Wide Range Available to Meet Your In-Season and Post-Season Needs



**SaniDate 5.0 Sanitizer/Disinfectant**

SaniDate 5.0 Sanitizer/Disinfectant is for use in circulation cleaning and institutional/industrial sanitizing of pre-cleaned, hard, non-porous surfaces.

- Labeled to control Algae, Bacteria, and Viruses (including Human Coronaviruses) on hard surfaces.
- No rinse, no harmful residue.
- Apply by foam, fog, coarse spray, cloth (or other direct contact application method).
- REI: Zero hours (until treatment has dried).
- 2.5 USG and 5.0 USG container.

USE	DILUTION	TREATMENT TIME
Virucidal	4ml / L of water	10 Minutes
Sanitation	2.5 ml / L of water	1 Minute
Disinfection	4ml / L of water	10 Minutes



**KleenGrow**

KleenGrow is a mild quaternary ammonium chloride compound, which kills bacteria and offers excellent mildew control.

- An essential tool for any greenhouse sanitation program.
- Apply by spray, brush, and dipping.
- Available in 4L, 20L, and 205L containers.
- PCP: 13148

USE	RATE / L WATER	RINSE
GH floors, walkways	8 ml.	NO
GH benches, equipment	8 ml.	YES
Footbaths	NO	NO
Walls, ceilings	8 ml.	NO
Mildew / Mold control	30 ml.	NO



**Horti-Klor**

An active chlorinated detergent designed to help meet the highest greenhouse sanitation standards. The mixture of detergents and emulsifiers dislodges stubborn material such as algae, whitewash, oily residue, and dirt.

- Available in 20L and 205L sizes

USE	APPLICATION	DILUTION
Totes, bins, plug trays, pots	Dip tank, brush	20-60 ml./L
Picking equipment, packing equipment	Backpack Sprayer	20-40 ml./L
Coolers	Injection	