

# Welcome to DCGO July Presentation Organic Pest Control



# Agenda

- Some very basic entomology
- What is IPM
- Using IPM
- Controlling Common Garden Pests

# Facts About Insects

- 97 % of insects are not pests
- There are over 1000 species of insects in the DCGO
- The 3% that are pests can be devastating



# Ways Insects Cause Damage

- Chewing
  - Include caterpillars, grasshoppers and beetles



# Ways Insects Cause Damage II

- Internal Feeders
  - Include weevils, bores and leaf miners



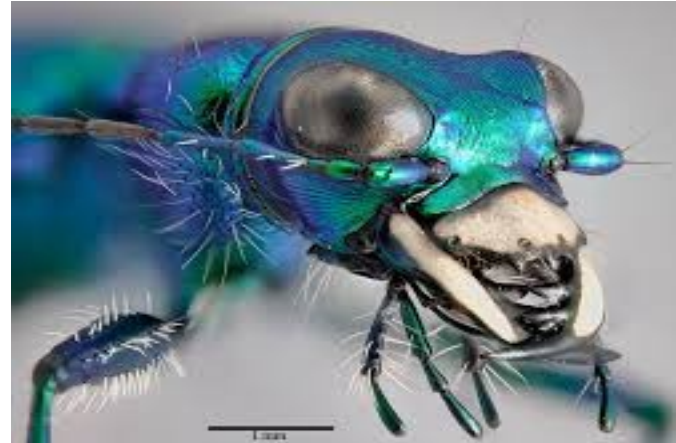
# Ways Insects Cause Damage III

- Piercing Sucking sap from cells
  - Include aphids, scales and plant bugs



# Identification of Insects Causing Damage

- Chewing Insects have visible mandibles
- Piercing Sucking Insects have siphon like mouth parts, like mosquitoes



# Identification of Insects causing Damage Cont.

- Internal feeders



Leaf miner damage



Squash vine borer



# What is Integrated Pest Management (IPM)

- UGA definition: “Integrated pest management (IPM) is a threshold based decision management system which leads to judicious use of multiple pest control tactics.”
- As intended to be practiced: A methodology to control pests using environmental friendly techniques.

# Best IPM Practices

- Insect detection & monitoring
- Insect identification
- Population pressure
- Economic threshold
- Natural enemy activity
- Make treatment decision
- Monitor environmental conditions while making control plans and decisions

# Sustainable Pest Management Practices

- Level One: System Based Practices
  - Weeding
  - Mulching
  - Plant Maintenance: proper watering, pruning, harvesting and waste disposal
  - Trap Cropping
  - Companion Planting
    - chives, nasturtiums, mints, penny royal, garlic, tansy and French marigolds



## Trap Cropping



## Companion Planting

# Sustainable Pest Management Practices II

- Level Two:  
Mechanical and  
Physical Practices
  - Exclusion,  
insect barrier  
or netting
  - Manual removal  
of harmful  
Insects
  - Spraying with  
hose



# Sustainable Pest Management Practices III

- Level Three: Organic Insecticides
  - Protect Natural Predators
  - Physical desiccant: kayolin clay, diatomsceous earth
  - Contact action: vegetable oils, horticultural oils, neem oil, pyrethrin, insecticidal soap, spinosyn
  - Stomach action: BT
  - Volatile action: garlic barrier cinnamite



Kayloin clay



Insecticidal soap

Neem oil





Spraying BT



Garlic barrier



# Controlling Aphids

- Weed and mulch
- Spray with hose
- Insecticidal soap
- Neem oil



# Controlling Japanese Beetles

- Don't put out Japanese beetle traps
- Manually pick off
  - Effective if minor infestation
- Diatomaceous earth
  - Use early in the season before larva hatch
- Garlic extract



# Controlling Mexican Bean Beetles

- Hand pick adults and eggs
- Use plastic mulch
- Bag and remove plants after harvest and badly infected plants
- Spray with Neem oil
- Don't confuse with lady bugs



Mexican bean beetle



Mexican bean beetle  
eggs



Lady bug

# Controlling Flea Beetles

- Detect them early
- Companion plant with radishes
- Use row covers
- Use good sanitation practices, weeding and removal of old plants
- Use yellow sticky tape
- Spray with garlic solutions and neem oil



# Controlling Cabbage Worms (Loopers)

- Base treatment on number of larva found
  - Check under leaves near visible damage
- Manually pick if only a few
- If necessary spray with BT, *Bacillus thuringiensis*



# Controlling Whiteflies

- Encourage natural predators: small birds, wasps, spiders, lacewings, ladybugs, and big eyed bugs.
- Inspect plants carefully before purchase and don't buy infected plants
- Use a row cover, lady bugs can be placed inside the row cover
- Wash off with water, neem oil or insecticidal soap





# Tomato Hornworm Control

- Crop Rotation
- Dispose of plants after harvest
- Pick off Manually
- Encourage trichogramma wasp
- Use Bt if necessary



Trichogramma wasp



# Quick Review

- Remember 97% of insects are not harmful
- Inspect plants often
- Know what kind of insect is doing the damage
- Use good horticultural practices
- Use non chemical controls
- Use chemical control only if necessary
  - Read and follow label directions

# Additional Help

- University of California
  - <http://ipm.ucanr.edu/index.html>
- Colorado State University
  - <http://extension.colostate.edu/topic-areas/insects/>
- University of Georgia
  - <http://extension.uga.edu/publications/a-z-list.html>
- Master Gardener Help Desk
  - [mgardener@dekalbcountyga.gov](mailto:mgardener@dekalbcountyga.gov)
  - Send photos of insect and plant damage
  -

Thank you

Questions