

10:30 to 11:25 Eastern

## ARE YOU READY TO START A BIOCONTROL

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- Will it control your pests?
- Willing to think about pesticide use
- Plant spacing
- Quarantine laws
- Willing to commit to scouting program?
- Think about long term economics



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### Commercial Biocontrol Options

- Fungus gnats
- Shore flies
- Thrips
  - WFT
  - Chilli thrips
- Aphids
- Whiteflies
- Spider mites
- Cyclamen mites
- Caterpillars\*



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### Commercial Biocontrol Not Really

- Mealybugs
- Root mealybugs
- Borers\*
- Psyllids\*
- Plant hoppers
- Flea beetles
- Scales
- Thrips
  - Greenhouse
  - Echinothrips



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### Think Before Spraying



- Spraying water can impact insects & mites
- Inerts in pesticides can have impact
- Risk of spray drift



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- Understand that information changes
  - Information online can be out of date
  - Must keep on top of new pesticide information

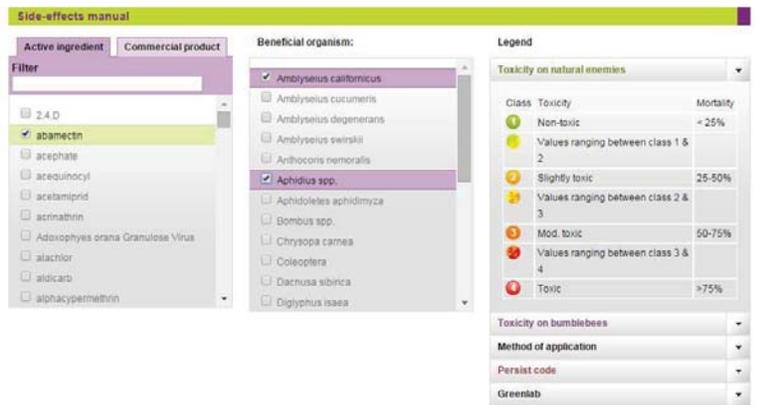
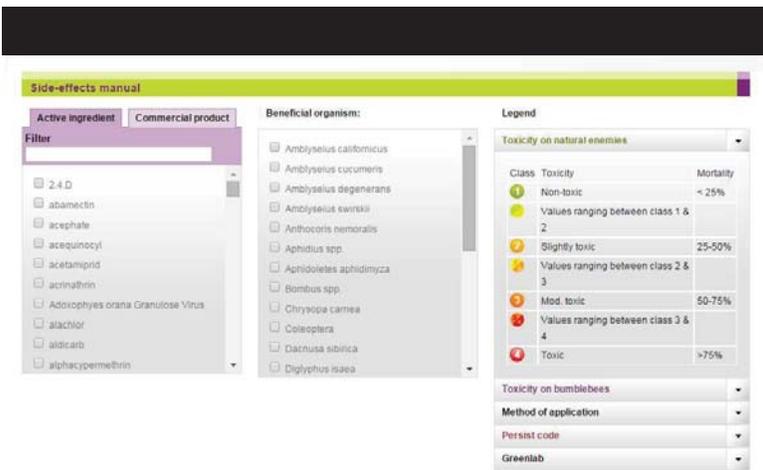


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# Pesticide Compatibility

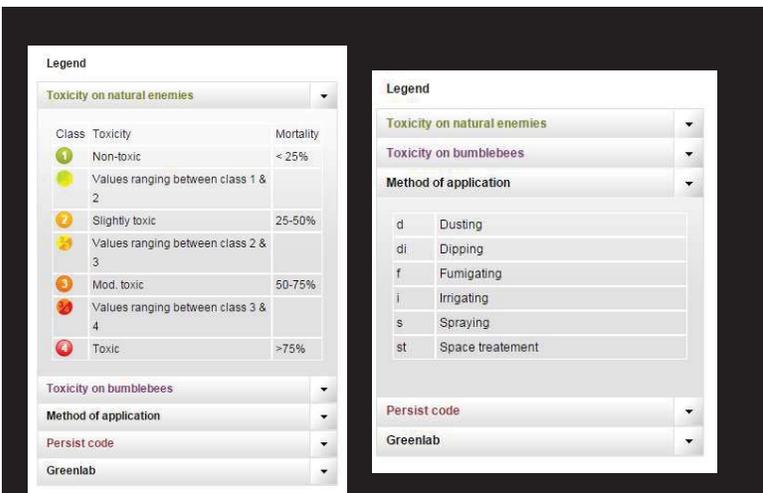
- <http://betterplants.basf.us/products/nemas-vs-bio-insecticide.html>
- [www.biobestgroup.com](http://www.biobestgroup.com) (mobile app)
- [www.koppert.com](http://www.koppert.com)

Do not forget fungicides!



[www.biobestgroup.com](http://www.biobestgroup.com)

		abamectin
		s
Amblyseius californicus	nymp/adult	4
	persist	5 d
Aphidius spp.	larva	1
	adult	4
	persist	1 w



BioBest has mobile application for smart phones and tablets.

## You can find different results... But why?

- Different insects / mites
- Different strain
- Testing procedures
- How they are being tested



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# Spacing



# Quarantine Laws

- Fire ants
- Japanese beetles
- Cycad scale
- Sweet potato weevil



# Scouting

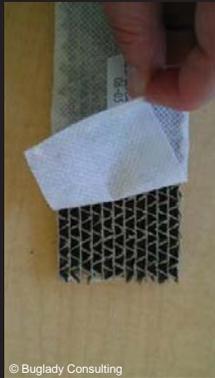




## Long Term Economics

- You can not compare a spray tank cost to a shipment of beneficials.

- True cost of beneficials
  - Beneficials
  - Shipping
  - Labor
- How do you put price on
  - No REI
  - No spray drift
  - No residue on plants
  - Preventing pesticide resistance
  - Pollinator issues



## Help With All These Questions?

Form a relationship with someone that knows what they are doing !



## Relationships

- Bio control supplier
- Extension
- Other growers
- Consultants



## Qualifications

- Background?
- Are they willing to say they do not know?
- If distributor who's product are you going to get?

## Suppliers Where To Get the Bugs

## Insectaries / Distributors

- Applied Bionomics
- BASF
- Beneficial Insectary
- BioBest Biological Systems
- Biotactics, Inc.
- BioWorks, Inc.
- IPM Laboratories
- Koppert Biological Systems
- Syngenta Bioline
- The Bug Factory (now part of BioBest)



## Sellers of Biological Control

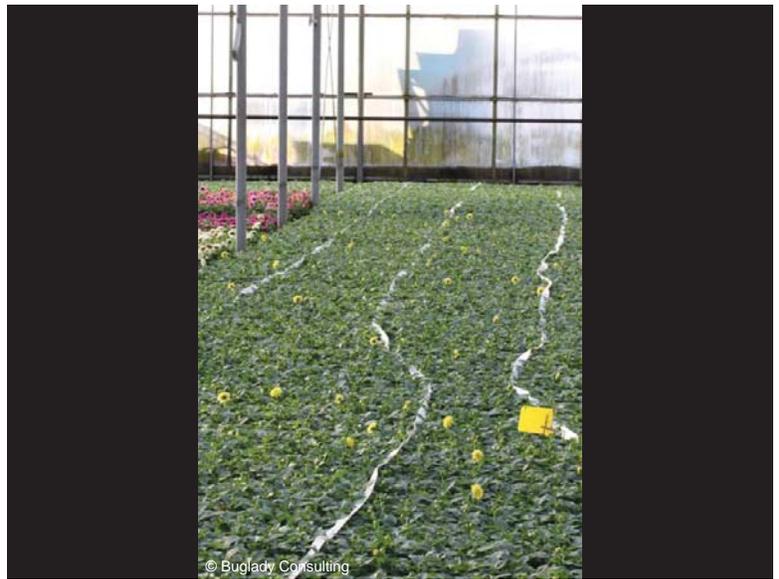
- Suppliers
  - Do they understand your system?
  - Do they understand your climate?
  - Making recommendations because it's what they sell and not the best for your problem.
  - QUALITY ISSUES?



## Sellers of Biological Control

- Application methods





## Beneficial Insectary

- *N. cucumeris*
- *Hypoaspis miles*  
(*Stratiolaelaps scimitus*)
- California production
- Ship next day



What if there is a problem ?





Releasing the bug ...  
and doing it correctly



# Eretmocerus eremicus



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## Must Be Willing to Follow-Up

- Did they do what they were supposed do?



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Learn Other Beneficials

Hunter Fly



Sticking with it



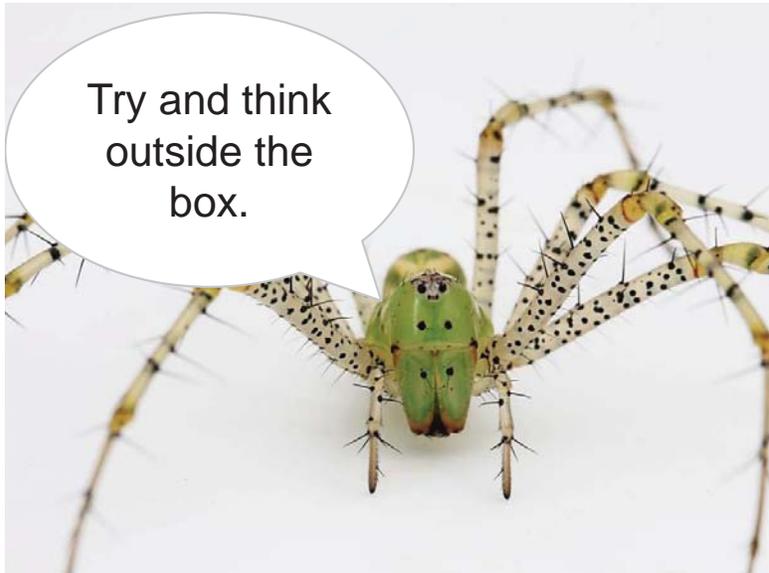
Do not give up if you have issues.



Ask lots of questions.



Try and think outside the box.



We are ALL learning as we go.





[www.BugladyConsulting.com](http://www.BugladyConsulting.com)

 BugladySuzanne

 Buglady Consulting



BioControl in the Greenhouse



**Coming Up Next:  
11:30 to 11:55 Eastern**

**Insect Pest Identification**  
Nancy Rechcigl



Time	Topic
12:00 to 12:30	Biological Control on Herbs
12:30 to 12:55	Lunch Break