

Controlling Pests in the Home Garden

The **W**holistic Approach

What We'll Cover:

- What pests are we talking about?
- Why it's important to know your target
- ID and Monitoring
- What I mean by **W**holistic
- Areas of concentration
- Benefits of being **W**holistic in your approach

Pests?

- Viruses
- Bacteria
- Fungus (Mold)
- Insects
- Weeds
- Critters
 - 4 legged
 - 2 legged



Tabaco Mosaic virus



Bacteria Spot



Early Blight



Flea Beetle



Bunny



Nightshade

Know Thine Enemy

- ▶ Pest ID is Critical
 - ▶ Determine Need for Control
 - ▶ Proper Control
 - ▶ Most Effective
 - ▶ Timing
 - ▶ Save Money
 - ▶ Less Invasive

How?

- ▶ Direct Identification
 - ▶ Catch'em in the act
- ▶ Indirect
 - ▶ Adults/Larva
- ▶ Symptoms
 - ▶ Skeletonize
 - ▶ Discoloration
- ▶ Where their found
- ▶ Time of Year



<http://www.extension.umn.edu/garden/diagnose/plant/>

<https://www.vegedge.umn.edu/pest-profiles/pests>

<https://www.purdueplantdoctor.com/>

How Big is the Enemy Force?

- ▶ “Action Threshold”
- ▶ Monitoring Numbers
 - ▶ Trapping
 - ▶ Surveying
- ▶ Assess Damage
 - ▶ Observing



Determine Control Approach

- ▶ Defensive

- ▶ Protect

- ▶ Offensive

- ▶ Search and Destroy

- ▶ Control vs Elimination

- ▶ Suppression

Wholistic Approach?

- ▶ *Technically-Integrated Pest Management (IPM)*
- ▶ *Long-term prevention of pests or their damage by managing the ecosystem*

Careful consideration of all available pest control techniques that discourage the development of pest populations

Four Areas of Concentration

▶ ***Cultural Practices***

- ▶ Maintain healthy plants
- ▶ Pest unfriendly environment
- ▶ Predator/parasite welcome mat

▶ ***Mechanical and Physical Controls***

- ▶ Kill a pest directly
- ▶ Limit access

▶ ***Biological Control***

- ▶ Use of *natural enemies*—predators, parasites, pathogens, and competitors

▶ ***Chemical Control***

- ▶ Physiological affect on the target pest
- ▶ Herbicides, Insecticides, Fungicides

Cultural-

The best Offense is a good Defense

▶ Promote Healthy Plants

▶ Planting

- ▶ Prevent as much stress as possible

- ▶ Timing

- ▶ Depth

- ▶ Location

- ▶ Soil Type

▶ Pruning

- ▶ Remove damaged and diseased vegetation

- ▶ Air Circulation & Direct Sun are the best sanitizers

▶ Watering

▶ Fertilize

- ▶ Soil Test

Cultural

Cleanliness is next to Godliness

- ▶ Crop Rotation
- ▶ Choose resistant varieties
- ▶ Eliminate preferred pest environment
 - ▶ Windfall
 - ▶ Leaves, dead branches
- ▶ Remove/cut weeds before they seed
- ▶ Remove host or home
- ▶ Inhibit growth
 - ▶ Mulch
 - ▶ Weed/hoe
 - ▶ Mow

Mechanical and Physical Controls

▶ Traps

- ▶ Mouse traps
- ▶ Tanglefoot
- ▶ Squish em'

▶ Barriers

- ▶ Tree guard
- ▶ Fence
- ▶ Mulch
- ▶ Net
- ▶ Barrier

▶ Bait and destroy

Biological Control

- ▶ Promote a predator/parasite friendly environment
 - ▶ Biodiversity
 - ▶ Season-long food source
 - ▶ Create habitat
- ▶ Add biological agent
 - ▶ Nematodes
 - ▶ *Bacillus thuringiensis* (BTs)- "microbial insecticide"
 - ▶ Lacewings
 - ▶ Predator/parasitoid wasps

Chemical Control Warning

- ▶ Pesticide/Herbicide label is considered a legal contract
- ▶ Homeowners can be found liable if damage or loss is caused by misuse

Chemical Control

- ▶ *Sprays/Powders/Poisons*
- ▶ *Systemic/ Broad Spectrum*
 - ▶ Neonicotinoids
 - ▶ 2,4-D
- ▶ *Selective/Target Specific*
 - ▶ Neonicotinoids
 - ▶ d-Con
 - ▶ Grass B-Gone
- ▶ *Timing- Avoid Non-target/Benificials*
 - ▶ Late evening
 - ▶ After bloom
 - ▶ Rain
 - ▶ Wind

Why **W**holistic?

- ▶ Organicsesk
- ▶ Most effective approach
- ▶ Non exclusive
- ▶ Most cost effective
- ▶ Less work
- ▶ Less risk
- ▶ Less invasive
 - ▶ Healthy/balanced environment

Conclusion

- ▶ Positively identify your pest
- ▶ Use all your tools
- ▶ Control vs Eradication

Q & A



Thanks for Coming!

▶ Please visit:



▶ Helpful Information and Sources:

- ▶ <http://www.extension.umn.edu/garden/yard-garden/fruit/>
- ▶ <http://www.fruitedge.umn.edu/>
- ▶ <http://www.fruit.cornell.edu/>
- ▶ <http://www.ext.nodak.edu/extnews/askext/fruits.htm>
- ▶ <http://hort.uwex.edu/topics/fruits>