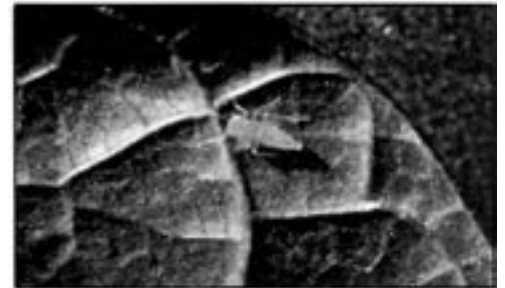


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# Leafhoppers

<b>Order:</b>	Homoptera (aphids, white flies, scales, mealy bugs, hoppers, cicadas)
<b>Family:</b>	Cicadellidae (leafhoppers)
<b>Metamorphosis:</b>	Simple (egg-nymph-adult)
<b>Mouthparts:</b>	Piercing and sucking in nymphs and adults



Nymph of the **INTERMOUNTAIN POTATO LEAF-HOPPER**, *Empoasca filamenta*, see color print, Fig. 18, on publication B-1013.

There are many species of leafhoppers in the western United States. Their damage potential is highly variable and depends on the susceptibility of a plant to direct damage and whether a leafhopper vectors a plant disease.

## Body Form

**Eggs:** Eggs are extremely small and will not be noticed. They may be placed within plant tissue.

**Nymphs:** Nymphs are similar to adults in general body shape except they are smaller and wingless. Wing buds may be visible on older nymphs. Nymphs of the beet leafhopper *Circulifer tenellus*, are pale yellowish green. Those of the intermountain potato leafhopper *Empoasca filamenta* are light green.

**Adults:** Adults are wedge shaped with wings held folded and arched over their back. Adults of the beet leafhopper are about 1/8 inch in length and gray to greenish yellow in color. The adults of the intermountain potato leafhopper are about the same size and are pale green.

## Life History

Adults fly into agricultural fields usually after the population has passed one or more generations on weeds and range hosts such as wild mustard and Russian thistle. As spring hosts such as wild mustard dry down, leafhoppers are stimulated to migrate to new host plants. Summer hosts for beet leafhopper include Russian thistle and cultivated hosts such as sugar beets, beans, and tomatoes. As the summer hosts dry down, the populations move back to non-cultivated hosts to pass the winter. There are up to three generations per year. Dependent upon the species and environment, adults or eggs can overwinter.

## Plant Injury

All species suck plant juices during feeding. The consequences of feeding vary greatly. Many species of leafhoppers are vectors of plant diseases. The beet leafhopper vectors curly top virus in sugar beets. Young beets are particularly susceptible to this disease. Plantings which are stressed are more susceptible to dis-

ease development. Other species distort leaf tissue by interfering with plant tissue function during feeding. The intermountain potato leafhopper feeds on the underside of potato leaves, resulting in leaf curling and stunted growth. A less severe plant response is the simple loss of plant liquid, which may result in leaf yellowing and death if feeding is sufficient. Much plant feeding of this type occurs on rangeland. Many leafhopper species that feed on rangeland plants are inconsequential to plant health.

## **Management**

Weakened plants are more vulnerable to leafhopper damage than healthy plants. Irrigation and fertilization should be optimal for good plant health. In potatoes, insecticides applied for other insect pests usually keep the intermountain potato leafhopper suppressed. In sugar beets, sugar beet leafhopper management includes planting resistant sugar beets and using insecticides. Managing adjoining non-cultivated areas in a manner to decrease wild mustard and Russian thistle is also helpful. Insecticides can be better timed when fields and adjoining weedy areas are monitored for the presence of beet leafhoppers. Along with direct observation, sticky wing traps are used for this purpose.

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