

Two-spotted Spider Mites (*Tetranychus urticae*)

The two-spotted spider mite has a small, pale yellow body with dark spots on each side of its body. All stages overwinter on the trees and fruit. If winter is mild, they will feed through the season and increase normally. Heavy infestations produce a web that may cover several fruit and foliage. Eggs are clear and become opaque before hatching. The mites molt three times after hatching. If conditions are optimum, they can complete development in seven days.

Damage from feeding results in yellowing or stippling, producing a grayish cast on the foliage (Figure 2). Mites, eggs, cast skins and egg shells can be observed along the veins on the underside of the leaves.

Predators help reduce populations of two-spotted spider mites. Predatory mites, lady beetles, six-spotted thrips and the minute pirate bug are effective in keeping populations small. Remember, however, that repeated spraying of pesticides will reduce predators and create mite problems.



Figure 2. Photo: Natalie Hummel, LSU AgCenter

Mealybugs

Mealybugs are soft, flat, oval, distinctly segmented and covered with white or mealy wax that extends into spikes along the abdomen and posterior end (Figure 3).



Figure 3. Photo: Natalie Hummel, LSU AgCenter

The citrus mealybug has a yellow-orange body covered with a powdery wax. The waxy spikes are not very long on the abdomen or posterior. The Comstock mealybug has a thicker wax covering, and the wax spikes on the abdomen and posterior are prominent.

The female lays several hundred eggs within 10 to 20 days in waxy egg sacks attached to the plant and fruit. There are two to three overlapping generations a year. They overwinter as eggs or in various stages, weather permitting.

Since they feed continuously, they excrete the excess sugary plant fluids onto the plant. This creates an ideal food for bees and wasps and an excellent medium for the growth of several species of fungi that develop into a black mat-like growth on the plants known as sooty mold.

Armored Scales

Florida Red Scale (*Chrysomphalus aonidum* (L.))

Armored scales are called armored because they are a soft-bodied insect that is covered by a shell or scale. The adult female scale is circular, about 1/12 inch in diameter, dark reddish-brown with a conspicuous light yellow center. The female lays bright yellow eggs that hatch into lemon yellow, oval-shaped crawlers. Crawlers are the immature stage of armored scales and are able to move around on the plant. Once they mature, adult female scales deposit eggs under their shell-like cover. There are four to five generations a year.

Scales feed on the exposed surfaces of the leaves and fruit. Injury appears as yellow spots on the leaves and fruit, which can be followed by heavy leaf and fruit drop with dense populations of scales. These exposed branches can be killed by cold weather in winter and early spring. Inspections in orchards should be made from late spring through fall.

Yellow Scale (*Aonidiella citrina* (Coq.)): The yellow scale can be distinguished from the red scale by the light yellow color of its armored shell. Like the red scale, it has a circular shell, but is yellow to light orange and much flatter than the red scale. The scale's body is visible through the armor and is yellow and kidney shaped. The female gives birth to live young.

Injury and feeding locations and preferences are similar to the red scale. The yellow scale also has multiple generations each year.

Purple Scale (*Lepidosaphes beckii* (Newm.)) and Glover Scale (*Lepidosaphes gloverii* (Pack.)): The female purple scale lays grayish eggs in a sac-like enclosure under her shell. Glover scale eggs are pink and are found in two rows. Crawlers of both are off-white and oval with a posterior brown tip. There usually are three generations a year with peaks in March-April, June-July and September-October.

Purple scales feed on the foliage, fruit and wood of the trees and are often overlooked because they live primarily on the inside of the tree. They like the shady areas such as the undersurface of leaves and collect along the mid-rib on the underside of the foliage. Yellow, chlorotic areas on the foliage can cause defoliation and twig death. Injury to the fruit may cause fruit drop as well as green spots that cannot be removed.

Females of both the purple and the Glover scale are long and tapered. The purple scale is wider, somewhat larger and darker. The Glover scale is very slender and elongated and is lighter or tan in color.

Soft Scales

Cottony Cushion Scale (*Icerya purchasi* Mask.):

This scale is easily recognized. The mature female has a bright orange-red, yellow or brown body that is practically or entirely covered with yellowish or white wax. They produce a fluted egg sac that usually is about two to two-and-a-half times longer than the body. This sac