

# IPM for Organic Growers

## Considerations and Practices for Small Farms

Georgia Organics IPM Field Day - June 27th, 2023

Daniel Sweeney - Seven Springs Farm Supply



# Introduction

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## Seven Springs Farm Supply

- Specialty supplier of organic inputs, in business for over 30 years
- Fertilizers & amendments
- Cover crop seed
- Pest & disease controls
- Soil mixes
- Custom nutrient plans & fertilizer blends
- Advising on the above
  
- Business member of Georgia Organics

# Introduction

## Personal experience

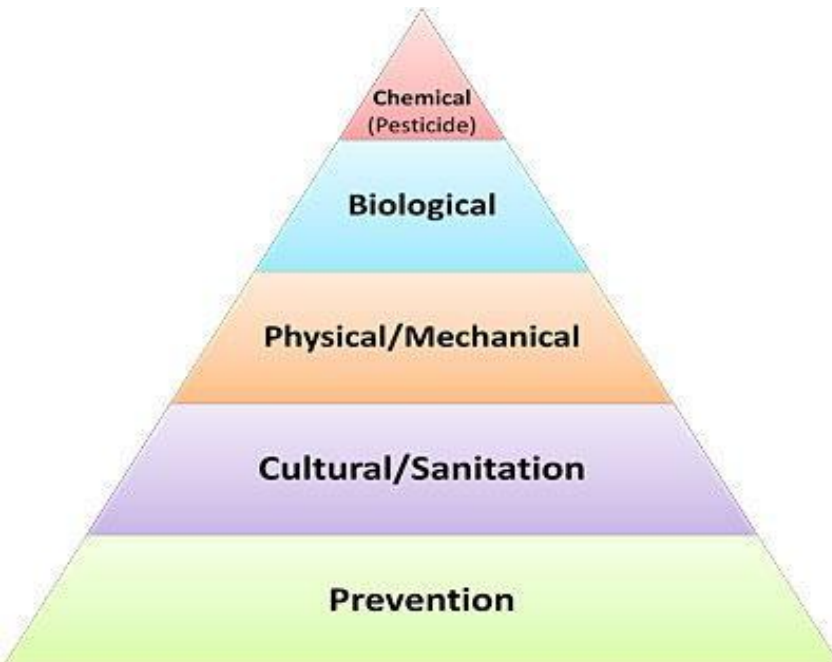


- Farm manager - 500+ acres, perennial fruit crops & nursery, strong emphasis on IPM
- Farm manager - small-scale (~10 acres), diversified vegetables, USDA certified organic
- Consultant & Crop Adviser for the last 6+ years
- Volunteer for industry working groups, technical committees and certifiers, often reviewing and writing standards related to IPM

# What is IPM? - Integrated Pest Management

A set of best practices to exhaust **prior** to the use of pesticides

Considerate control strategies that overlap and support each other



# Why practice IPM?

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Minimize crop (economic) losses

Reduce environmental impact

Reduce pesticide use and resistance concerns

Comply with certifications

Improve biocontrol over time

Save money?

# What is IPM?

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**Integrated**, as in using more than one technique in a specific sequence, or concurrently

“A **pest** is any animal or plant harmful to humans or human concerns” - in other words, anything that threatens to damage crops

**Management** in this sense is the mitigation, or control, of a pest through the creation and implementation of a plan and practices

There is a difference between managing something, and managing *for* something

Before we aim to “manage” something, it’s important to know what that something is, and what to expect from it



# What is a pest?

Insects, mites & nematodes - caterpillars and other larvae, beetles, bugs, aphids, mites, nematodes, etc.

Diseases - mildews, molds, rots, rusts, blights, spots, etc. - caused by bacteria, fungi and viruses

Weeds - any undesired, non-crop plants

Vertebrates - deer, rabbits, moles, groundhogs, mice, bears, etc.



# Planning for pests

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## **IPM starts during crop planning**

Begin by understanding crops and their life cycles - when are they at risk?

Pests are often specific to a crop family or variety - consult other growers or crop guides if you are unsure of what to expect in a new crop

Understand likely key pests and their life cycles, and how these overlap with your crop plan - where do pests come from, when are they likely?

Consider the value of the crop as you make pest management plans and decisions - this may change over the course of a season!



# Planning for pests, or, the “Five Ps”:

## Prior Planning Prevents Poor Performance

Set goals and expectations that make sense for your farm

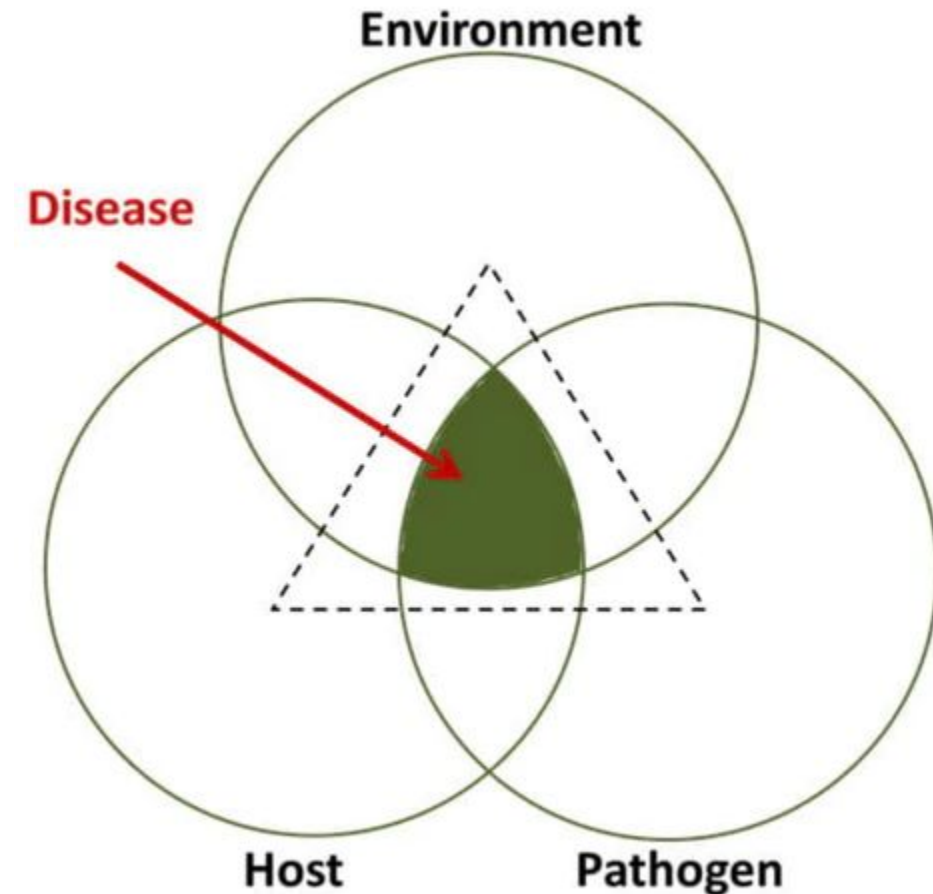
Managing a pest

- Noticing a pest and killing it

Managing **for** a pest

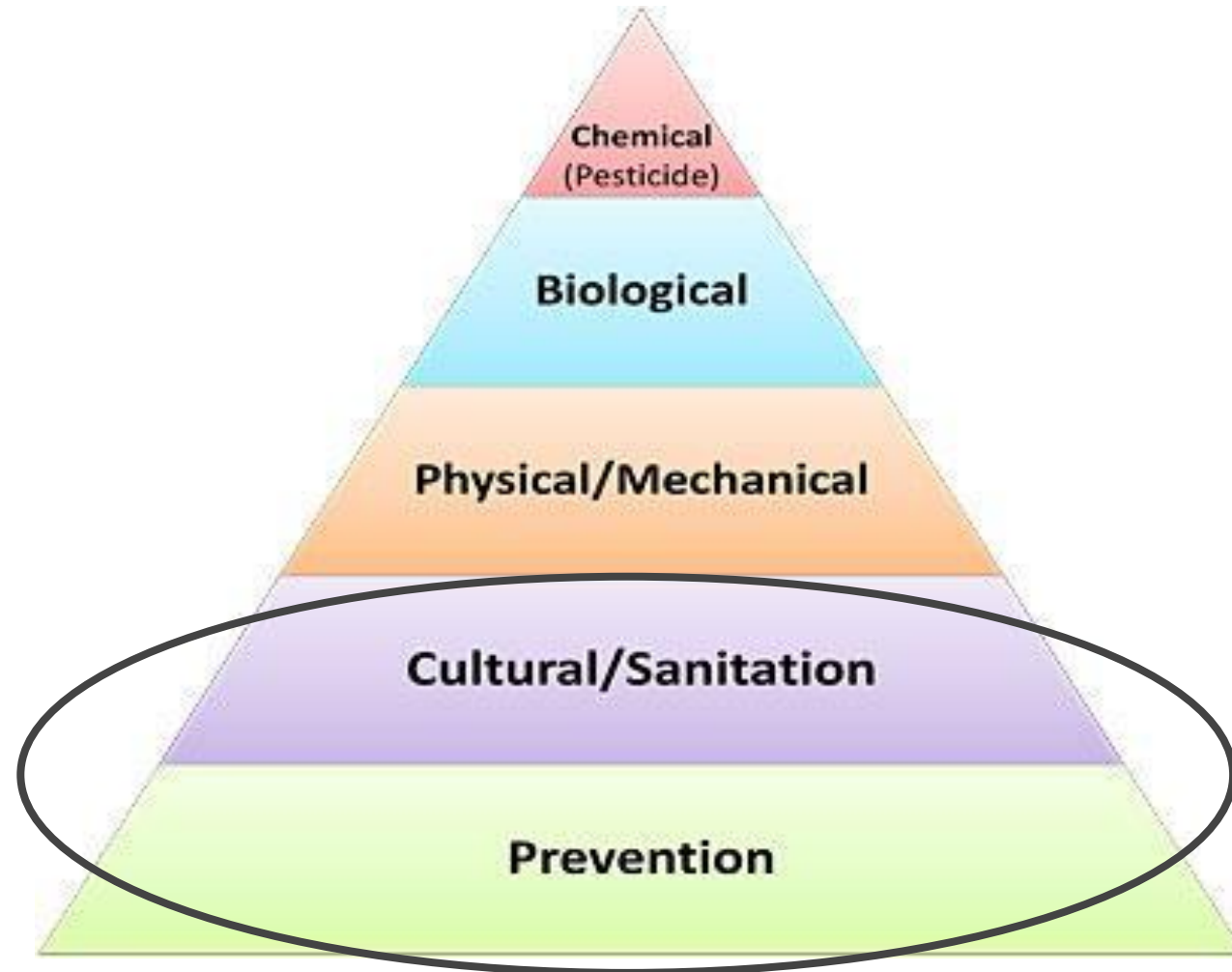
- Setting your crop up for success prior to pest outbreak

The more you understand and prepare **before** a pest outbreak, the better



# Prevention & Cultural Controls

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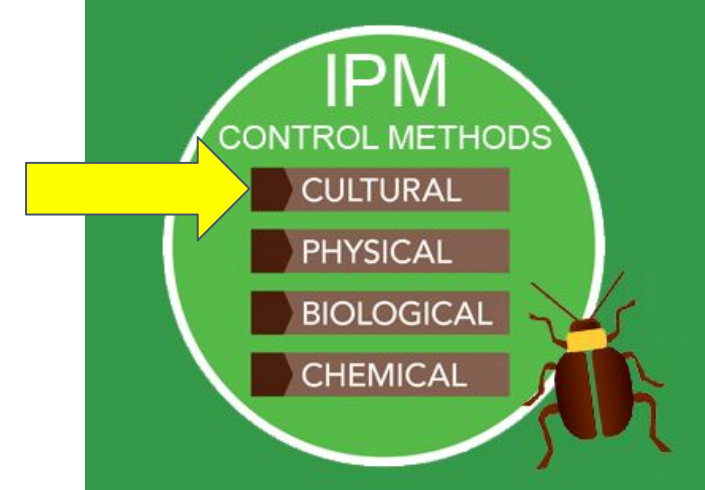


# Prevention & Cultural Controls

**These begin during planning stages**

Site selection and layout - utilize field length/width, row orientation and plant spacing to enhance the effects of natural patterns - distance, wind, light, rain and surface water

Select suitable plant genetics - some species, varieties or rootstocks are more/less “resistant” to potential key pests



# Prevention & Cultural Controls

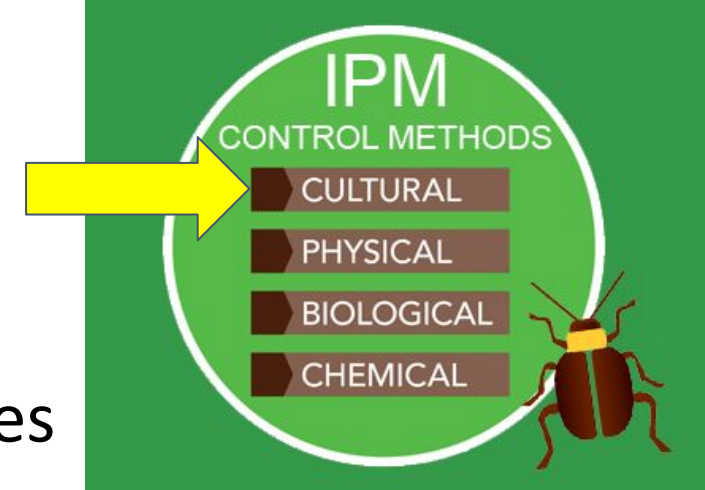
Correct soil pH and any nutrient deficiencies or imbalances  
**healthier plants are more resilient**

Preserve and encourage soil biology - avoid excessive tillage, use biologically-based amendments and plant cover crops

Break the pest cycle by rotating crops (cash and cover) in annual systems, and by removing crop residues in annual and perennial systems

Manage non-crop areas for biodiversity, and...

Manage non-crop areas for alternative hosts



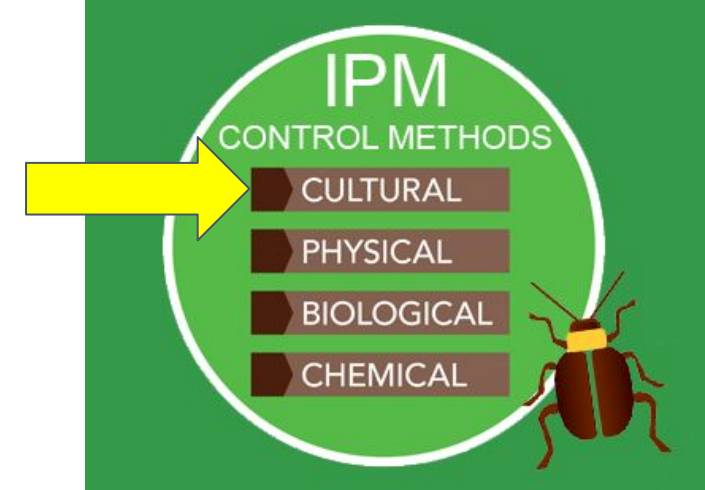
# Prevention & Cultural Controls

Time plantings to account for anticipated peaks in pest pressure and crop susceptibility

Plant trap crops on field edges, or earlier than primary crops

**Have a plan for monitoring pest pressures - watch pressure models, scout fields deliberately and regularly**

Tolerate or accept some percentage damage/loss, and plan accordingly







- Introduction
- Quick Start
- Map Index
- Shortcut Links
- Degree-day Maps

To configure **MyPest Page**, select one or more **Crops** and enter a **Zipcode** to initialize settings for your plant disease risk and degree-day models. Then click the "Go" button.

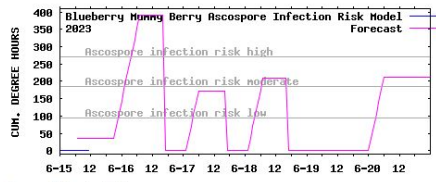
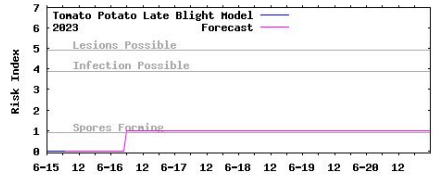
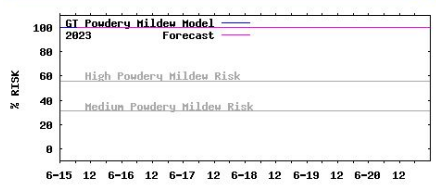
**Crop(s):**

<input type="checkbox"/> apple	<input type="checkbox"/> pear	<input type="checkbox"/> cherry	<input type="checkbox"/> peach	<input type="checkbox"/> grape
<input type="checkbox"/> caneberries	<input type="checkbox"/> strawberry	<input type="checkbox"/> hazelnut	<input type="checkbox"/> walnut	<input type="checkbox"/> pecan
<input type="checkbox"/> nursery	<input type="checkbox"/> wheat	<input type="checkbox"/> oats	<input type="checkbox"/> grains	<input type="checkbox"/> alfalfa
<input type="checkbox"/> beans	<input type="checkbox"/> hop	<input checked="" type="checkbox"/> vegetables	<input type="checkbox"/> potato	<input type="checkbox"/> corn
<input type="checkbox"/> sugarbeet	<input type="checkbox"/> peppermint	<input type="checkbox"/> sunflower	<input type="checkbox"/> clover	
<input type="checkbox"/> invasive species	<input type="checkbox"/> park&yard trees	<input type="checkbox"/> degree-day calc. only		

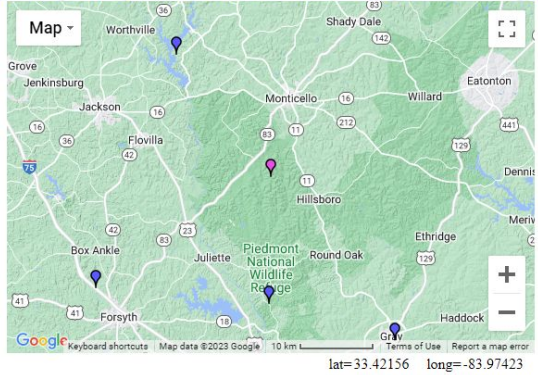
**Zipcode:**

Returning user? Go directly to [uspest.org/risk/models](https://uspest.org/risk/models) - MyPest Page  
(only your previous settings will be used)

MyPest Page: Hourly Weather, Plant Disease Risk, and Degree-Day/Phenology Models



Forecast Engine Info:  
NDFCD (lo-res)



ONFG1 RAW5 33.2081 -83.7133  
2023 OCONEE GA elevation: 476'

Refresh - click to reset display

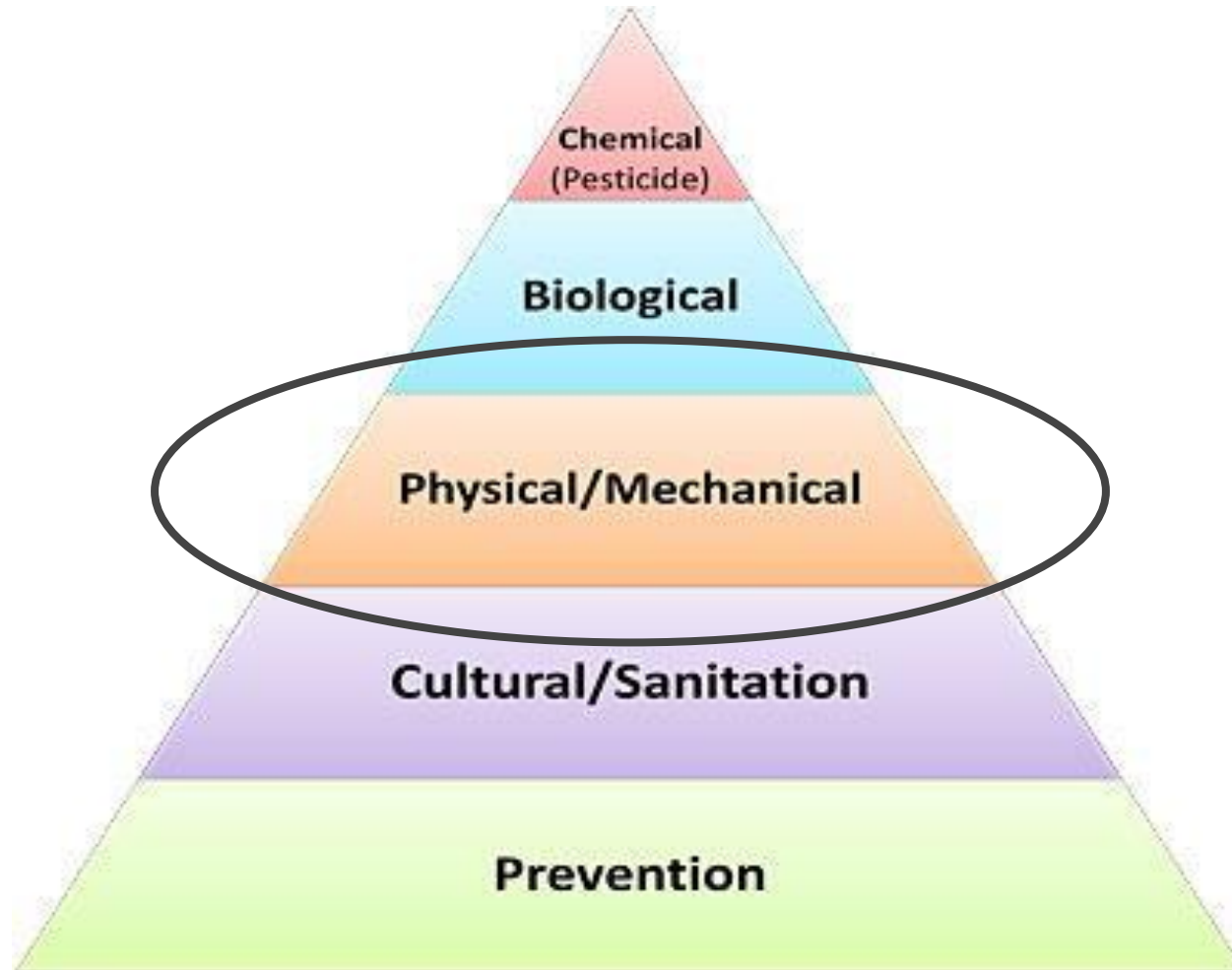
- Display Dates
- Weather Parameters
- Plant Disease/Other Hourly Driven Models
  - GT Powdery Mildew
  - Blueberry Mummy Berry Ascospore Infection Risk
  - Tomato Potato Late Blight
- Degree-day/Phenology Models
- Display Settings
- Download Data
- Display Data Table





# Physical & Mechanical Controls

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# Physical/Mechanical Controls

Exclusion - tunnels, netting, fencing, mulches, bags

Traps, lures and baits

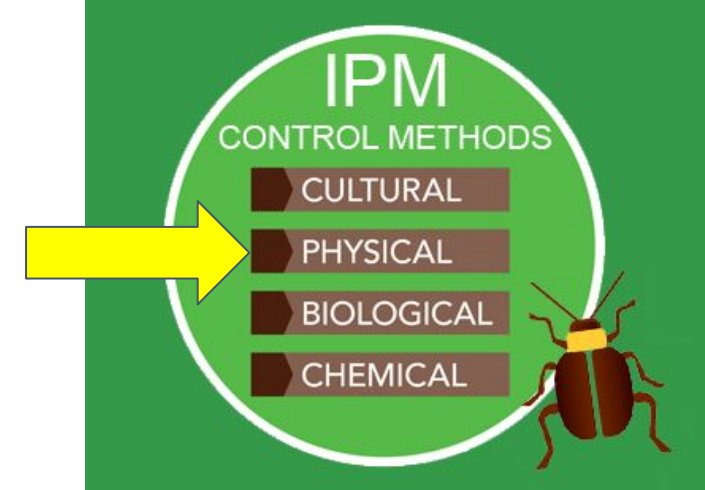
Pruning, hedging, roguing, harvesting

Cultivation, hand or mechanical weeding, tarping

Some “pesticides” or other products may work as pest repellants -  
Surround (Kaolin clay), neem and garlic oils, soaps, blood meal, liquid fish

Noise and motion

Vacuum or bucket of soapy water



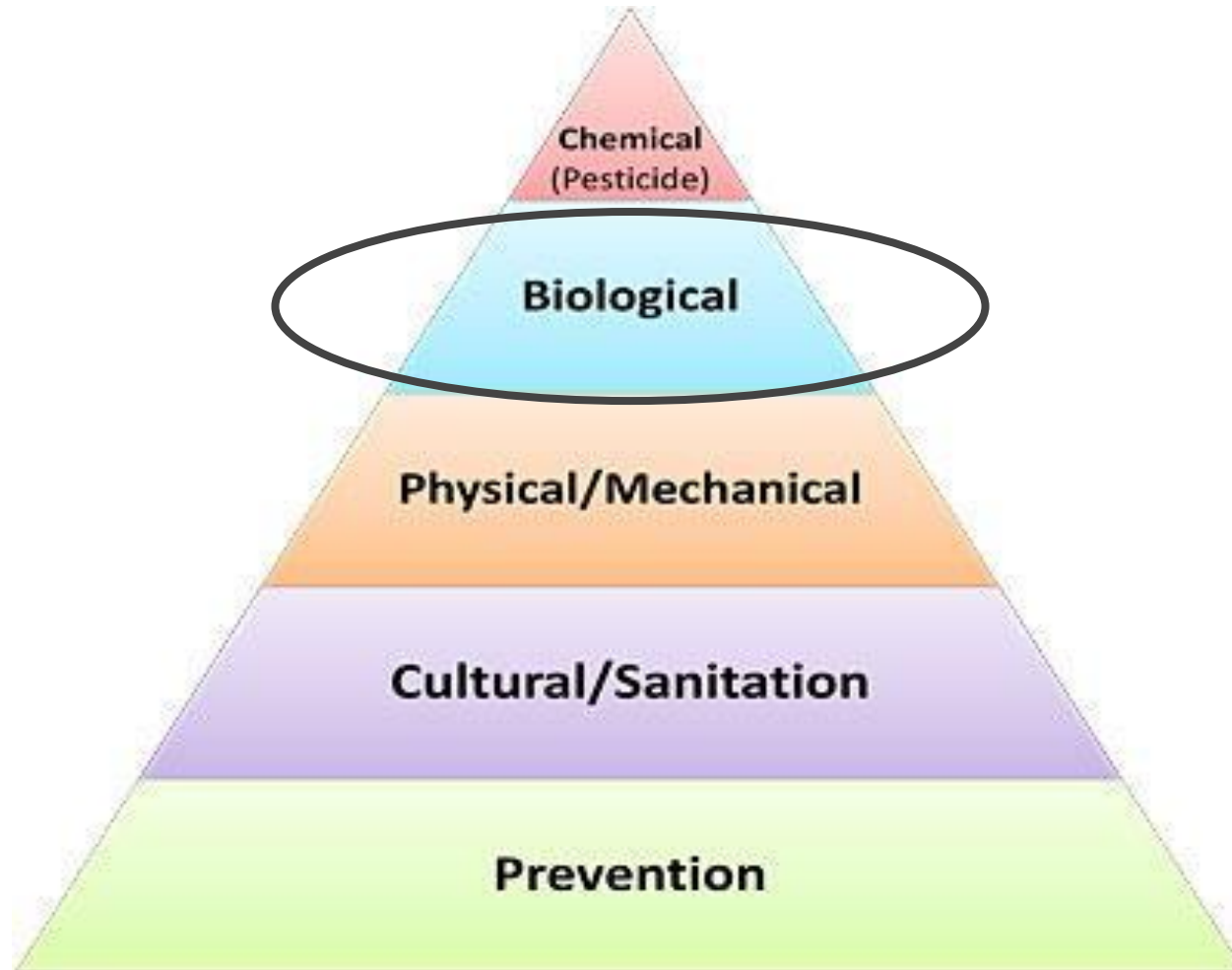






# Biological Controls

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# Biological Controls

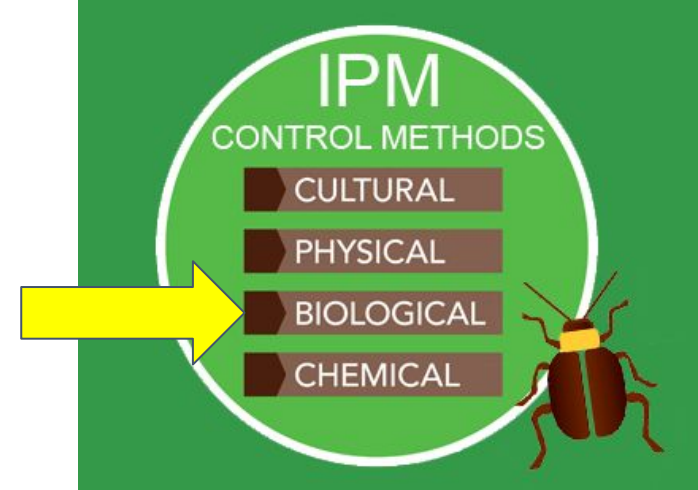
## Supported by cultural and physical controls

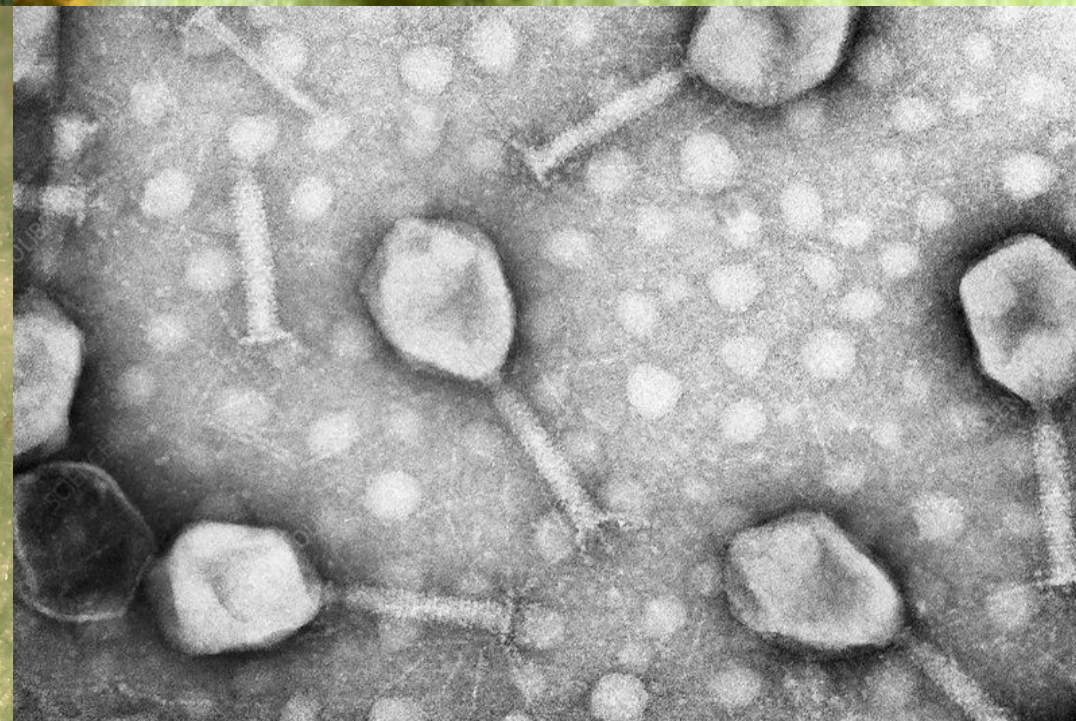
Native or introduced natural enemies of a pest

Parasites, predators, pathogens, competitors

Encourage with habitat and/or alternative host management

Strong trend in “biological controls” available as registered pesticides - living bacteria, fungi and viruses

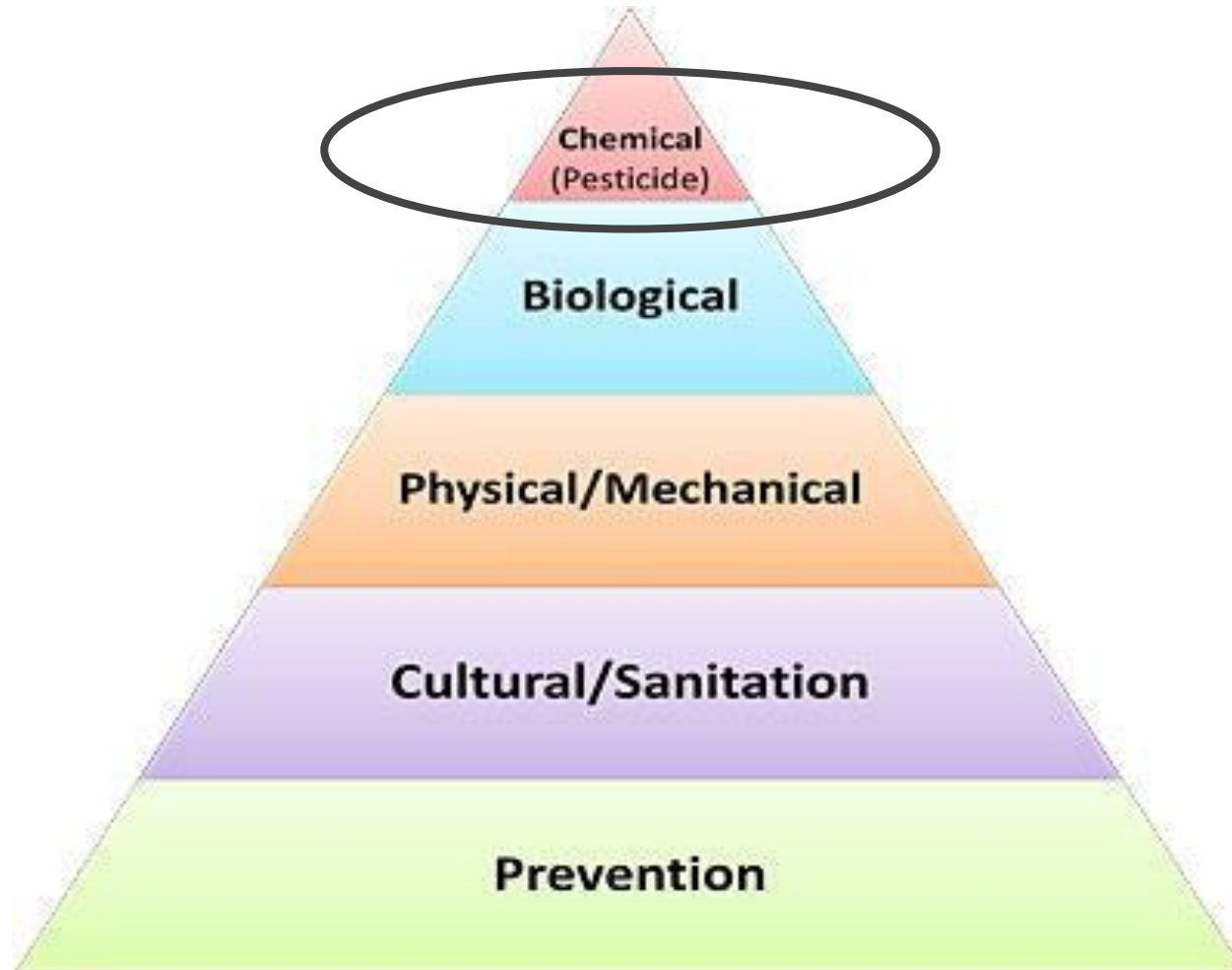






# Chemical Controls (Pesticides)

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# Chemical Controls (Pesticides)

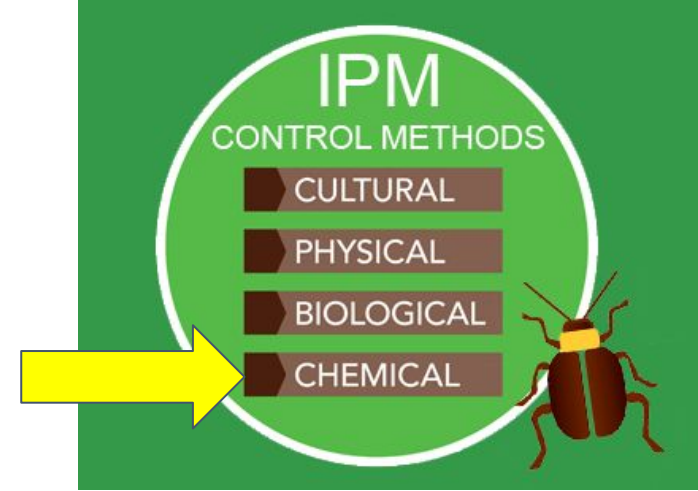
**Treat for diseases preventatively...**

**Treat most insects and weeds directly, based on pressure**

Last resort, when other control methods are exhausted or insufficient

Work better with the support of cultural, physical and biological controls

Unique set of options and considerations in “organics” - consider persistence and modes of action



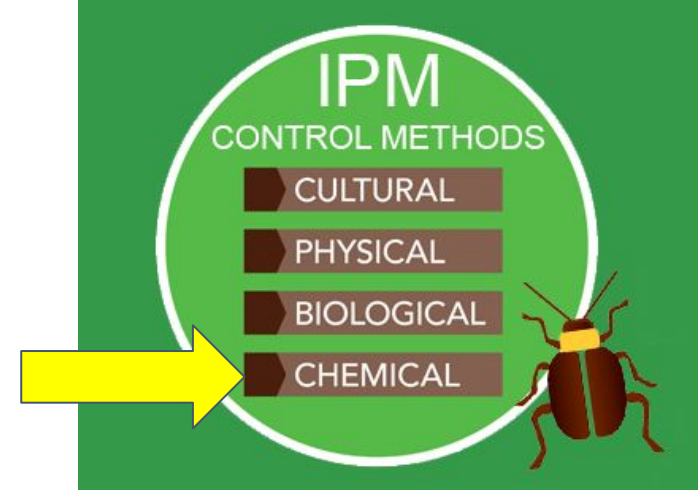
# Chemical Controls (Pesticides)

Consider treatment thresholds for pest populations

Economic potential of crop vs. potential damage/loss - how much crop loss can you tolerate?

**Does the value of the crop justify the cost of treatment?**

Cost of treatment includes cost of application (equipment and applicator), materials (pesticides), and active period of coverage (interval)





# Chemical Controls (Pesticides)

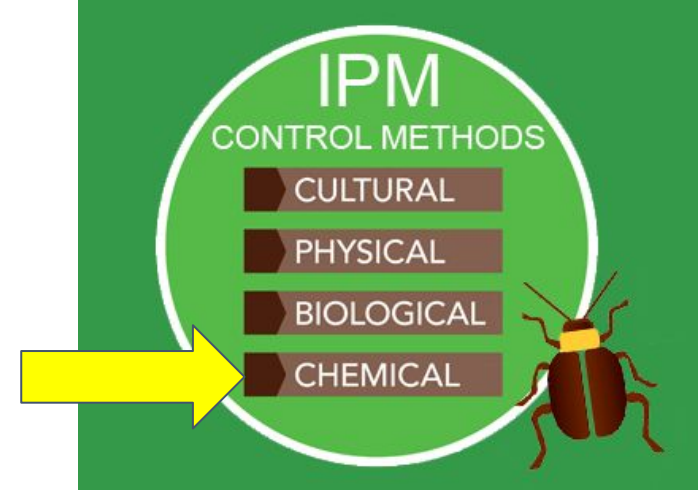
Compare efficacy ratings of labeled options

Select targeted over broad-spectrum materials whenever possible

Consider off-target toxicities and environmental persistence

Use equipment appropriate for the product - air blast vs. TeeJet

Coverage and appropriate rates are critical - 50 gal/Ac is a good starting point



# Bee Safety

Labels may mention  
use around pollinators

Check out the OSU  
Bee Safety app



## Bee Safety

Oregon State University Education

★★★★★ 8

Everyone

⚠ You don't have any devices.

Installed



Search:

### Active Ingredient

- Abamectin (Avermectin)**  
*Fermentation products derived from soil bacterium, affects nerve and muscle action of insects and mites*
- Sabadilla**  
*Plant derived insecticide, affects nerve and muscle action*

Precautionary statements to protect bees are listed in the Environmental Hazards section of pesticide labels. There are three types of statements (see below). Tap on each to learn more.

### Highly toxic to bees

These pesticides are indicated in this app with the color red and

### Toxic to bees

These pesticides are indicated in this app with the color yellow and

### No bee precautionary statement on label

These pesticides are indicated in this app with the color green and

HELP ABOUT KEY HOME

HELP ABOUT KEY HOME

Search:

### Active Ingredient

- Abamectin (Avermectin)**  
*Fermentation products derived from soil bacterium, affects nerve and muscle action of insects and mites*
- Acephate**  
*Organophosphate*
- Acequinocyl**  
*Quinolone insecticide, metabolic poison*
- Acetamiprid**  
*Neonicotinoid insecticide*

HELP ABOUT



# Resources

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[uspest.org/wea](https://uspest.org/wea)

<https://cals.cornell.edu/new-york-state-integrated-pest-management/outreach-education/ipm-areas/organic-ipm>

Bee Safety app

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

[daniel.7springs@gmail.com](mailto:daniel.7springs@gmail.com)

540-651-3228



# Pesticide checklist

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For compliance:



Clear need - economically justifiable pest or disease present (or anticipated), other IPM controls exhausted

Federal approval - EPA exempt or registered for pest and crop

State approval - registered for use in GA

Proper safety equipment and precautions (PPE, PHI, REI, etc.)

Certifier approval - OMRI approved (or equivalent) and inclusion on OSP

# Pesticide checklist

Farm-specific:



Appropriate material selection for the following (and more):

Pest - efficacy, resistance concerns, etc.

Situation - intervals, compatibilities, cost, weather, harvest dates, workflow, access, etc.

Farming goals - certifications, environmental concerns, economics, etc.

**Bottom line: make a checklist tailored to your farm's goals**



Thank you

Q&A?