

Vegetable Integrated Pest Management Pest Issues Updates



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Vegetable IPM Associate



About Myself

Education:

- University of Nebraska-Lincoln
 - B.S. of Horticulture (Sustainable Food Production)
 - B.S. of Applied Science (Diversified Agriculture)

Experiential Background:

- Soil Nutrient Management / Irrigation Research
- Vegetable Production / Organic Farming Research
- IPM Field Scouting



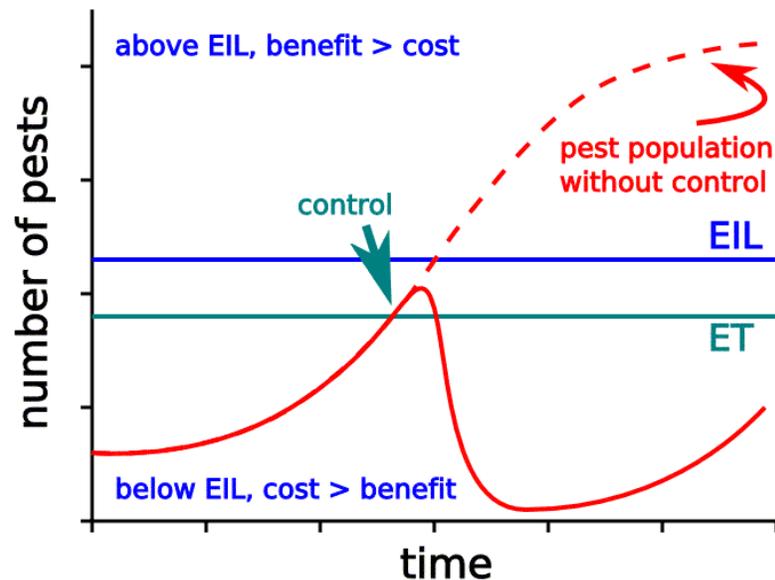
IPM Overview

Pest Identification

Monitoring for Signs & Symptoms

Control Action Guidelines

Economic Injury Level – The lowest population density of a pest that will cause economic damage; or the amount of pest injury which will justify the cost of control.



Action Threshold – The point at which a pest control action must be taken to prevent unacceptable damage.

Cultural Control

- Land/Water Management
- Sanitation
- Habitat Diversification
- Tolerant/Resident Species and Cultivars
- Soils and Nutrition

Mechanical Control

- Hand Removal
- Mowing/Removing Weeds
- Traps
- Physical Barriers



Biological Control

- Predators
- Parasites
- Pathogens
- Herbivorous insects of weeds



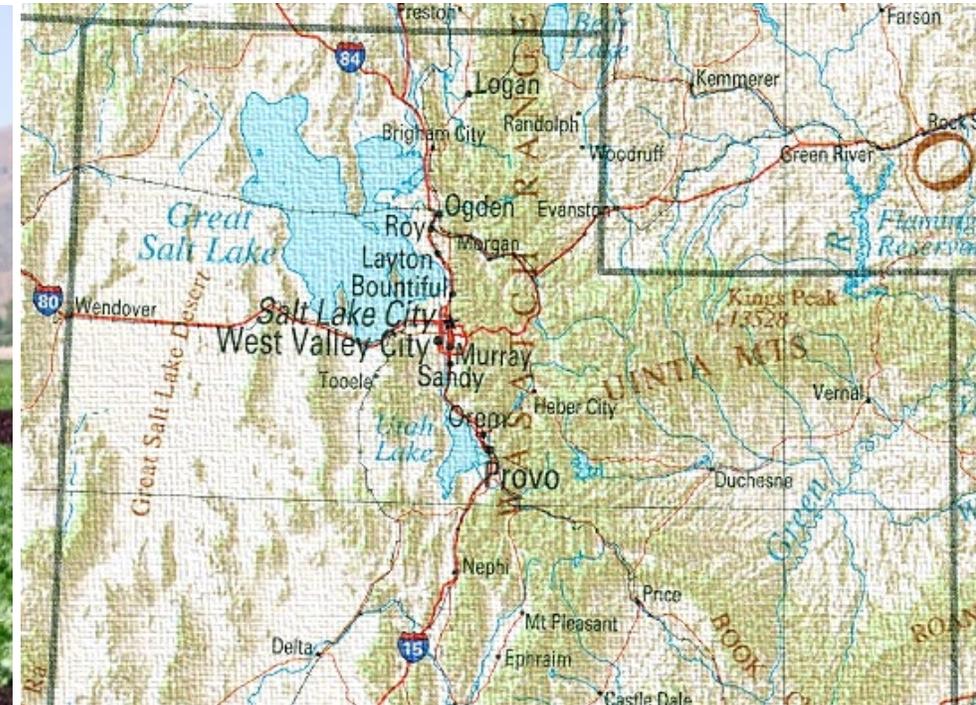
Chemical Control

- Pesticides
- Synthetic Pesticides
- Organic Pesticides
- Biological Pesticides
- Insect Growth Regulators (IGRs)



2018 Season Pest Issues

- Scouting is crucial to know what insects are active (both harmful and beneficial) along with what diseases may be present.
- With regular monitoring a scout is able to gather current information on the identify and location of pest problems and to evaluate treatment effectiveness or make treatment decisions.



Earwigs

Forficula auricularia

Description

Adults: Slim with a brown body, red/brown head, and have a protrusive pair of cerci (pinchers) on the end of their bodies.

Nymphs: 4 instars, grey/light brown

Eggs: Elliptical shaped and white

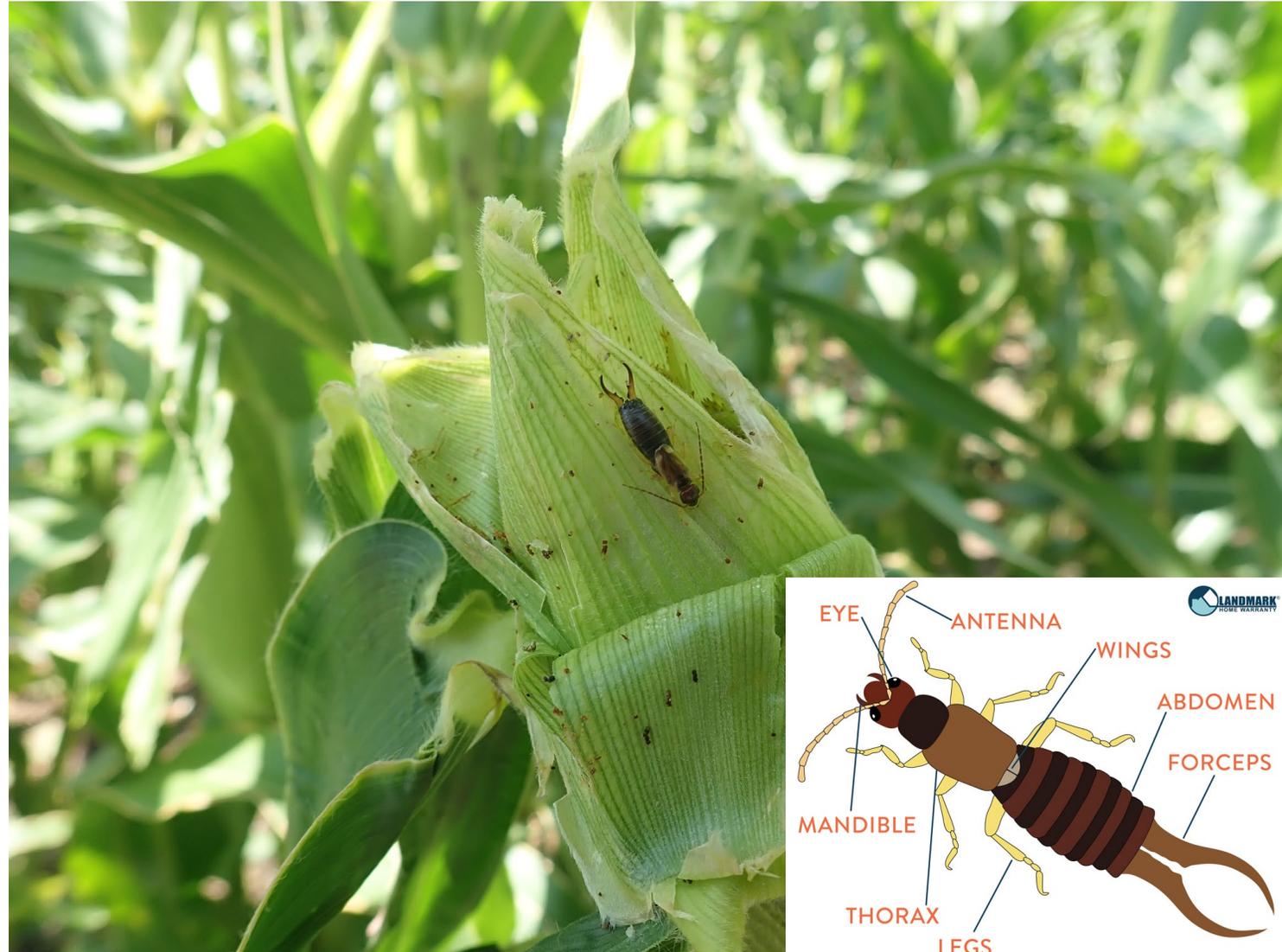
Host Plants

sweet corn, beans, brassicas, cucumbers, tomatoes, lettuce, and potatoes.

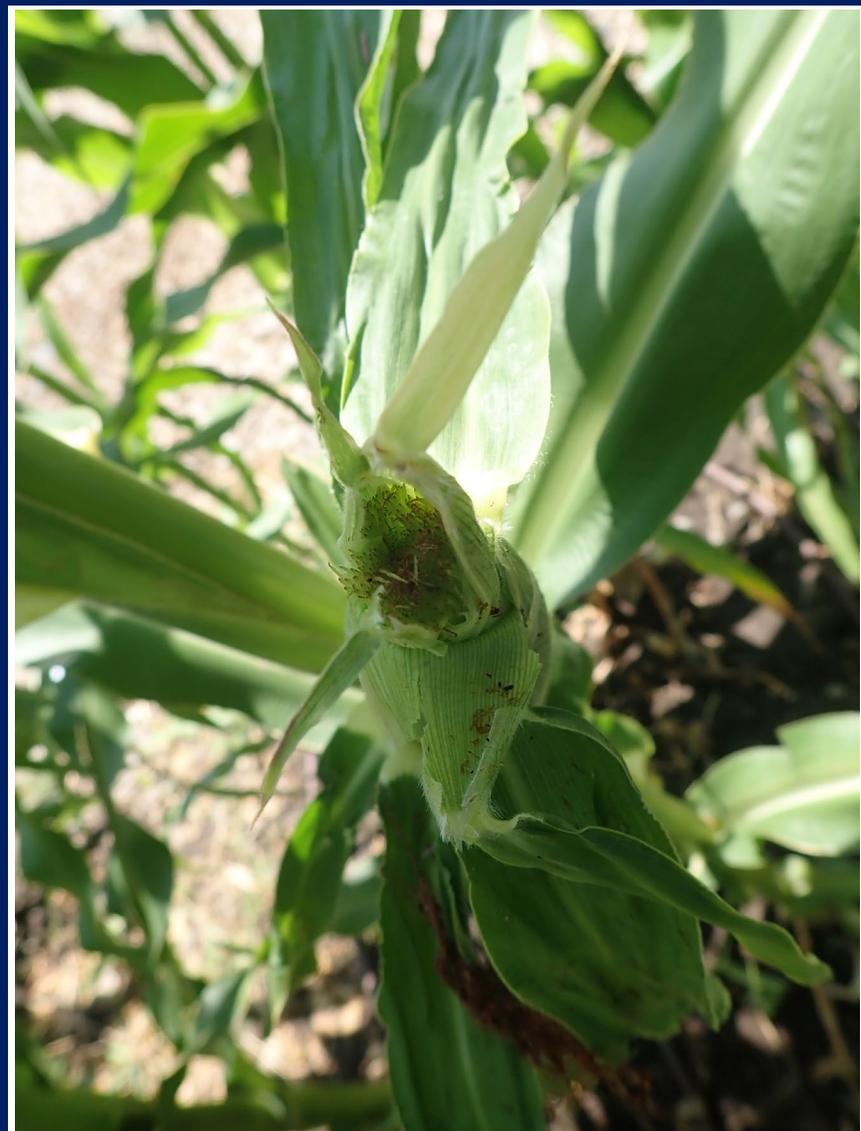
Life Cycle

Adults will over winter in the soil as brooding pairs or above ground in aggregations.

In the spring, females will lay clutches of 30-50 eggs.



Earwigs



Damage

Adults noted feeding on the corn silks and occasionally the kernels as well.

Monitoring

Earwigs crawl into tight, dark places during the day and are often make an unwanted presence in harvested fruits, vegetables, and flowers. May seek shelter inside buildings.

Earwigs are more prevalent in highly irrigated + mulched areas.

Place “traps” in crop area throughout the early spring to catch and monitor populations.

Management

Earwigs can be both detrimental and beneficial to crops.

Only consider treatment when there is unacceptable crop damage.

Mites

Class: *Arachnida* | **Family:** *Tetranychidae*

Species: Bank's Grass Mite, Bulb Mite, Tomato Russet Mite, Two-spotted Spider Mite,

Description

Mites are best seen with a hand lenses, like spiders they have 8 legs

Host Plants

Most vegetable crops can be effected. Notably *solanaceae* crops

Life Cycle

Egg > Larva / Nymph > Adult

Most abundant during the hot, dry weather in the mid- and late summer.

Females can lay over 50 eggs, mites can complete life cycle in one week with ideal warm temperatures. (Several generations throughout the year)

Overwinter on decaying vegetation such as weed or crop debris.



Mites



Damage

Adults/Nymphs have piercing-sucking mouth parts which they use to puncture the plants which causes “stippling” or discoloration on foliage or fruits.

When and Where to Scout

Most common during hot/dry conditions.
Examine the lower and older leaves for stippling.

Threat Level

When not controlled, mites have the potential to kill plants.

Management

Predatory mites such as *Phytoseiulus persimilis*
Pesticides

Grasshoppers

Order: *Orthoptera* | Family: *Acrididae*

Description

Adults: species can range in size.

Nymphs: are smaller in size and will have different coloration.

Eggs: are 4-5mm long and range from a white to light brown.

Host Plants

Tall broadleaf plants found along fence rows, irrigation ditches. Attracted to many weed species. Agronomic crops such as alfalfa, clover, corn, sugar beets, wheat, and soybeans

Life Cycle

[Eggs](#) > [Nymphs](#) > [Adults](#)

Eggs will over winter, and hatch around late spring. The nymphs will develop through their instars in about a month's time. The adults will present August through September.



Grasshoppers



Damage

Major agricultural pests. Damage is primarily caused to foliage of various crops.

When and Where to Scout

Populations fluctuate from year to year. Damage is mainly occurs in the early summer after rangeland weeds dry up.

Threat Level

Outbreaks are difficult to predict. Large populations can be economically damaging.

Management

Area-wide control

Row Covers

Application of baits, dusts, and sprays

Flea Beetles

Tribe: Alticini

Description

Adults: will jump when disturbed with their hind legs. Colors can range from metallic black, grey, bronze, to striped.

Larvae: are white with a brown head.

Host Plants

eggplants, brassicas, leafy greens, beets, melons, peppers, and tomatoes

Life Cycle

Egg > Larva > Pupa > Adults

1-3 generations per season

Adults will overwinter in nearby weedy vegetation.



Flea Beetles



Damage

Adults and larvae have chewing mouthparts that can create large holes in the cotyledon and foliage. Larvae will all feed on the roots of the crops.

Monitoring

Adults emerge from April through mid-June. Inspect crops for injury near field borders.

Management

Keep crop area free of weeds.
Implement row covers.
Consider trap crops.
Apply insecticides.

Thrips

Order: *Thysanoptera*

Description

Adults: less than 2mm in length, elongated, and are yellow/brown with fringed wings

Larvae: creamy yellow

Host Plants

Target a wide range of vegetable hosts.
(Notable onions, tomatoes, squashes)

Life Cycle

Egg > Larvae > Pupa > Adult

5-8 generations can occur a year

Adults will over winter in plant debris/protected areas



Thrips



Damage

Thrips will use their mouthparts to feed on plants causing flecking wounds. Thrips can also vector various tospoviruses.

Monitoring

Adults become active in the spring. Thrips populations increase in hot, arid conditions.

Management

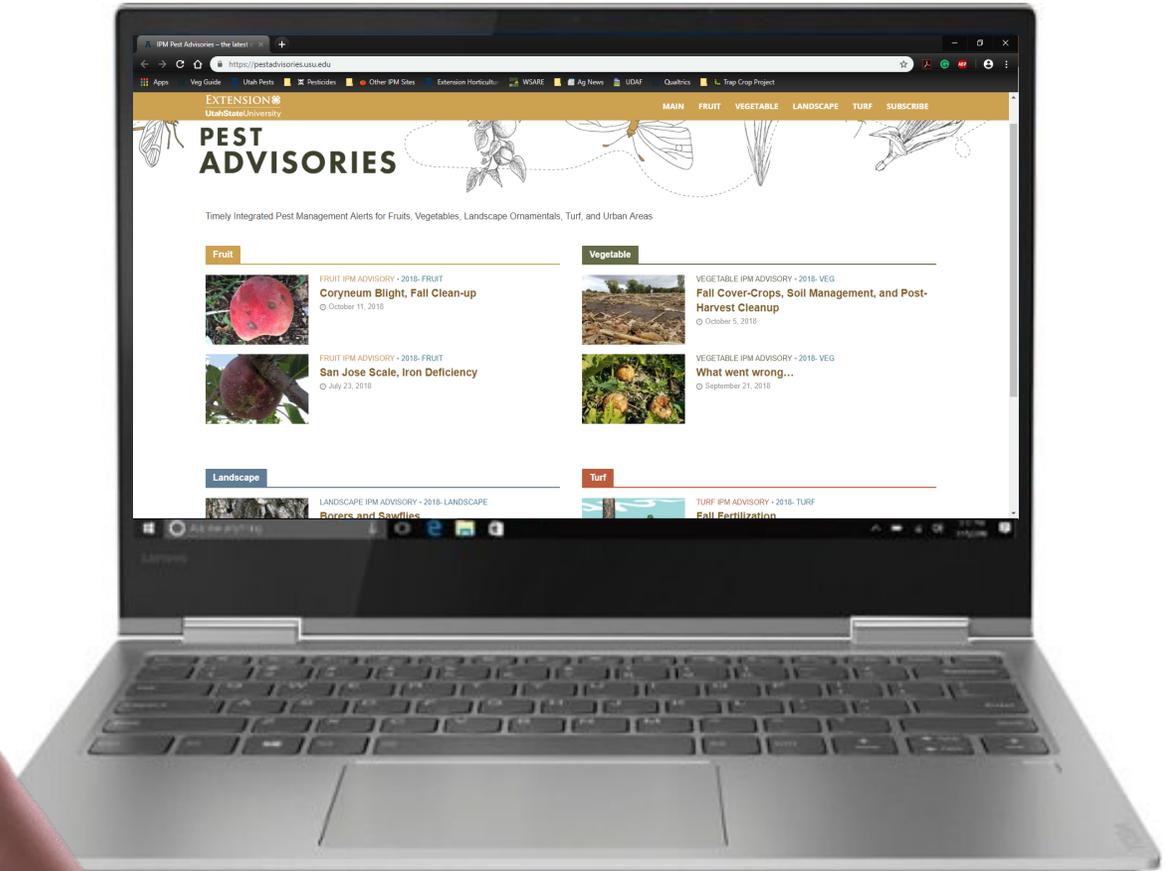
Remove plant debris after harvest
Use overhead irrigation to wash thrips off the plants
Insecticides

Pest Advisories

pestadvisories.usu.edu/subscribe/

Receive an email with timely info on current pests and management tactics in your area!

- Vegetables
- Fruits
- Landscape Plants
- Turf

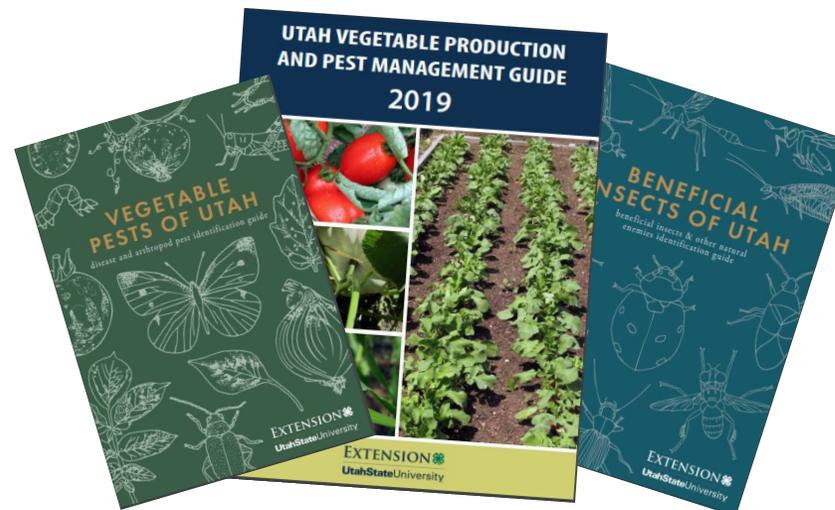


Additional Resources

utahpests.usu.edu/ipm

Guide Books

Fact Sheets



Contact Me



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