



IPM-based Pest Management

How do we prevent or manage pests?

- Cultural Controls
- Mechanical Controls
- Biological Controls
- Chemical Controls

Control vs Manage

- These terms tend to be used interchangeably, but do they mean the same thing?
 - What do you think of when someone says controlling cockroaches?
 - What do you think of when someone says they are managing a weed problem?
- Why do you think we call it Integrated Pest Management and not Integrated Pest Control?

It is easier to prevent a problem than solve it!

(Cultural Controls)

- Cultural control just means we do things to prevent a problem
 - Keep plants healthy with good conditions and water

Cultural controls

- Mulch prevents weeds
- Reduces water loss from soil
- Keeps lawnmowers and weedtrimmer that might damage tree away from the trunk



Cultural Controls

Plant the right plant for the area

Hostas prefer shade!



Keep the pest out of the house or away from the plants!

(Mechanical Controls)

- Similar to cultural controls, but focused less on plant health and more on the pest.

Mechanical controls

- Dust strips help keep insects out of buildings



Mechanical Controls

- Picking pests off the plant



Mechanical Controls

- Netting keeps pests off plants



Mechanical Controls

- Dislodging, pruning
- Cultivating



Using what nature gave us! (Biological Controls)

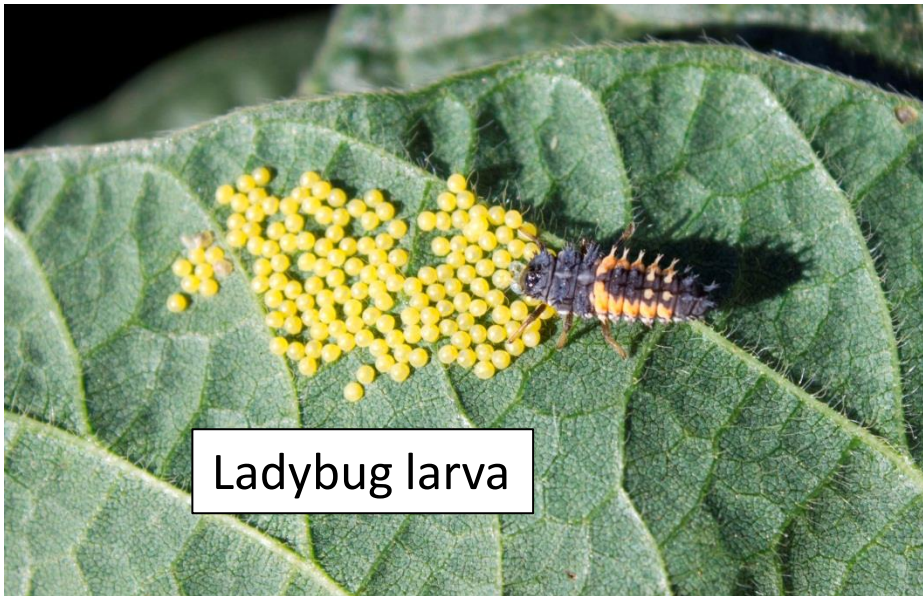
- Natural enemies
 - Insect predators or parasites that eat pest insects or weeds
- Insect pathogens
 - Diseases that kill pest insects

Predators

- Larger and more active than prey
- Usually eat more than one pest insect



Ladybug



Ladybug larva



Lacewing larva

Parasites

- Smaller than host (food source)
- Live in or on the host

Egg of a parasitic fly



Parasites

- Tiny wasps and flies
- Grow in or on host
- Eventually **kill host**
 - Parasites do not normally kill their host

Tomato Hornworm Parasite



- The white things are pupa, not eggs
- Tiny wasp

Pathogens

- Disease or infection
- Bacteria, viruses, fungi, nematodes
- Weaken and kill pests

Chemical Controls

- Substances for killing, preventing or repelling pests
- Applied control
- Should be used along with other IPM methods

Chemical Controls on Plants

- Use least toxic products
 - Soap-based insecticides are less harmful to natural enemies
- Don't spray flowering plants
 - Spraying flowering plants will kill beneficial pollinating insects

Chemical Control Indoors

- Determine best method of using chemical
 - For instance baits are effective for many roach and ant species and do not expose people to as much chemical
- Determine why insects are indoors and take steps to prevent them along with using chemicals
- Be careful applying chemicals so that pets, children and adults do not contact them very much

Discussion Question

- What pests would be most common indoors and outdoors at your school.
- What steps do you think your school takes to prevent pest problems?