Quick Guide to Common Potato Pests & Beneficial Insects
Leaf Feeding Pests

Colorado Potato Beetle feeding damage

Adult Flea Beetle feeding damage

Typical Caterpillar feeding damage
Colorado Potato Beetle

Both adults and larvae eat leaves
Can defoliate entire plant

Larvae are reddish pink with two rows of dark spots on each side, and 3/8" long

Adults are yellowish with black stripes, round, and 3/8" long

Active throughout the summer

Identification tips:
1. Notice individual variation in color – collect multiple specimens
2. Notice relative size
3. Right and left sides of body are “mirror images” – bilaterally symmetrical

David Cappaert, Michigan State University

Buyung Hadi
Colorado Potato Beetle

Understand biology of species
For example, where larva feed on plant or where eggs are laid
Tuber Flea Beetle

Hind leg for jumping

Curved back side of pronotum

Compare size with Colorado Potato Beetle (Below)
Caterpillars have the same body sections as other insects
1 – Head
2 – Thorax (with 3 pairs of true legs)
3 – Abdomen (with “prolegs”, fleshy projections that act like legs)
The number of pairs of prolegs is usual in identification
Sucking Pests

Notice the general body shapes of thrips, aphids, psyllids, leafhoppers and mites (and how they differ)

Oklahoma State University

David Cappaert

influentialpoints.com/

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Jack Kelly Clark,
University of California
Statewide IPM Program

Oklahoma State University
Adult mites have 8 legs – they are related to spiders.
Two spotted Spider mites have a large dark spot on each side of the body.
Adult Thrips

Liu / university of Florida
Note differences between Western Flower Thrips and Onion Thrips

1. Western flower thrips have 2 long hairs on the shoulder behind the head – Onion thrips have none (anteromarginal seta)
2. Western flower thrips have a long hair behind the eye – Onion thrips do not (postocular seta)
3. Western flower thrips have 8 antennal segments – Onion thrips have 7
Adult potato psyllid.

Aphid body form

Leafhopper body form
Beet Leafhopper

No dark spots on head. Head rounded in front.

Total length about 1/8”

Beet leafhopper, dark form

Other Leafhoppers, Which Do Not Transmit Purple Top

Smaller, often bright green

Dark spots always on head

Pointy head, always mottled wings

Slim, with pointy head

Empoasca

Exitianus

Dikraneura

Latalus
Beet leafhopper Females

Beet leafhopper females - are easily recognized by the dark-margined notch at the base of the ovipositor that looks exactly like a burn mark left on the edge of a table from a lit cigarette.

Males are equally distinctive from the underside, having truncate "plates" (the terminal flaps that protect the genitalia look as if they have been cut off transversely).
Purple top – caused by Beet leafhopper transmitted phytoplasma

Aerial tubers – also a result of Purple top

www.nwpotatoressearch.com/
General Aphid Body Form

- Head
- Thorax
- Abdomen
- Cornicle
- Cauda
- Antennal tubercle
- Antenna
Key for distinguishing the wingless forms of the primary aphid pests on potato:

1a. body outline egg or teardrop shaped, cauda short ........................................... 2

1b. body outline elongate, antennal tubercles large, pointing outward, cauda long and pointed, cornicles longer than the distance between their bases (Fig. a), legs prominent, color green, yellow, or pink, may have a darker dorsal stripe, highly mobile aphids ........................................ potato aphid

2a. body thick, head with prominent antennal tubercles, antennae as long or longer than body . .3

2b. body flattened, head without prominent antennal tubercles, antennae shorter than length of body, cornicles almost as short as cauda (Fig. b), color opaque lemon yellow to green in color, black in autumn ............... buckthorn aphid

3a. body pear shaped, widest at base of cornicles, antennal tubercles prominent and almost parallel sided, cornicles tapered with prominent flanges on the dark tip (Fig. c), color light yellow green to dark green, with dark areas around base of cornicles, legs and antennae with dark joints ................. foxglove aphid

3b. body egg shaped, almost the same width from base of middle legs to base of cornicles, antennal tubercles prominent and pointing inward, cornicles unevenly swollen (Fig. d), color light green to almost translucent, pink, or peach, legs and cornicles the same color as the body ............... green peach aphid

http://ipmworld.umn.edu/aphidalert/alert2.htm
Potato Aphid – Notice differences in overall body shape
Potato Aphid – Notice differences in overall body shape

Green Peach Aphid
Differences in head shape of potato aphid and green peach aphid

Potato Aphid – front is a shallow curve

Green Peach Aphid – notice projections (tubercles) on head that point
Notice different head shape of these aphids – neither is a green peach aphid or potato aphid.
Potato psyllid

- White rim on top of head
- White bands on otherwise dark abdomen

Psyllid adults and nymphs on a penny for size comparison

Psyllids don’t always look their best on traps

Wings are clear, without markings

Three-way branch in wing vein

Photos Andy Jensen
There are 6 psyllids in this square. Any potato psyllids?

How about this one? Nope, abdomen is green, the head lacks white rim.

How about this one? Nope, abdomen is green, not dark/black.

Seeing the wing veins takes a lot of magnification!
These six specimens are **not potato psyllid**, and are representative examples of the type of specimens you will likely find on yellow sticky traps in the Northwest.

Photos Andy Jensen

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**Potato Psyllid**

Jack Kelly Clark,
University of California
Statewide IPM Program
Potato Tuber Worm / Moth

Spots are hard to see.

Head is brown.

Antennae are brown.

Abdomen has this pale fuzzy area apically.

Photos Andy Jensen
Tuberworm damage to potato tuber

http://www.nwpotatoresearch.com/

Tuberworm mining damage to potato leaf
Caterpillar is still in leaf

David Jones, University of Georgia, Bugwood.org
Yellow fuzzy patch on tip of the abdomen of male tuber moth male
Beneficial Predators and Parasites

• Big Eyed Bugs
• Predators of small soft-bodied insects (thrips, psyllids, aphids, small worms, worm eggs) and mites
### LADYBIRD BEETLES, several species

<table>
<thead>
<tr>
<th>Description</th>
<th>Picture</th>
<th>Prey attacked</th>
</tr>
</thead>
<tbody>
<tr>
<td>well known insects</td>
<td><img src="image1" alt="Ladybird Beetle Larva" /></td>
<td>Adults and larvae feed on:</td>
</tr>
<tr>
<td>usually under 1/4 inch</td>
<td></td>
<td>• aphids</td>
</tr>
<tr>
<td>hemispherical shaped beetles</td>
<td></td>
<td>• and other small insects</td>
</tr>
<tr>
<td>often reddish with black spots or black with reddish spots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>color varies within and between species</td>
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<td></td>
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<tr>
<td>small forms are not often recognized as ladybird beetles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>antennae are clubbed</td>
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<td></td>
</tr>
<tr>
<td>larvae are elongate and flattened grubs</td>
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<td></td>
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<tr>
<td>active and move about freely</td>
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Photo credit: W. L. Sterling, Department of Entomology, Texas A&M University
**MINUTE PIRATE BUGS, *Orius* spp.**

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<tr>
<th>Description</th>
<th>Picture</th>
<th>Prey attacked</th>
</tr>
</thead>
<tbody>
<tr>
<td>• generally black with some white markings</td>
<td><img src="image1.jpg" alt="Image of minute pirate bugs" /></td>
<td>feed on:</td>
</tr>
<tr>
<td>• small, about 1/8 inch</td>
<td><img src="image2.jpg" alt="Image of minute pirate bugs" /></td>
<td>• insect eggs</td>
</tr>
<tr>
<td></td>
<td><img src="image3.jpg" alt="Image of minute pirate bugs" /></td>
<td>• other soft-bodied insects</td>
</tr>
<tr>
<td></td>
<td><img src="image4.jpg" alt="Image of minute pirate bugs" /></td>
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</tr>
</tbody>
</table>

*Photo credits: Department of Entomology, Texas A&M University*

Charlie Eiseman
Green Lacewing
Predators of small soft-bodied insects

<- Larva feeding on psyllids and adult below

Whitney Cranshaw, Colorado State University

Frank Peairs, Colorado State University
Brown globe shaped aphids have been parasitized by parasitic wasp