

Leaf Curl Plum Aphid

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Figure 1 (left). Close-up of plum tree with tightly curled leaves due to leaf plum curl aphids. Figure 2 (right). Plum tree with tightly curled leaves due to leaf plum curl aphids in Alcalde, NM.



Figure 3. Wingless leaf curl plum aphid from Albuquerque, NM under a microscope; 40x magnification.

Leaf curl plum aphids (*Brachycaudus helichrysi*) are a serious pest of *Prunus* spp. (i.e., stone fruits such as plums, peach, and cherry). They may infest any *Prunus* spp. but prefer domestic plum (*Prunus domestica*) and blackthorn (*P. spinosa*). They cause the leaves of *Prunus* trees to tightly curl, reducing overall vigor, and fruit production. In addition to being a pest of *Prunus* spp., these aphids are alternating pests of *Asteraceae* (e.g., chrysanthemums, thistle, sunflowers).

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IDENTIFICATION

Often the leaf curling symptom is noticed before the leaf curl plum aphids (Figure 1 and 2). If leaf curling is observed, check leaves for aphids.

Eggs: Leaf curl plum aphid eggs are shiny, black, and about 0.5 mm long and 0.2 mm wide.

Nymphs (Immatures) and Adults: Leaf curl plum aphids are small insects that are pale in color (Figure 3). The nymphs, which are the immatures, look similar to adults but are smaller. The aphids are shiny and can be either green, yellowish green, brownish green, brownish yellow, or pinkish in color. The wingless form varies from 1.7-2.1 mm (0.06-0.08 inch) in length and the winged form ranges from 1.3-1.8 mm (0.05-0.07 in.) in length and darker in coloration.

Metamorphosis: Incomplete/simple. Immature insects (nymphs) are smaller but similar in form to the adults.

Mouth Parts: Piercing-sucking; these are long, straw-like appendages used to pierce into a substrate (e.g., plants) and suck up the plant juices (e.g., phloem).

Pest Stages: Nymphs, adults

DAMAGE

Dense populations of leaf curl plum aphids can cause considerable damage to their *Prunus* host. All stages of the aphids—which includes nymphs, adults, and alates (winged aphids)—can feed, thus causing damage. Usually, distorted leaves or other damage to the plant are noticeable first before the aphids themselves (Figures 1 and 2).

Direct damage by the aphids is apparent by the curling of the leaves. Due to the curling of the leaves and their feeding (piercing-sucking mouthparts that suck up plant juices), foliage distorts, which can shed the flowers and cause the developing fruit to drop prematurely. Slowed tree growth, reduced fruit size, and reduced sugar content of fruit can also occur due to leaf curl plum aphid infestation.

Additionally, they excrete ample quantities of honeydew which may attract ants. Ants will in turn protect the aphids, preventing predators and parasitoids from attacking them. The excess honeydew can lead to sooty mold, which is a black fungal growth that appears on leaves, twigs, and other parts of the plant. Sooty mold can further lead to tree decline, a lackluster appearance, and an increased presence of ants. Other insects such as bees, flies, and wasps may also be attracted to the honeydew, further indicating that aphids may be present.

LIFE CYCLE

Leaf curl plum aphids lay eggs in the fall and overwinter on and near the buds of *Prunus* spp. trees. The eggs can be very difficult to see due to their small size. Eggs hatch in the spring, around mid-March. The aphids continue to reproduce within the curled leaves and infest new growth un-

til late May or early June; then they move from *Prunus* spp. trees to *Asteraceae* plants, which are their summer hosts. Then in the fall, the leaf curl plum aphid alates (winged aphids) will return to *Prunus* spp. trees and lay eggs.

INTEGRATED PEST MANAGEMENT

The first step in preventing leaf curl plum aphid infestation is to maintain overall tree health. Healthy trees are less likely to become infested. Monitoring for leaf curl plum aphid is also important. This is particularly relevant in cases where a dormant spray has not been applied. Monitor for leaf curl plum aphid in spring, especially if they have been a problem in the past. Management is most effective before aphid populations build up and the leaves curl.

For homeowners with a few trees, strong sprays of water early in the growing season, before leaf curling is induced, can remove the aphids. Biological control is a part of aphid Integrated Pest Management (IPM). There are a variety of natural enemies of leaf curl plum aphid. These include lady beetles, brown lacewing larvae, green lacewing larvae, soldier beetles, hoverfly larvae, and parasitoid wasps. Most of these natural enemies are naturally occurring and can be encouraged through the use of conservation biological control. Conservation biological control is used to modify the environment in order to enhance natural enemies of pests already present in the environment. One way to do this is by using insectary plants to attract and sustain natural enemies (for further reading, see Guide H-169: Using Insectary Plants to Attract and Sustain Beneficial Insects for Biological Pest Control, <https://pubs.nmsu.edu/h/H169/index.html>). Some natural enemies can be purchased through companies (e.g., online, garden centers) for the use of augmentative biological control. Augmentative biocontrol involves the mass rearing of natural enemies—such as predators, parasites, or pathogens—in a controlled environment, like a laboratory. These natural enemies are then released into areas where pests are causing damage. This method can provide a relatively quick solution for pest control, though it may require repeated releases since the natural enemies may not always establish a self-sustaining population, meaning it may not offer long-term pest management. It is important to note that boosting conservation biocontrol will encourage natural enemies more long term.

If biological control methods alone are not able to keep aphid populations down, insecticide treatment may be needed. Chemicals available include labeled insecticides for aphids such as oils (i.e., narrow range oil or neem oil) and insecticidal soaps. The best time to use chemical treatment is when the aphids are dormant in the late fall and/or early spring. In the early spring, monitor for aphids and apply treatments before the leaves curl. Chemical control with contact insecticides, such as neem oil, should be made before the leaves curl. Do not treat orchards in the summer; this is because the aphids are on their summer *Asteraceae* hosts.

Managing ants may be necessary in addition to leaf curl plum aphid management. This is because certain species of ants like to feed on the honeydew that the aphids produce. The ants will protect the aphids, which prevents natural enemies from eating the aphids. One way to manage ants is to use a sticky material painted on to trunk wraps. This form of physical control that will prevent ants from reaching the aphids in the tree branches. In some cases, chemical control may be needed. Baits may be used for ant control; keep in mind that the bait needs to be specific to the species of ant present. A common ant in New Mexico that may tend leaf curl plum aphid is the odorous house ant (*Tapinoma sessile*). If you have further questions, contact your county Extension office (<https://extension.nmsu.edu/county.html>).

FOR FURTHER READING

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