



We ALL say we want it--
BUT.....
Will THEY Buy it?



The Journey

"We are Sustainable"

FIRST, SOME DEFINITIONS

A GROWER'S DEFINITION

CUT TO THE CHASE!!

"I TOOK IN MORE MONEY THAN I SPENT!"

I AM SUSTAINABLE!!

SUSTAINABILITY IS:
A GROWING SYSTEM USING MINIMAL INPUTS, IN ORDER TO PRESERVE THESE INPUTS AND THE ENVIRONMENT FOR FUTURE GENERATIONS TO USE

IT IS NOT THE SAME AS
ORGANIC!!!

ORGANIC VS SUSTAINABLE

- A LIST OF WHAT YOU CANT DO
- MARKETING TOOL!!
- PLASTIC IS OKAY
- DOCUMENTATION
- OMRI, NOP, ATTRA
- GROWN WHEREVER
- DOES CUSTOMER REALLY CARE?
- THE KING FOR EDIBLES!! OR SO THEY SAY.
- THE RIGHT WAY TO DO IT?
- EDUCATE, POP
- RICE, POOP, HEMP
- VERIFIED?
- VERIFLORA, MPS
- LOCALLY GROWN!!
- IT'S REALLY WHAT CUSTOMERS WANT!!
- OR SO THEY SAY

SUSTAINABLE CONCEPTS

- CHEMICALS
- BENEFICIALS AND KNOWLEDGE
- SOILS AND FERTILIZERS, pH CONTROL
- ENERGY INPUTS
- WATER USAGE AND MANAGEMENT
- RUNOFF
- ENVIRONMENTAL CONTROL—PGR?
- RECYCLING, RE-USE, RECOVER

WHY DO WE BOTHER?

**Differentiate
Or Die!!!**

**YOU MUST STAND
OUT FROM A CROWD**



DON'T BLEND IN!



**IF YOU GROW WHAT YOU
ALWAYS GREW...
YOU'LL GET WHAT
YOU ALWAYS GOT**







THE CLIMB IS WORTH IT!!



SEND A CLEAR MESSAGE

WHAT ARE WE SELLING?



PUSH BACK ON THE BOX



HOW DO WE STAND OUT?

- BEING AND SELLING GREEN
- LOCALLY-OWNED GARDEN CENTER
- NICHE-MARKETING
- STANDARDS OF EXCELLENCE!!
- MERCHANDISING, BRANDING—OMG!
- GETTING OUT THE MESSAGE
- REACHING NEW CUSTOMERS

**MARKETING
GREEN**



WHY SHOULD WE CARE?

IT MAKES ECONOMIC SENSE

IT MAKES ENVIRONMENTAL SENSE

DON'T BELIEVE IN GLOBAL WARMING?
HERE'S SOME PROOF



WE CAN SELL
THIS CONCEPT!!



BUT... WE MUST
TELL THE
CUSTOMERS!!



Organic has
NOTHING to do
with Sustainability

It Sells!!!
...when it is
APPROPRIATE



Spring Works!!



EDIBLE PLANTS—
A NEW MOTTO

A LIVING
CUSTOMER IS A
GOOD CUSTOMER



**USDA
CERTIFIED
ORGANIC**

**"Organically-Grown"
NOT!!!**

PRACTICAL REALITIES

INSECT AND
DISEASE CONTROL

EASILY THE TOUGHEST
LONG-TERM ISSUE!!!

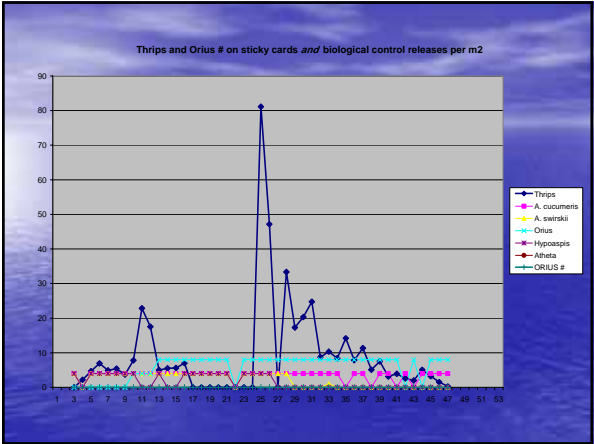
The BIGGEST
Issue?

FERTILIZER

But once you solve it..... It
stays solved

Pests are FOREVER!!

IPM and Biocontrols



Monitoring data

Monitoring Overview

BIOSOL
BIOSOL CANADA LTD.

Company name - Biosol (S)	Assignment - 1	Site - 400	Plot # - 1	Control - 1
Date	Week #	F.P. (Days after release)	Yield	Control name - 1
1	1	1	1	1
2	1	2	1	1
3	1	3	1	1
4	1	4	1	1
5	1	5	1	1
6	1	6	1	1
7	1	7	1	1
8	1	8	1	1
9	1	9	1	1
10	1	10	1	1
11	1	11	1	1
12	1	12	1	1
13	1	13	1	1
14	1	14	1	1
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19	1	19	1	1
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21	1	21	1	1
22	1	22	1	1
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32	1	32	1	1
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36	1	36	1	1
37	1	37	1	1
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43	1	43	1	1
44	1	44	1	1
45	1	45	1	1
46	1	46	1	1
47	1	47	1	1
48	1	48	1	1
49	1	49	1	1
50	1	50	1	1
51	1	51	1	1
52	1	52	1	1
53	1	53	1	1

Notes:
 1) To obtain the best possible information it is recommended to use 10 sticky cards (under sticky cards) (2x10 cm) per tray with a minimum.
 2) For pest control, count the # of each individual pest on each sticky card. Make sure that the first sticky card is filled out in yellow color.
 3) For monitoring biologicals, the actual number can be recorded. However, just if necessary it is allowed to use the word "increased".
 4) Monitoring with sticky cards is important information in IPM. However, make sure the trap is inspected for pest and biologicals as well.

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How to switch?

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- ## Making a change!
- Management and Grower(s) involved!
 - Determination: WE NEED to make this work!
 - A TOTAL systems approach!
 - PREVENTING problems, not fixing problems.
 - FIRST LINE of defense for all pest problems
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Keys to a successful program

1. Education, Consultants
2. Delegate responsibility and accountability
3. Review pest problems, especially short term
4. Consistent monitoring. NOT THE GROWER!!!
5. Develop a plan for transition period
 - Set a date for starting point of biological control
 - Start in propagation
 - Banker and Trap Plants!!! Guardian Plants, too.
 - Don't give up!!! Don't shoot yourself in foot!!!
 - Believe the bugs---TIPPING POINT!!

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Education

WHAT do you know NOW?
WHERE is the info?

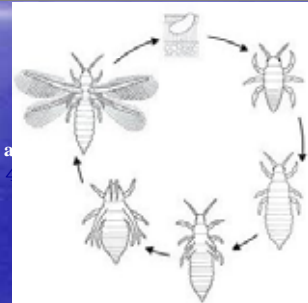
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An example with Thrips and Whitefly.....



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Thrips - WFT



ymph
7°F

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Thrips – WFT development

	Egg (in leaf tissue)	Larva 1 2 (on plant → exposed)	Pupa (in soil)	Adult (on plant → exposed)
68F	6 days	3 + 3 Days	6 days	up to 60 days
86F	3 days	1.5 + 1.5 Days	3 days	20 - 40 days
	3	4		
	<i>Amblyseius spp</i>	<i>Hypoaspis miles</i>	<i>Orius insidiosus</i>	
	<i>Orius insidiosus</i>	<i>Atheta coriaria</i>	<i>Steinernema f.</i>	
	<i>Steinernema f</i>	(side effect !)		

- Fecundity in vegetative stage of crop → 4 – 5 eggs / female
- Fecundity when pollen available → 15 eggs per female

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Inter-Guild Predation

Predators eating Predators!!!

Banker Plants

Natural Pesticides – Beneficial Biologicals



Bio-control in Action

Pepper plants to establish and support Orius. Plants kept together at first:



Bio-control in Action

Pepper plants to establish and support Orius: spaced in greenhouse



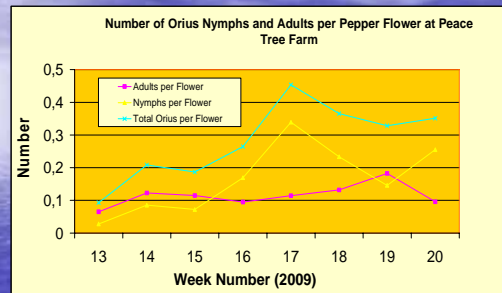
Bio-control in Action

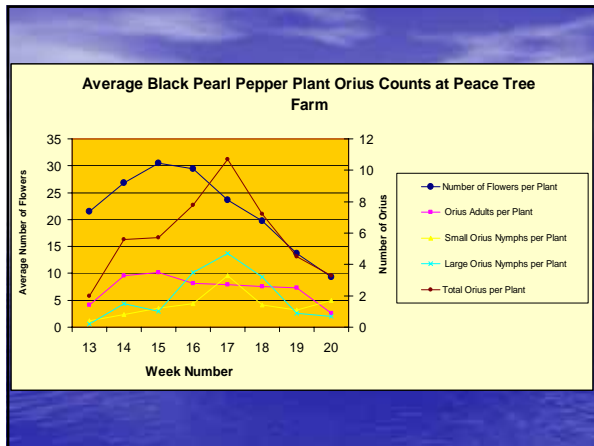
Plants with Orius also used outside:



ALWAYS more predators outside!!

TRAP PLANTS





Trap plants

Chrysanthemum var: → thrips

- Used in Chrysanthemums var: Saskia to attract thrips away from main crop Chrysanthemum.
- Also in other ornamental crops

Bio-control in Action

Egg plant in Poinsettia crop:

Importance of Propagation

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What is a 'clean' plant?

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What is a 'clean' cutting?

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Worst situation:
Plants/cuttings with long residual pesticide residues AND (resistant) pest problems!

Makes pest management difficult, but a **DISASTER** for growers using BCAs as part of their pest management strategy and program

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'Clean' propagation and
ornamentals

- Propagation with pesticides does not guarantee no insects.
- Long residual limits **OPTIONS** to implement BCAs.
- Propagators using short residual and/or BCAs leave the option to the grower.

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Incoming Cuttings and propagation

- Inspect **BEFORE** bringing it into the greenhouse or place where you are planting
- Dip / submerge rooted or unrooted cuttings in a nematode solution (*Steinernema spp*) and / or *Beauveria bassiana* (Botanigard) or Mycotrol---**NO EXCEPTIONS!!!!**
- Risk of spreading disease?

PREDATORS applied **BEFORE** entering Greenhouse!!!



**Don't give up, even if a
several attempts are
difficult**

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SANITATION RULES!!!



