

Bio Program Overview

Biological control has been a growing part of Integrated Pest Management (IPM) for several years, and Four Star is including these techniques and sciences into our pest management program. Here are the highlights of our current practices.

Annual Stock Plants:

Main target pests are Thrips and Spider mites, and occasionally Aphids.

Evolvulus, *Helichrysum*, *Ipomoea*, *Laurentia*, *Lotus* and *Sutera* (*Bacopa*) are key genera to watch.

Bio controls begin August 1st and end in December when our stock ships out.

While they were originally implemented on *Ipomoea* and *Sutera*, we now use bio controls on all stock.

We use the following predatory mites: Swirski (amblyseius swirskii) and Persimilis (phytoseiulus persimilis). Mites are applied via AirBug gun weekly.

Swirski-Mite sachets are used on stock *Sutera* baskets. Sachets are hung on baskets and replaced every 4 to 6 weeks.

Large yellow Horiver cards are used to monitor and trap Thrips. They are put out on every other table.

Spraying weekly (1x a week) with Botanigard®, NoFly or Azatin® is normal. Overture® is used for higher Thrip pressure. We use Floramite® for Twospotted mite pressure, and Endeavor® for Aphids. (See compatibility list below.)

Perennials and ColorChoice® Shrubs:

All perennials and ColorChoice® shrubs receive predatory mites once a week via AirBug gun. A mixture of Persimilis, Swirski and Californicus (neoseiulus californicus) are used.

This treatment begins June 1st through October 1st (depending on weather and low temperatures at night).

Spot spraying for Aphids and Mites is done as needed before applying biocontrols. We use Endeavor®, Xxpire™, Triact® 70, Botanigard®, Met 52®, Floramite® and Hexygon®.

We have minimized sprays dramatically to just using spot sprays, rather than spraying two times a week.

Finished Summer baskets:

Swirski-Mite Plus sachets are hung on baskets two weeks after transplant. Swirskii LD sachets last up to six weeks.

We perform regular sprays with Botanigard®, Overture®, Pedestal®, Endeavor®, Molt-x® or Azatin® (1x a week if needed, 2x a week depending on pressure).

Projected start date by Weeks 20 – 21.

Banker Plants:

We recently implemented banker plants to counter Aphid pressure in *Ipomoea* stock, and are now also using for Perennials and ColorChoice® shrubs.

Banker plants also begin in October and continue through summer into fall. The plants are purchased from IPM Laboratories Inc. and a. Colemani is purchased from Koppert Biological Systems. We release them two weeks straight after introduction of the banker plants.

Banker plants consist of winter rye and are infested with Bird Cherry-oat Aphids.

Compatible Insecticides for Biological Controls

Overture®	Molt-X®	Azatin® XL
Floramite®	Botanigard®	AzaGuard™
Endeavor®	NoFly™	Pedestal®
Xxpire™	Met 52®	Aria®
Captiva®	Grandevo®	ProMite®
Rycar®	Aza-Direct®	Kontos®
Hexygon®	Triact® 70	DiPel® Pro
Ovation®		

