

Title of project: Resources for biological control in greenhouse production

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Abstract: Information useful for new and experienced growers using biological control in greenhouses has been collected and organized into a printed workbook and mobile app. The mobile app also has an interactive aspect so that scouting data can be collected, stored and graphically displayed on a smart device. Both resources are nearing completion.

Justification: Biological control as a means of insect pest management is an information dense process that requires growers to find and integrate a large number of facts to be successful. Collating this information in one resource should help growers begin a biological control program and have background for tweaking the systems to their own production requirements.

Objectives: To create written and electronic resources to assist greenhouse growers in using biological control for insect pest management

Procedures:

Biocontrol workbook

This workbook is designed to help growers who haven't used biological control get started and to provide enough information to still be useful for experienced growers. There is a draft version on the IPM website at

http://www.nysipm.cornell.edu/nursery_ghouse/biocontrol_wkbk_10-31-13.pdf. Final changes should be complete in early 2014.

Biocontrol mobile app

The Greenhouse Scout mobile application has several components.

1. a source of information on biological control for greenhouse insect pests
2. an interactive site to record scouting results and applications of biocontrols and pesticides
3. the presentation of scouting and application information graphically to determine efficacy of insect management and as a way to maintain records of that information

The app is accessed through iPad/iPhone and Android devices with a web-based component for creating site-specific locations for scouting. A web-based page will provide the information necessary in order to download the app and there will be login pages for both the web side and the smart device side.

It should also be available in early 2014.

Results:

This project is still in process. The workbook was reviewed by growers and educators (see below) and the comments were integrated into the current draft. The mobile app has been trialed by 3 greenhouse growers and their comments have been integrated into both resources.

On-line survey on Biocontrol Workbook draft for growers and educators, October 2013

The link to this survey was sent to a list-serve of growers and educators receiving weekly updates on greenhouse IPM. Five educators and 11 growers reviewed the workbook and responded.

1. Is this workbook something you would use?

100% of both growers and educators answered 'Yes'.

- Useful for training new greenhouse staff and graduate students and technicians
- Great close-up pictures of both pests and biocontrol insects for i.d.
- Optimal temperatures for beneficials is useful
- Table format makes it easy to compare
- Nice to have all the information in one place
- I hope it is not too long and overwhelming

2. Is there additional information that you would like to see included?

- Pictures and charts are good, not too many words.
- More on selecting thresholds
- Add light duration to the Environment column
- Method for making wall charts of pests and beneficials specific to the IPM program at a greenhouse
- Application methods
- Include information on keeping nematodes in solution
- Description of setting up a banker plant system for *Aphidius colemani*
- Add a footnote at the bottom of each page for 'harmfulness' rating
- Add comment to 'Essentials for a successful biocontrol program' about need for 10x-16x handlens
- Information on determining if the biocontrol method worked
- Include REI information as part of Harmfulness and Persistence table
- How to determine health of biocontrols on receipt
- Restrictions or regulations on use
- Comment on need to use multiple biological to get good control

3. If you haven't already tried biocontrol, would this workbook help you get started?

100% of both growers and educators answered 'Yes'.

4. If you have already tried biocontrol, does this workbook give you additional information that you can use?

100% of both growers and educators answered 'Yes'.