



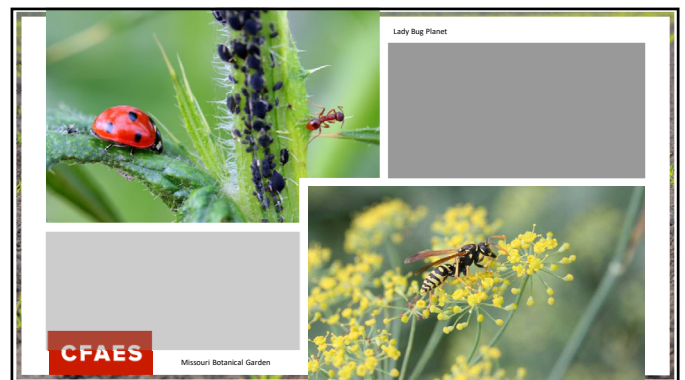
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Why is this important?

***It is imperative to ID a pest before you can manage a pest**

- Where and how a pest feeds will affect how you manage that pest
- If you choose to use chemicals, whether synthetic or natural occurring, recall that not all pesticides are created equal

We will not be discussing specific management strategies for these pests today.

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Friendly Reminders:

Not all plant injury is caused by direct feeding of insects or mites


- Gall makers - feeding or oviposition by insects, mites..
- Nesting - leafcutter bees, webworms, leaf tiers
- Oviposition scars - Cicadas
- Disease vectors - aphids, thrips and leafhoppers
- Honeydew producers - attracts sooty mold and other fungi which block photosynthesis

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Friendly Reminders Cont:

Non-arthropod plant damage

- Snails & slugs
- Small animals
- Deer
- Birds
- Abiotic factors



UMH Ext

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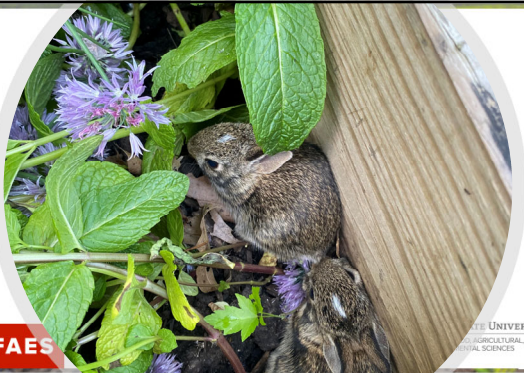


Small Vertebrates

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Friendly Reminders Cont:

- It is much easier if you can locate the pest
- Many pests will always remain on the plant
- Some pests will flee when disturbed
- Some pests are only active at night




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Thanks for lunch !!

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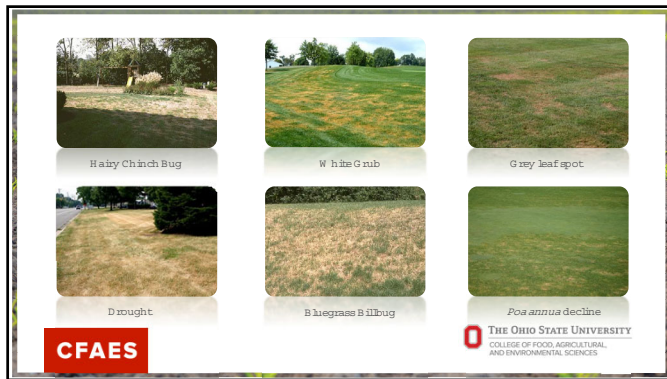


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Megan Schrage, Creighton University

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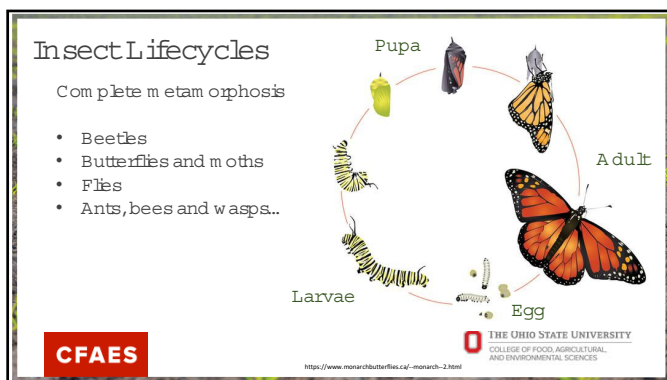
Phylum : Arthropoda

Classes:

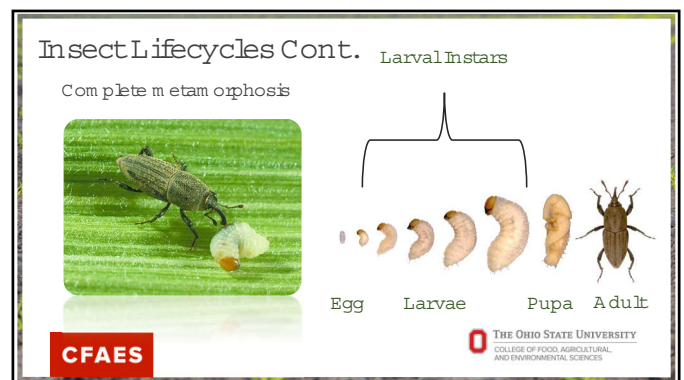
- Insecta – insects
- Arachnida – ticks & mites (Acari), scorpions, spiders..
- Others – millipedes, centipedes, pillbugs, roly-polys...



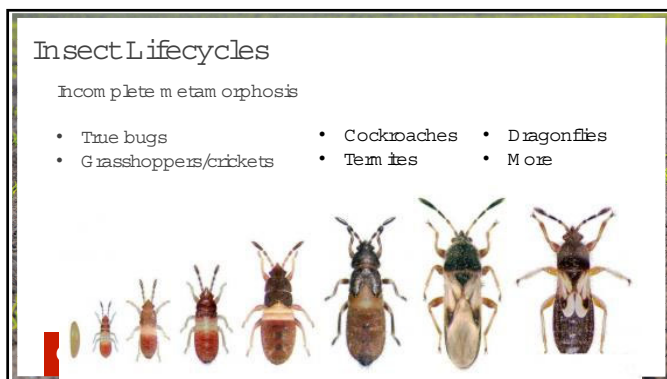
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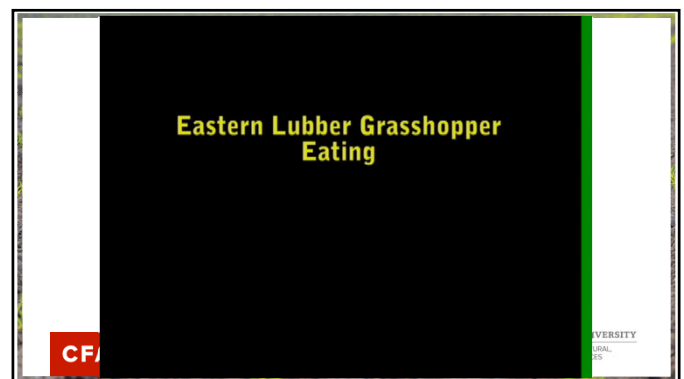
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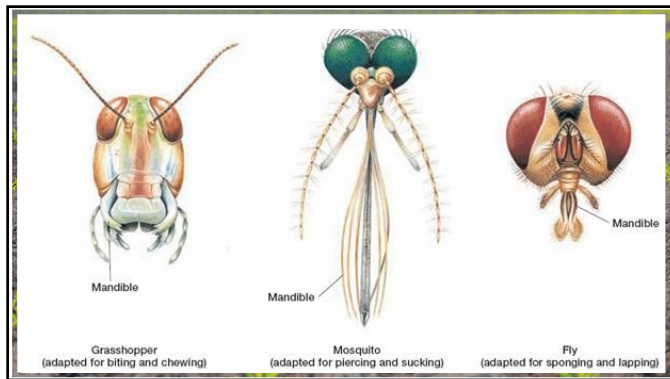
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Types of Mouthparts

- **Biting/Chewing:** beetles, caterpillars, sawfly larvae, snails
- **Piercing/Sucking:** true bugs, mites, mosquitoes
- **Sponging:** Flies
- **Siphoning:** Moths, butterflies
- **Chewing/Lapping:** honey bees
- **Rasping/Sucking:** Thrips

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Ornamental Pest Groups:

- **Taxonomic group** (beetles, caterpillars)
- **Plant or plant part attacked** (foliar pests, root feeders, etc.)
- **Feeding method** (chewing, sucking, gall forming, etc.)

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Biting Chewing: Foliage Feeders

- **Defoliators or generalized feeders: Caterpillars & sawflies**
- **Specialized feeders: skeletonizers, leaf notchers, hole makers**
- **Nest makers: Bagworms, tent cats, webworms, etc.**

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Gypsy Moths: Defoliators

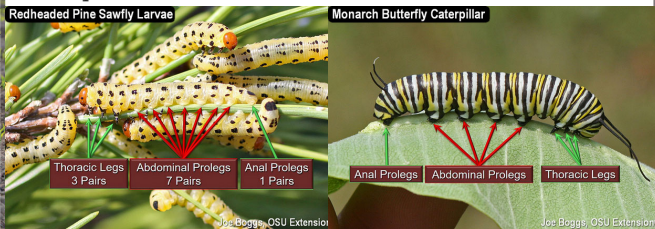


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Saw Fly Larvae: Defoliators



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Saw Fly

PAPER
WASPYELLOW
JACKET

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Other defoliators:

- Grasshoppers
- Walking sticks

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Biting Chewing: Foliage Feeders

- **Defoliators or generalized feeders:** Caterpillars & sawflies
- **Specialized feeders:** skeletonizers, leaf notchers, leafminers, etc.
- **Nest makers:** Bagworms, tent cats, webworms, etc.

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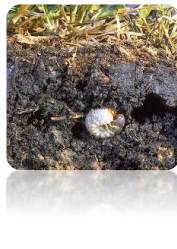
Chewing Damage



Japanese Beetle Adult: Skeletonizer

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Chewing Damage, Cont.



Japanese Beetle Larvae: AKA white grubs

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Leaf Notching caused by Black Vine Weevil



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Columbine Leaf Miner A fly!!!



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Biting Chewing: Foliage Feeders

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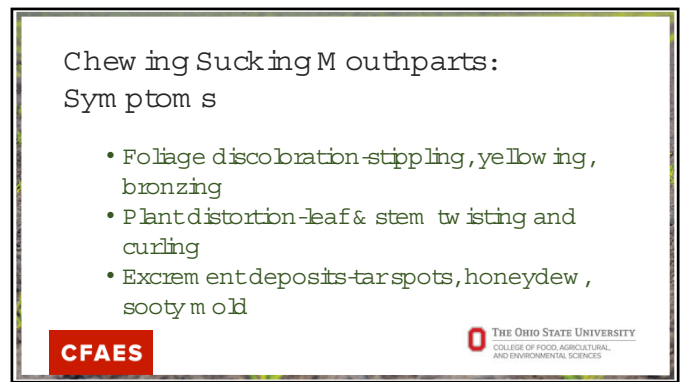
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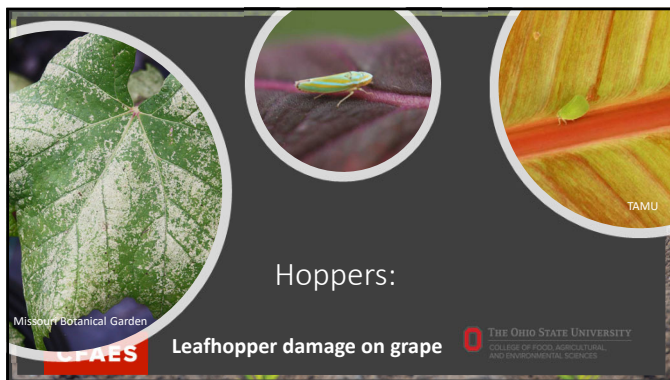
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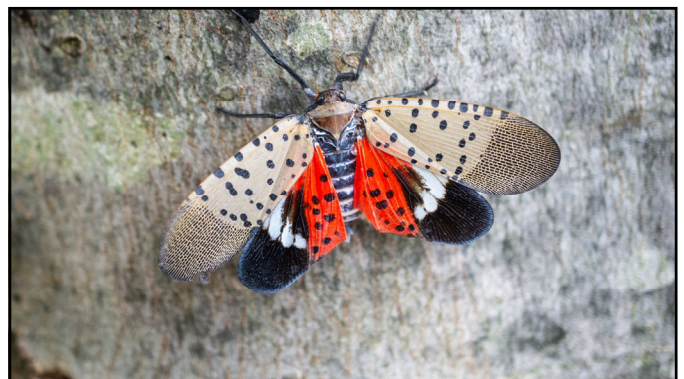
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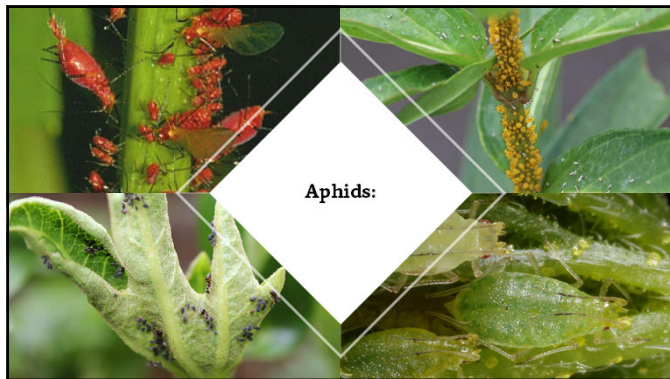
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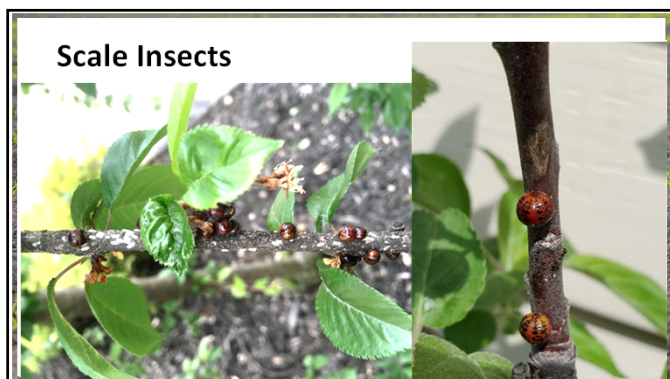
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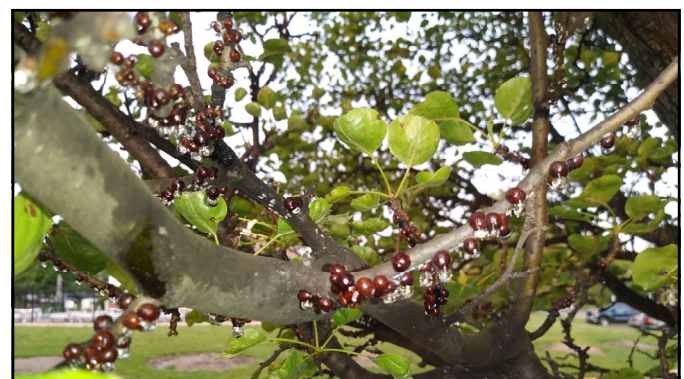
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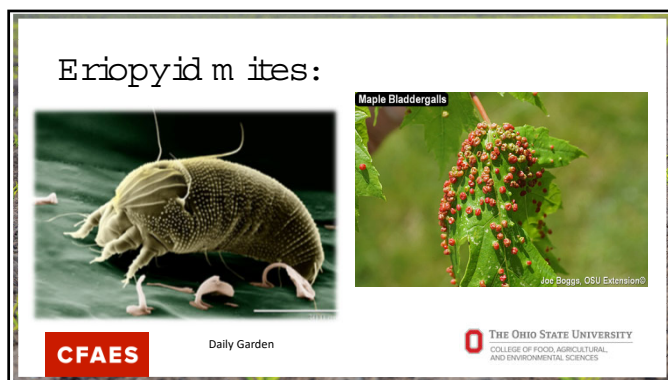
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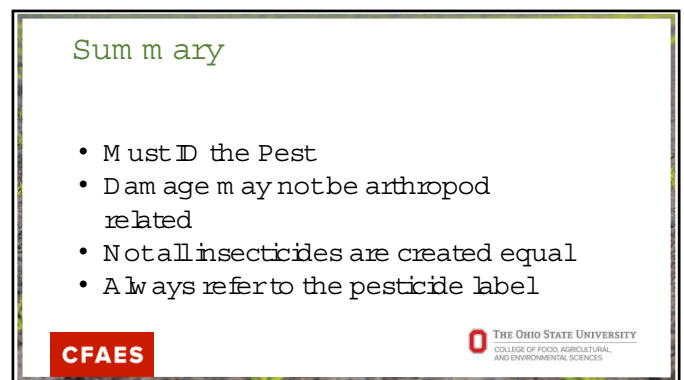
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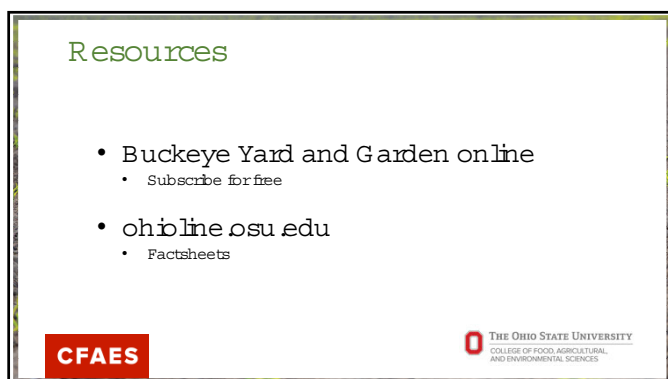
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