



## The Backyard Garden Pea Pests

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### ARTHROPODS

#### Thrips

**SEVERITY:** high

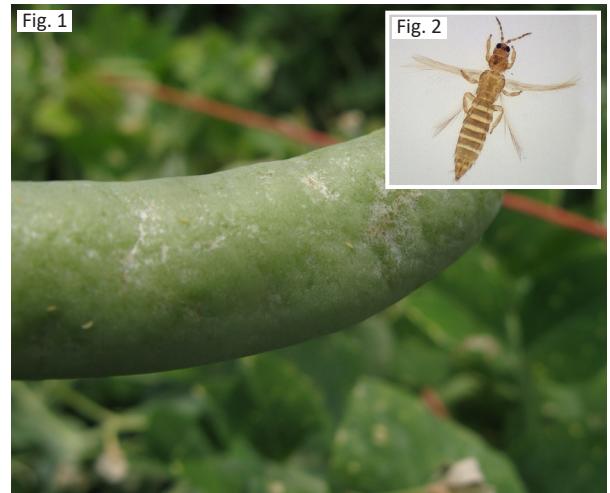
**OTHER HOSTS:** most vegetables, fruit, and weed species

**GENERAL INFO:** Both onion thrips (*Thrips tabaci*) and western flower thrips (*Frankliniella occidentalis*) are predominant in Utah. Adults are minute with elongated yellow-brown bodies and two pairs of fringed (hairy) wings (Fig 2.). Wingless larvae (nymphs) resemble adults and are a creamy yellow color. Thrips are common in hot, arid conditions and feed with a punch-and-suck behavior on foliage and pea pods.

**SYMPTOMS:**

- Stippling (small, pale spots).
- Discolored flecking/“bleaching” of foliage and pods (Fig. 1).
- Silvering of leaf surface.
- Black dots of shiny excrement.

**MANAGEMENT:** Regularly monitor for thrips signs and symptoms and inspect the underside of foliage with a 10x hand lens. Use overhead irrigation to dislodge thrips from plants. Remove nearby weeds that may serve as an alternate host. For chemical control, insecticidal soap, oil, or a product containing spinosad are most effective.



#### Spider Mites

**SEVERITY:** high

**OTHER HOSTS:** most fruits and vegetables, woody and perennial ornamentals, and weeds

**GENERAL INFO:** Spider mites are very small but can be seen with a 10x hand lens. Adults have eight legs and a round oval body. They are yellow-orange and turn darker in fall. Spider mites feed with piercing-sucking mouthparts and produce webbing on host plants. They thrive in high heat and drought conditions.

**SIGNS/SYMPTOMS:**

- Stippling (tiny flecks of lost chlorophyll), bronzing, and scorching of foliage and pods.
- Mild leaf drop.
- Webbing when populations are high (Fig. 3).
- Reduced crop yield/quality.

**MANAGEMENT:** Encourage natural predators such as predatory mites and thrips, lady beetles, and minute pirate bugs. Provide adequate watering. A very strong stream of water can spray mites off of plants. There are no miticides for backyard gardens, but insecticidal soap or oil can be effective. Remove and compost heavily infested plants.



## Pea Weevil

**SEVERITY:** moderate to high

**OTHER HOSTS:** field peas, stored dried peas

**GENERAL INFO:** Pea weevils (*Bruchus pisorum*) occur throughout Utah. Adults are small with a recognizable “snout.” They are brown in color and flecked with white, black, and gray patches on their wings (Fig. 4). Larvae are cream-colored, and curl into a “C.” In spring, overwintering adults emerge from field sites or dried/stored peas during pea bloom. They feed on pea pollen, and lay their eggs within developing pea pods. When hatched, larvae burrow into the pea seed to feed, mature, and pupate (Fig. 5). Weevils exit the seed as adults by boring a hole. When populations are high, every pea may be infested. Throughout most of Utah, there is one generation per year.

**SIGNS/SYMPTOMS:**

- Reduced germination in spring.
- Tiny entrance holes in peas.
- Stored or fresh peas are empty with large exit holes.
- Reduced crop yield.

**MANAGEMENT:** Monitor for pea weevil adults during bloom. At the end of the season, inspect dry peas for tiny entrance holes before storing them. Clean up any fallen peas/pods and other plant debris to decrease population for next season’s crop. If a high population of adults is found, treat after bloom with an insecticide, such as bifenthrin, carbaryl, zeta-cypermethrin, or pyrethrin (organic).



## Aphids

**SEVERITY:** low

**OTHER HOSTS:** alfalfa and weeds

**GENERAL INFO:** Aphids are small, soft-bodied, pear-shaped insects with two tailpipe-like appendages (cornicles). Some specific species that may attack peas include pea aphid (*Acyrtosiphon pisum*), cowpea aphid (*Aphis craccivora*), and black bean aphid (*A. fabae*). Depending on the species, adults and eggs overwinter, primarily in alfalfa. In spring, aphids migrate to feed on succulent new pea growth and produce many generations (Fig. 6).

**SIGNS/SYMPTOMS:**

- Stunted, yellow, and distorted plant structures.
- Sticky honeydew (secreted by aphids).
- White skins casted from molting.

**MANAGEMENT:** Scout for aphid signs and symptoms frequently. Remove nearby weeds that can serve as alternate hosts. Encourage natural aphid predators by planting attractive flowers and other plants. Use an organic insecticide containing neem oil, pyrethrin, or insecticidal soap.



## Pea Leaf Weevil

**SEVERITY:** low

**OTHER HOSTS:** beans and alfalfa

**GENERAL INFO:** Pea leaf weevil adults (*Sitona lineatus*) are slender, grayish-brown, ½ inch long, with a broad-shaped “snout.” They emerge in mid to late April to feed on leaves and growing points of seedlings (Fig. 7). They lay clusters of up to 1,000 yellow-white eggs at the base of pea plants. The grub-like larvae then feed on the nitrogen-fixing nodules of legumes for about 6 weeks, followed by pupation in the soil. Adults emerge in mid to late summer and continue feeding on pea foliage before overwintering.

**SIGNS/SYMPTOMS:**

- Notching on leaf edges (adult feeding).
- Defoliation (if adult populations are high).
- Poor, stunted growth (larval feeding).
- Reduced crop yield/quality (larval feeding).

**MANAGEMENT:** Monitor for shy adults by shaking plants over white paper. Larvae are only found underground, around root nodules. If necessary apply a foliar insecticide prior to egg-laying and during early pea growth stages. Effective options include those containing bifenthrin, carbaryl, or zeta-cypermethrin.



## DISEASES

### Damping-Off

**SEVERITY:** high

**OTHER HOSTS:** all plants at seedling stage

**GENERAL INFO:** Damping-Off is caused by several soil-borne fungi and fungal relatives, including *Pythium*, *Rhizoctonia*, *Fusarium*, and *Phytophthora* species. The pathogens infect and kill the roots and crown of germinating and established seedlings (Fig. 8). They can survive in plant debris in greenhouses, reused seed trays, benches, and outdoor soils. Outbreaks of damping-off can occur when seedlings are kept overly wet. In wet conditions, damping-off pathogens produce spores that migrate to neighboring seed trays through openings in the tray bottom. Once symptoms are visible on seedlings in a tray, neighboring seedlings are likely infected as well.

**SIGNS/SYMPTOMS:**

- Seedlings shrivel and collapse at the stem.
- Failed germination.

**MANAGEMENT:** Sterilize pots and trays by soaking in a 10%–15% bleach solution or a product containing quaternary ammonium compounds. Disinfect greenhouse benches and plant tools. If seedlings are infected, dispose of the plants and potting mix, as it will contain the soilborne pathogens.



### Powdery Mildew

**SEVERITY:** low to moderate

**OTHER HOSTS:** all vegetable crops (specific species of powdery mildew are host specific)

**GENERAL INFO:** Powdery mildew on peas is caused by the fungus *Erysiphe pisi*. It is identified by spots or patches of white-gray, powder-like growth on the foliage, stems, or pods (Fig. 9). Peas are at risk of powdery mildew all season, especially during periods of dry weather and crowded plantings (that creates high humidity).

**SIGNS/SYMPTOMS:**

- Powder-like growth on the upper or under sides of leaves (mycelium and spores).
- Curled and/or chlorotic (yellow) leaves.
- Plant dieback under heavy infestation.

**MANAGEMENT:** Powdery mildew is best managed early when the first signs appear. Once the fungus covers the entire leaves and yellowing/dieback occurs, control is difficult or impossible. There are pea varieties that have resistance to powdery mildew. After harvest, remove infected plant debris. Organic fungicides should be used at the start of infection and continue every 5 to 7 days.



### Fusarium Wilt

**SEVERITY:** low

**OTHER HOSTS:** Fusarium wilt is highly specific; the special forms that infect peas will not affect other vegetables.

**GENERAL INFO:** Fusarium wilt in peas is caused by the fungus, *Fusarium oxysporum* f.sp. *pisi*. Plants are infected through the roots under conditions of warm temperatures and high soil moisture. If infected plants survive, the pathogen can be carried in the seed, leading to additional spread.

**SYMPTOMS:**

- Downward curling leaves.
- Chlorosis (yellowing) of lower and older foliage.
- Brown discoloration of the crown's vascular tissue (Fig. 10).
- Plant wilting and death.

**MANAGEMENT:** Practice good cultural controls to prevent introducing the disease. Improving soil health via compost, cover crops, and other methods has been shown to reduce soilborne pathogens. In addition, rotate fields to non-pea crops to prevent fusarium from building up in the soil. After working in the garden, clean soil from shoes, tools, trellises, and other equipment. No fungicides are available.



## Fusarium Root Rot

**SEVERITY:** low

**OTHER HOSTS:** tomato, cucurbits, and other vegetables

**GENERAL INFO:** Fusarium root rot is caused by the fungus *Fusarium solani*. The fungus is able to survive in the soil for 2 to 3 years without a host. It infects plants through root wounds under conditions of warm weather and poorly-drained, wet soils that have poor fertility.

**SIGNS/SYMPTOMS:**

- Stunted plant growth.
- Yellowing lower and older foliage.
- Rotten roots with brown-black streaking (Fig. 11).

**MANAGEMENT:** There are currently no pea varieties bred to have resistance to fusarium root rot. Some seeds are sold already treated with a fungicide to reduce infection risk during germination. Due to the long survival duration in the soil, practice crop rotation.



## Bacterial Blight

**SEVERITY:** low

**GENERAL INFO:** Bacterial blight is rare in Utah on peas. It is caused by the bacteria *Pseudomonas syringae* pv. *pisi* or *Pseudomonas syringae* pv. *syringae*. It overwinters on seed or pea debris. In cool, wet spring conditions, it spreads via rain splash or wind-borne water droplets to succulent pea foliage. Infection can be most prevalent following frost or overhead irrigation.

**SYMPTOMS:**

- Lesions along leaflet veins and stipules that start as water-soaked and later turn brown and papery (Fig. 12).
- Sunken, brown lesions on pods.
- Dark-brown lesions on stem at ground level.
- Stem wilting and death.

**MANAGEMENT:** Prevent introduction to the site by planting disease-free seeds and plants. Avoid early sowing and select resistant pea varieties.



## REFERENCES & FURTHER READING

- Cannon, C., Bunn, B., Murray, M., Alston, D., & Petrizzo, E. (2017). *Aphids pests of vegetables* [Fact sheet]. Utah State University Extension.
- Drost, D. (2020). *Peas in the garden* [Fact sheet]. Utah State University Extension.
- Nischwitz, N. (2014). *Damping-Off* [Fact sheet]. Utah State University Extension.
- Volesky, N., Murray, M., & Nischwitz, C. (2022). *Fusarium and verticillium wilts of vegetables* [Fact sheet]. Utah State University Extension.
- Volesky, N., Murray, M., & Nischwitz, C. (2021). *Powdery mildew on vegetables* [Fact sheet] Utah State University Extension.

## IMAGE CREDITS

- 1, 2, 8, 9** Utah State University Extension
- 3** D. Cappaert, Michigan State University
- 4** www.dreamstime.com
- 5** Western Australia, Department of Primary Industries and Regional Development
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- 7** www.seed.ab.ca
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