Top Ten and maybe a few more Pests in the Perennial Garden and How to Manage

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Common Insects & Mites on Perennials/Annuals
- Plant bugs, aphids & psyllids
- Sawflies & caterpillars
- Beetles (Japanese, cucumber)
- Twospotted spider mite
- Weevils
- Leafminers
- Slugs

"Bugs" & Aphids
- *Fourlined plant bug* - one generation.
  - Most damage in May & early June.
  - Prefers mint family.

- *Aphids* – many species, several generations per season.
  - Look for predators – be patient!
  - Syringe (hose off with water).

Most perennials have one or two species of aphids that may feed on them.

The goldenrod aphid (above) feeds on a variety of daisy and composite flowers. The milkweed aphid (right) feeds exclusively on plants in the milkweed family.
Plant Bug & Aphid Control

- Tolerance
- Destroy overwintering habitat (clean up beds, sanitation)
- Cultural Controls - hand crush or syringe
- Chemical

Sucking Pests

**Traditional**
- Sevin
- Pyrethroids (permethrin, deltamethrin, resmethrin, bifenthrin, cyfluthrin)
- Soaps & Oils

**Alternates**
- Imidacloprid
- Thiamethoxam
- Acetimiprid
- Dinotefuran
- Spinosins
- Azadirachtins

Provided by Dr. Dave Shetlar

Sawflies & Caterpillars

- Columbine sawfly – one generation (May to June).
- Hollyhock sawfly – 3-4 generations.
- "Generalist" caterpillars – cabbage looper, European corn borer, green fruitworm.
- "Specialist" caterpillars
  - Milkweed – monarch butterfly

Columbine sawflies hide on the undersides of host leaves during the day. Though the larvae look like caterpillars, they have more than 5 pairs of prolegs on the abdomen – a sawfly characteristic.

Hibiscus sawfly larvae skeletonize leaves and the damage is often mistaken for Japanese beetle damage.

Adults look like small wasps or flies.

The milkweed tiger moth has a striking caterpillar that feed on all plants in the milkweed family.

Monarch butterfly larvae

American painted lady caterpillar feeding on perennial.
Sawfly vs caterpillar

- **Sawfly**
  - Wasps, ants, bees
  - 6 or more prolegs
  - Bt will not control

- **Caterpillar**
  - Lepidoptera (butterfly/moth)
  - 2-5 prolegs
  - Bt will control

Management of Caterpillars and Sawflies

- Tolerance (protecting pollinators/butterflies)
- Cultural – hand pick, crush
- Chemical – preventive or curative

Sawfly Insecticides

- **Traditional**
  - Sevin
  - Pyrethroids (permethrin, deltamethrin resmethrin, bifenthrin, cyfluthrin)
  - Soaps & Oils

- **Alternates**
  - Imidacloprid
  - Thiamethoxam
  - Acetamiprid
  - Dinotefuran
  - Spinosins
  - Azadirachtins

Caterpillar Insecticides

- **Traditional**
  - Sevin
  - Pyrethroids (permethrin, deltamethrin resmethrin, bifenthrin, cyfluthrin)
  - Acephate
  - Soaps & Oils

- **Alternates**
  - Acelepryn
  - Acetamiprid
  - Dinotefuran
  - Spinosins
  - Azadirachtins

Beetles
Beetle control

- Pyrethroids (bifenthrin, cyfluthrin)

Twospotted Spider Mite

- Prefer hot-dry conditions.
- Females overwinter in mulch & protected areas OFF THE PLANT.
- Often “reinstalled” on new bedding plants.
- Often resistant to common miticides.

Twospotted spider mites can completely web over the foliage of their hosts.

Twospotted spider mite eggs, nymphs and adults generally reside on leaf undersurfaces unless they have completely covered their host foliage.

Spider Mite Control

**Traditional**
- Soaps & Oils
- Pyrethroids (NO!)
- Dimethoate (nursery)
- Abamectin
  - (all mites)
- Hexythiazox
- Bifenazate
- Acephate

**Alternates**
- Conserve (=Naturalite)
- Spiromesifen
  - (all mites)
- Spinosad
- Chlorfenapyr
- Acequinocyl
- Soaps or Oils

Coneflower rosette mite (eriothyrid)
Often not susceptible to regular miticides.
A half dozen species of slugs in Ohio landscapes. Most will feed on the leaves of plants while others specialize on feeding on fungi.

Garden snails are not common in Ohio, but they occasionally become established through recent plantings of new plants. Most can’t survive Ohio winters.

### Mollusicides

- **Iron Phosphate (Sluggo, Slug Magic)**
  - Safe for use around children, pets
  - Causes snail/slug to stop feeding

- **Metaldehyde (Slug Death, Slug Pellets, Slug-Tox)**
  - Toxic to pets, children
  - Work best during warm weather, low humidity
  - Cause death due to desiccation
Using the Disease Triangle

The Host Plant
- Plant Resistance
  - Sycamore Anthracnose
  - Rose Black Spot

The Environment
- Water
- Wet Foliage
  - Anthracnose Diseases

The Pathogen: Sanitation
- Poor Drainage
- Root Rot
- Botrytis on Roses
- Sanitation
Disease Prevention:

- **Fungicide**

Weeds

- Hand removal
- Herbicides
  - Preen
    - Active ingredient – trifluralin
- Avoid glyphosate in season

Perennial

Annual

Mulching

- Black plastic
- Landscape fabric
- Organic materials
  - Straw
  - Grass clippings
  - Compost
  - Leaf humus
  - Newspaper

Critters

- Moles
- Voles
- Deer
- Rabbits
- Squirrels
- Ground hogs
- Racoons

Rodents

Exclusion!!!!!

But let’s talk about repellents, soap, human hair, urinating around the beds……

Integrated Pest Management

- Chemical Controls
- Biological Controls
- Cultural Controls
- Monitor Pests
  - Insects
  - Diseases
  - Weeds

Biological Controls ↔ Cultural Controls
Plant Health Care

IPM Principles and Concepts
Traditional Approaches (based on crops)
- sample pest populations on a regular basis
- develop pest economic injury levels
- determine economic threshold levels (action thresholds) for each crop and pest

IPM Principles and Concepts
Problems Applying Field Crop Concepts to Urban Areas
- urban areas are aesthetic "crops"
- general public fear or distaste of pests ("I don't like bugs!")
- extremely diverse habitats are involved, not monocultures

IPM Principles and Concepts
How do we handle diverse habitats?
- Number of Plants – urban landscapes can contain over 100 species of plants!
- Number of Pests – each plant may host 1 to 5 pests each!

IPM Principles and Concepts
Urban Approaches (for landscapes, Raupp et al.)
- Key Plants - plants prone to damaging pest problems
- Key Pests - pests that can cause serious damage or plant loss

"Traditional" Ornamental Plant Maintenance Program
- Fertilize spring and fall – all plants treated the same.
- Mulch in spring and put down preemergence herbicide (crab grass and other annual weeds)!
- Visit garden 4-5 times per year and use "cover spray" (contains mixture of miticide, fungicide and insecticide)!
Today’s approach

• Start with plant selection
  – Know the key pests for a desired plant
  – Example – Hibiscus
• Determine level of tolerance
  – Hibiscus – Japanese beetles
  – Mints – Four-lined plant bugs

Learn about biocontrols

• What else is in the garden to help you out
  – Predators
  – Parasites
  – Pathogens
• Get to know them!

Classic Insect Biocontrols

• Predators
  – Ants & Wasps
  – Beetles
  – Spiders
  – Bugs (damsel, big-eyed, stink)
  – Mites
  – Others
• Parasites
  – Wasps
  – Flies
  – Others
• Pathogens
  – Bacteria
  – Fungi
  – Virus
  – Entomopathogenic nematodes

Using Chemical Controls

❖ Target Principle – where is pest located and is it in a susceptible stage?
❖ Chemical Mode of Action – chemical class; contact, stomach, systemic, baits
❖ Part of IPM Tactics – remember cultural and biological controls
Resource

- National Pesticide Information Retrieval System
  - http://npirspublic.cens.purdue.edu/default.asp
- UC IPM
  - http://ipm.ucanr.edu/index.html

Education!!!!

- Learn about the plant and pest interaction
- Just because a pest is present doesn’t mean you have to take action