

Insect ID Tools to Increase Scouting Success

Greenhouse IPM Workshops

January 8-10, 2019

Manchester, ME

Durham, NH

Burlington, VT



**University of
New Hampshire**

Cooperative Extension

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Today's Objectives

(now and after lunch)

- Why we scout
- Overview of helpful tools for scouting, old and new
 - Save time and effort in scouting
 - Improve fidelity of record keeping
- Getting a good photo to share
 - Magnification gadgets
 - Key features



Scouting and Record Keeping

- Pest status is site specific
 - Greenhouse pests are not as predictable as pests that occur in an open setting
- Identify sources of infestation
 - Weak points in sanitation, pest movement
 - Supplier relations
- Record of what has worked in the past
- Pre-emptive strike with biological control

Develop a scouting program that fits your operation

GREENHOUSE IPM

UNIVERSITY OF VERMONT, ENTOMOLOGY RESEARCH LABORATORY

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Scouting to Reduce Chemical Pesticide Use in Greenhouse Ornamentals

Attention Growers! Did you know that scouting your crop can help you find problem areas and allow you to make more timely interventions for management before things get totally out of control? Have you ever wanted to come up with a scouting routine or modify your existing one? The following steps and handouts will guide you step by step on how to come up with the most efficient way that works for you!



Step 1: [Establishing a Scouting Program - Step by Step](#) - This handout will guide you through how to use the following steps and supporting documents.

Step 2: Come up with early and late season Action Thresholds ([Handout 1](#))

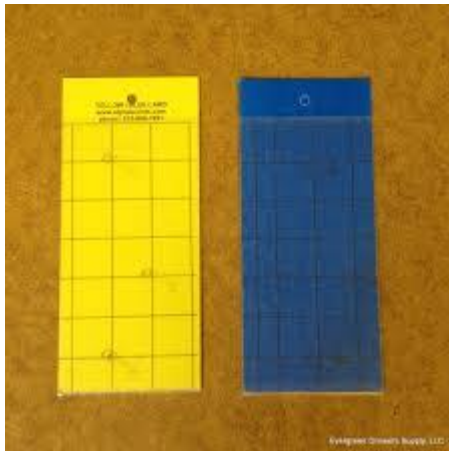
Step 3: Choose a scouting form that best suits your needs. Handouts 2a and 2b are intentionally blank so you can draft your own plan if you choose not to adopt one of the example forms below.

For example: Inspect incoming plant material for aphids, mealybugs, whitefly nymphs and adults, signs of insect feeding damage (holes, distorted growth) or disease (soft spots, fuzzy stuff)

- Place one sticky card per 1000 sq.ft. of GH space, observe weekly, change cards as needed
 - Winged aphids
 - Adult thrips, whiteflies
 - Fungus gnats, shore flies
- Weekly inspection of plant material
 - Signs of damage, honeydew
 - Inspect new growth and the undersides of leaves for aphids, mealybugs, mites
 - For flowering crops, tap flowers over white paper for thrips nymphs and adults
- Hot spots (e.g. near vents, weeds, indicator plants)
- Inspection of a set number of plants, throughout space

Tools for monitoring with sticky cards

- Stakes & Clips
 - Trap placement
- Yellow v. Blue



Aphids that are winged show:

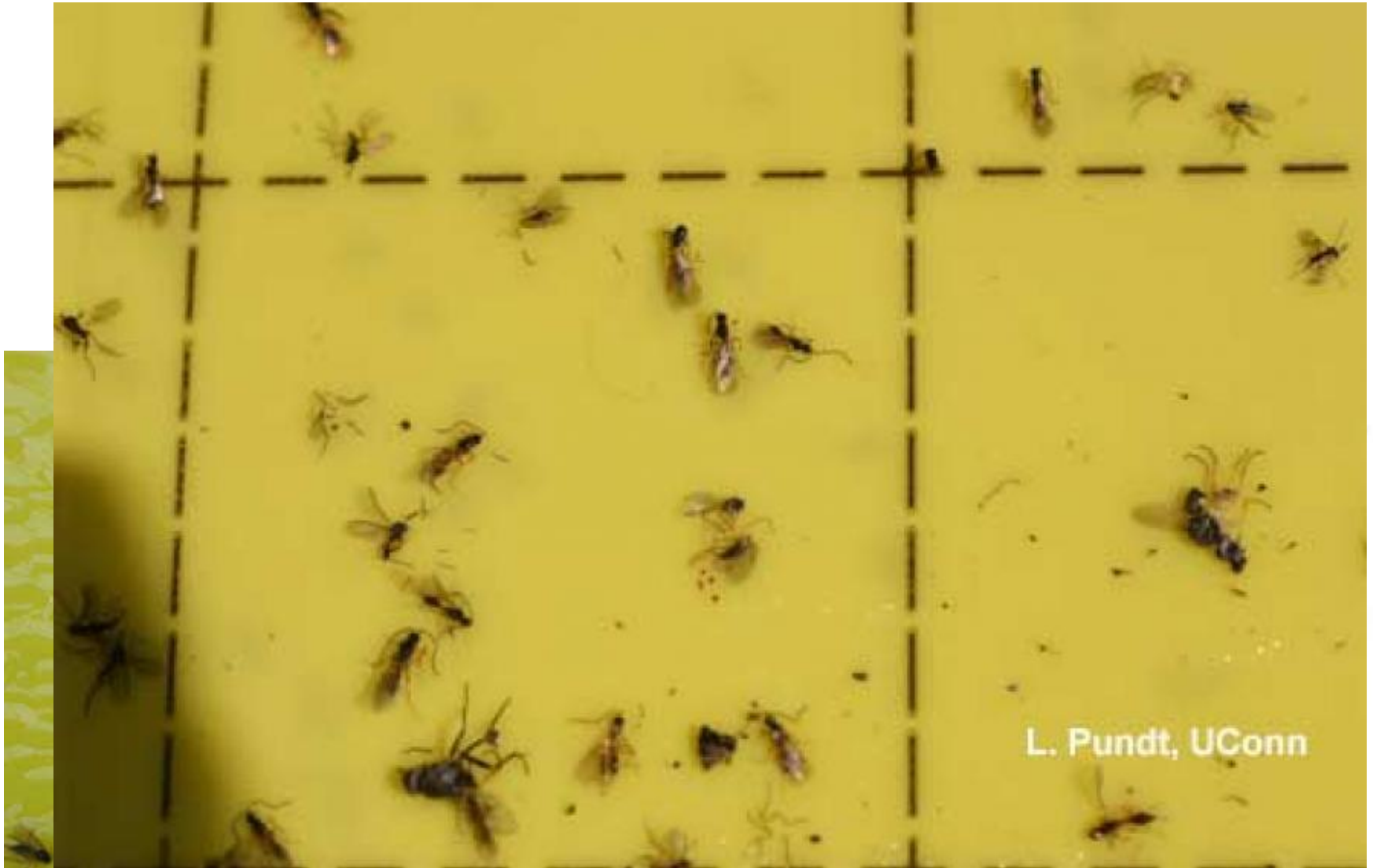
1. few veins, many being parallel
2. large thick spot towards forewing tip



They often
give birth after getting stuck



Distinguishing fungus gnats from look-a-likes



With high magnification, you may be able to see their fringe-like wings.



Western flower Thrips
Jack Reed, Mississippi State Univ
bugwood.org



Tools for visual inspection

- Something white for tapping



Tools for visual inspection

- Indicator plants

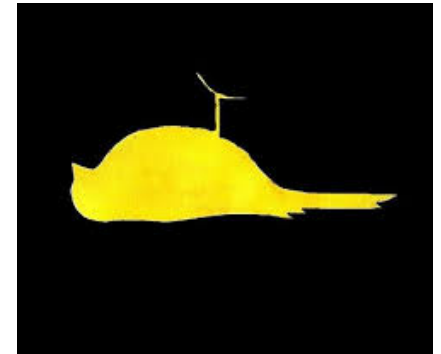


Fig. 1. Eggplant indicator plant for whiteflies in poinsettias.



Fig. 2. Bean trap plant for spider mites.

Tools for visual inspection

- Indicator plants

Thrips Damage

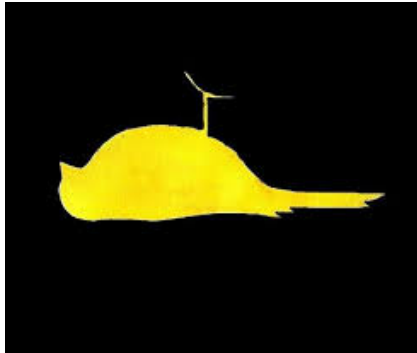


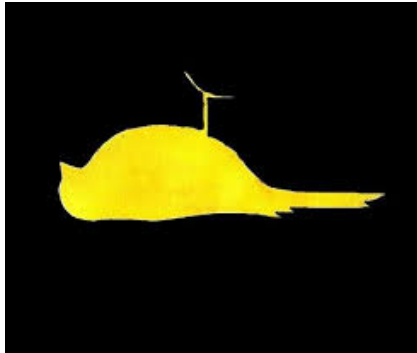
Photo: Cheryl Frank Sullivan, UVM

Bean

Tools for visual inspection

- Indicator plants

Spider Mite Damage



5369738

Tools for record keeping

- Pocket IPM Greenhouse Scout Mobile App (\$9.99)

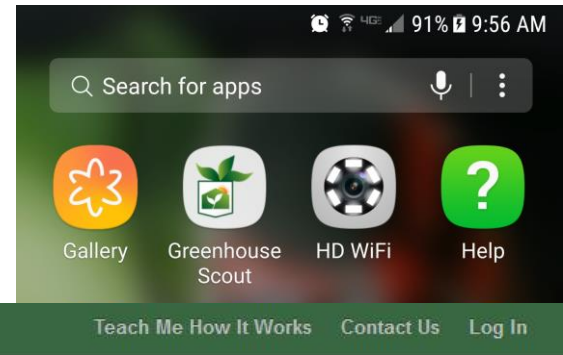
- Created by New York State IPM

With Greenhouse Scout

De

- iTunes

or



Who are we?

The idea for Greenhouse Scout came from the work of Elizabeth Lamb and Brian Eshenaur, senior extension specialists at Cornell.

What is IPM?

Integrated Pest Management (IPM) is a method of disease, insect, weed and animal management that considers the available


What is Greenhouse Scout?

The Greenhouse Scout™ mobile application has been designed to provide an easily accessible summary of information on biocontrol of common

Reference Information




100% 10:53 AM

< Back Pests



Green peach aphid
Myzus persicae

Beneficials for this Pest

-  **Aphidoletes**
Aphidoletes aphidimyza
-  **Colemani**
Aphidius colemani
-  **Ladybugs, Lady beetles**
Adalia sp., Hippodamia sp., et al.

Biology and Identification

Damage

annawllngfrd@... Help

100% 10:55 AM

< Back Interactions

Aphidoletes
Aphidoletes aphidimyza

Abamectin

Egg	Imm.	Adult	Persistence
	4	4	1 week

Abamectin + bifenazate

Egg	Imm.	Adult	Persistence
	4	4	1 week

Acephate

Egg	Imm.	Adult	Persistence
	2	4	> 8 weeks

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Greenhouse Scout



Beneficials



Application



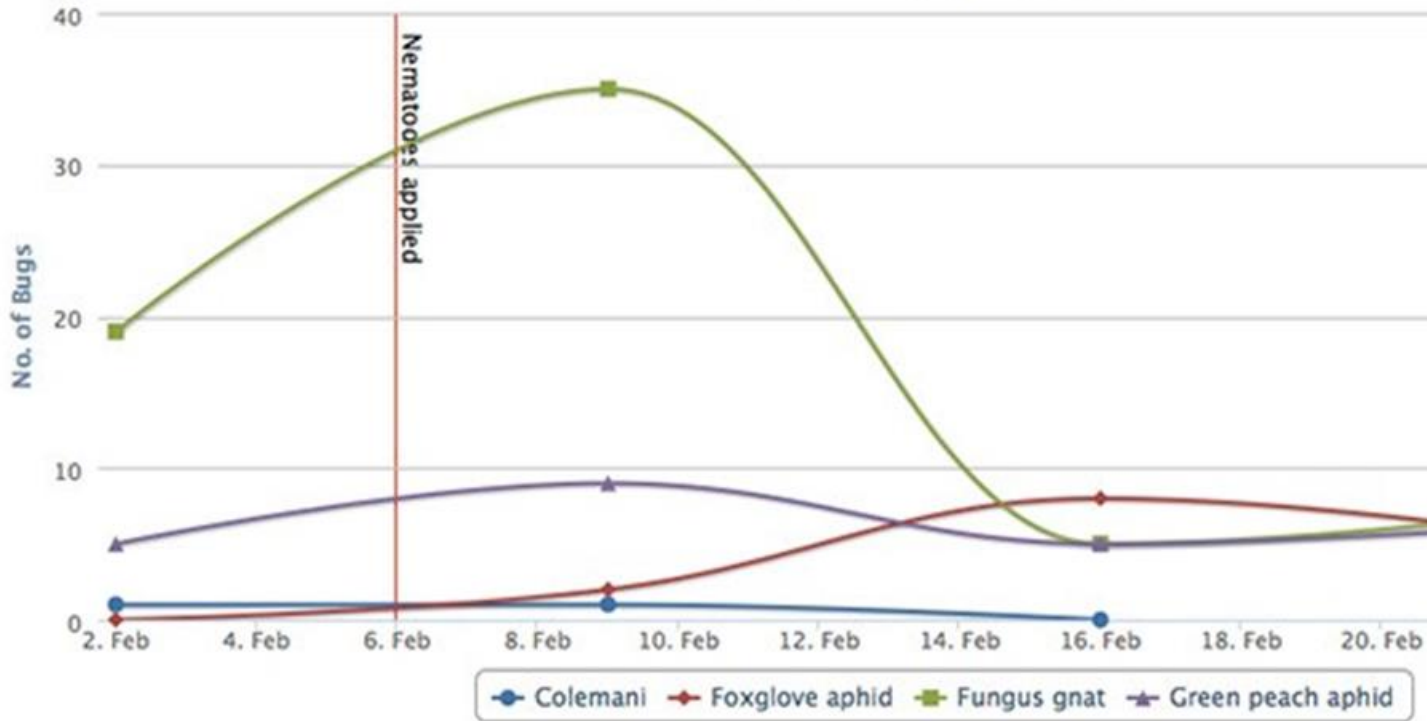
Pesticide Interactions

... Help

Record Keeping

Scout

Report for Peppers / Card #1



Beneficials



Application



Pesticide Interactions

Date	Description
02/02/2015	Green peach aphid: 5 Fungus gnat: 19 Foxglove aphid: 0 Colemani: 1

Help



Getting a good photo

- Another way to record damage
- Sharing photos
 - Training your people to identify damage
 - Sharing with extension professionals



Magnification Gadgets

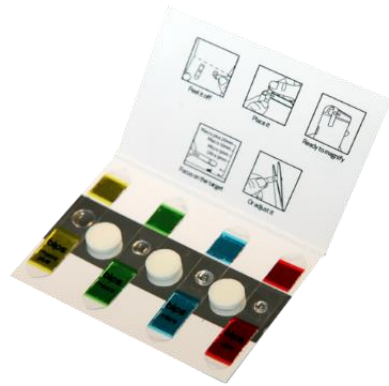
- Existing camera phone
- Lens to enhance camera phone
- Digital microscope for computer, phone



blips

~\$15

smartmicrooptics.com



- macro (green)
 - Magnification 10X
 - Working distance ~1/2"
- macro plus (yellow)
 - Magnification 5X
 - Working distance ~3/4"



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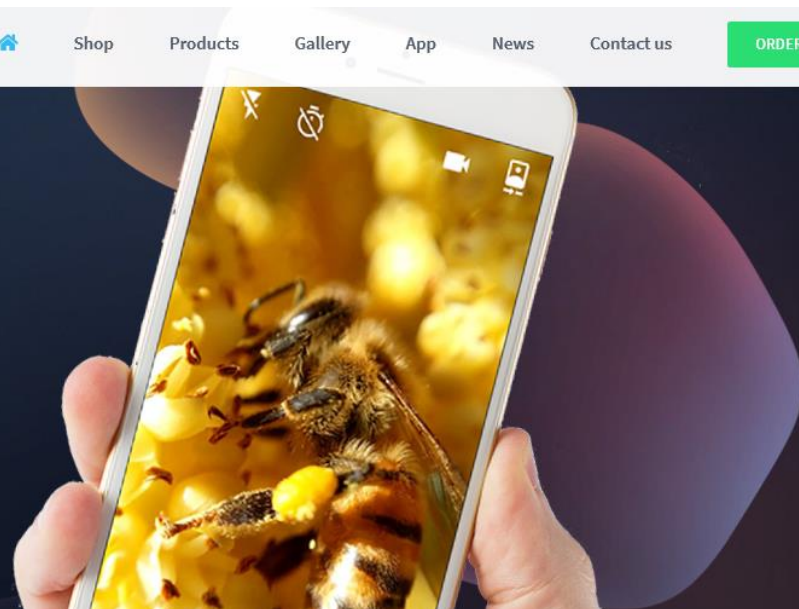
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- **More range in working distance**
- **LED Light**

Models vary in how they are powered and how they communicate with camera

- USB
- mini-USB
- Wi-Fi signal



Features we look for:

(i.e. things that should be in focus and not covered up by other body parts/insects)

- Antennae
- Wings
- Abdomen
- Mouthparts



Hands on Demo Pests & Natural Enemies



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