BIOLOGICAL GROWING at Pioneer Gardens, Inc.

ROGER MCGAUGHEY
SENIOR HEAD GROWER
PIONEER GARDENS, INC.

Pioneer Gardens, Inc.  Fall 2018
AT PIONEER GARDENS WE GROW AND PROVIDE OUR CUSTOMER BASE WITH A NATURAL, HABITAT-FRIENDLY PLANT PRODUCT. THIS GIVES OUR CUSTOMERS A JUMP-START FOR THEIR OWN BIOLOGICAL GROWING PROGRAM, WHICH WE ARE ATTEMPTING TO PROMOTE.

WE HAVE BEEN GROWING YOUNG PLANTS BIOLOGICALLY FOR OUR CUSTOMERS FOR 6 YEARS.
RootShield Plus applications provide our cuttings and transplants with an enhanced rooting environment, producing white healthy root systems.

The aim of this is to avoid the use of any chemical root protectant fungicides later in the production process.

RootShield Plus is applied to all plants grown at Pioneer Gardens.

The following slide shows the method of application of RootShield Plus.
ROOTSHIELD PLUS APPLICATION

Pioneer Gardens, Inc. Fall 2018
ATHETA, HYPOASPIIS AND AMBLYSEIUS CUCUMERIS

These Biological control agents (BCA’S) are introduced on a weekly basis in propagation.

They are also applied to newly transplanted material with the object of achieving fungus gnat and Thrips control.

These are self-perpetuating BCA’s reproducing on site, and can be found in finished product as it leaves the nursery, which is a biological benefit for the receiving finishing grower.

We also apply a mixture of Citation, Pageant and Uptake weekly in propagation. Recently we have been rotating with Citation, Mural and Verdanta OFE.
ATHETA, HYPOASPIS AND AMBLYSEIUS CUCUMERIS

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POTATO WEDGES

This is a simple way of checking for Fungus gnat larvae populations. We consider this our control card for fungus gnat scouting.

Potato wedges also help us see if we have confirmation of a Hypoaspis population.

We don’t need to use this method often as cards in prop are generally clean.

Pioneer Gardens, Inc. Fall 2018
YELLOW CARDS: (NOT SOCCER :-)

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HUNTER FLIES

These flies appear naturally in spring when you are not spraying nasty pesticides.

They are known to catch adult fungus gnats even in flight.

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WEEKLY SCOUTING

This is extremely important and is used to monitor the effectiveness of a BCA program.
# SCOUTING RECORD KEEPING

## Bay 16

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<th>Shore</th>
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Pioneer Gardens, Inc. Fall 2018
IPAD AND GOOGLE DRIVE USAGE

Using these tools we can record weekly pest levels from year to year.

Pioneer Gardens, Inc. Fall 2018
OTHER PESTS

Whitefly can also be trapped on yellow cards.

Encarsia formosa and Eretmocerus eremicus can be used for Whitefly control.
NEMATODES

Weekly spray applications of beneficial nematodes will guarantee a cost-effective, successful reduction of damaging Thrips populations to a very manageable level.

Nematodes also help reduce any fungus gnat population that may be present.

Nematodes have a zero REI (Re-Entry Interval) requirement, which means employees can immediately enter the working area. Most conventional chemicals have more than a 4-hour REI, causing compliance issues such as PPE (Personal Protective Equipment). With BCA’s we have ZERO workplace interruption.

There are milder chemicals (Neonic-free) that can be used in conjunction with BCA’s and invariably these can be applied along with nematodes.

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NEMATODES

Packets can be stored in a refrigerator for up to 4 weeks.

When mixing, keep water temperature above 50° and below 80°
Application conditions are important. Turn off any horizontal airflow fans, remove sprayer filters and keep application pressure below 300psi.

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APPLICATION TIMING AND VIABILITY

In summertime, get up early and use the tray the nematodes come in to catch some of your spray solution and check that the nematodes are curly.

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Foliar feeds can be added to the nematode mixture. Always add a spreader sticker. Blue dye can also be added.
Some biologically safe pesticides and fungicides are also compatible with nematodes.

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APHID BANKER PLANTS

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PEPPER BANKERS AND
APHID CONTROL

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PEPPER BANKER PLANTS

Grown under LED lights for happy customers.

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Aphidoletes

Aphidoletes Love Shack

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SPIDER MITES

There are a range of BCA’s which can help control spider mite infestations.

This also means that REI requiring chemicals can be avoided.

We also apply Phytoseiulus to potential spider sensitive crops in the propagation area.

Bean plants can be used within the crops as damaging insect indicators.

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BEAN BANKER PLANTS

Pioneer Gardens, Inc. Fall 2018
NATURAL THRIPS CONTROL

Pepper banker plants can be used as a natural reproductive habitat for Orius which is a naturally occurring outdoor Thrips predator.

With the cultivation of pepper, lobularia and other pollen producing plant material, we are inviting the natural predator Orius to come into the production houses and help with Thrips control.

We also introduce Orius to start the in-house process of Thrips control.

Pioneer Gardens, Inc. Fall 2018
PEPPER BANKER PLANTS

Pioneer Gardens, Inc.  Fall 2018
PEPPER BANKER PLANTS (ORIUS)
A collection of different banker plants provides a natural habitat for most of the BCA’s required for biological control of damaging insects in the production process.

When properly implementing a BCA program, applications of harsh chemicals, especially ‘Neonics’, are not needed.

Selling plants in retail stores that have a possible BCA supply can only be good for the consumers home garden environment.
LOBULARIA BANKER PLANTS

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LARGE BANKER PLANTS

Pioneer Gardens, Inc. Fall 2018
FIELD BANKER BEDS

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LOBULARIA & NATURAL CROP BANKERS 2017

Inter-crop plantings.

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FIELD LOBULARIA BANKERS 2018

Orius introduction

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THRIP INFESTED DAY LILIES 2017
CLEAN DAY LILIES 2018

ORIUS

Pioneer Gardens, Inc. Fall 2018
Biological control does work when done properly.

The initial investment may be more expensive than conventional chemical control methods, but considering pest resistance and new compliance standards for worker protection, in the long term a BCA program is definitely more environmentally friendly and cost-effective.

At Pioneer Gardens we have implemented and maintained a full 100% biological control program since September of 2012.
Thank you for your interest in Pioneer’s BIOLOGICAL PERENNIAL PRODUCTION

roger@pioneergardens.com

Pioneer Gardens, Inc. Fall 2018