



ENTFACT-408

COMMON OAK GALLS

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Galls are irregular plant growths which are stimulated by the reaction between plant hormones and powerful growth regulating chemicals produced by some insects or mites. Many species of gall makers attack oaks; most are tiny wasps. Galls may occur on leaves, branches, bark, flowers, buds, acorns, or roots. Leaf and twig galls are most noticeable. The inhabitant gains its nutrients from the inner gall tissue. Galls also provide some protection from natural enemies and insecticide sprays. Important details of the life cycles of many gall-makers are not known so specific recommendations to time control measures most effectively are not available.

Gall makers must attack at a particular time in the year to be successful. Otherwise, they may not be able to stimulate the plant to produce the tissue which forms the gall. Generally, initiation of leaf galls occurs around "bud break" or as new leaves begin to unfold in the spring.

Once the symptom or gall appears, the causative arthropod is protected within the structure. This means that remedial actions, other than pruning in some cases, are not effective. Preventive action is necessary to attempt to reduce the infestation the following season and these may be of limited value. Fortunately, most galls, especially those on leaves and leaf structures, do not harm the health of the tree.

Twig and Stem Galls

Twig and stem galls, such as the gouty oak gall and horned oak gall, are solid, woody masses that can girdle branches or make them droop from the sheer weight of the heavy growths. The galls can grow to more than 2" in diameter. Horned oak galls can be found on pin, scrub, black, blackjack, and water oaks while gouty oak galls occur on scarlet, red, pin or black oak.

These galls have complex life cycles that may take two or more years to complete. The first stage is a small blister-like leaf gall that occurs along larger leaf veins. The second stage is a knotty twig gall that is started in mid-summer and becomes fully mature in 1 to 2 years. Adults emerge in the spring. Gouty oak twig galls are

smooth, horned oak galls have horn-like projections. One female wasp can emerge from a horn.

Generally, insecticidal control is not satisfactory because the wasps are physically protected within the galls. Correctly timing applications to provide effective control is difficult. Where practical, pruning off and destroying infested twigs may help to reduce the problem on lightly-infested trees. However, pruning is impractical if large trees are heavily-infested. A commercial arborist may be able to provide assistance with valuable plantings.

Leaf Galls

Leaf galls rarely affect tree health so control is rarely justified. However, an application of carbaryl (Sevin) at bud break may reduce infestations of some galls. It is difficult to spray moderate to large trees without special equipment and the necessary protective clothing to protect the applicator from spray drift.

Oak Apple Galls

These are large (1" to 2" diameter) rounded growths that are filled with a spongy mass. A single wasp larva is located in a hard seed-like cell in the center. Galls are usually found on the petioles or midribs of leaves. They will dry to a brown, paper thin wall. Removing and destroying galls before they dry and wasps emerge from a hole may help to reduce the infestation. While large and spectacular, they cause no real harm.

Roly Poly Galls or Succulent Oak Galls

This is a group that are similar in size and appearance to hollow green grapes. Inside, in a small, loose "seed like" structure, is the larva of a tiny wasp. These galls seem to appear in place of leaves or reduce the size of leaves but they do not affect tree health.

Wool Sower Galls

These are wasp galls that appear on white oak in early summer and resemble toasted marshmallows. One gall is actually a group of small hairy galls joined at a common spot on a twig. They can be pulled apart to see seed-like structures that contain the developing wasps.

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Vein Pocket Gall and Leaf Pocket Gall

These galls are caused by the larval (maggot) stages of very small flies called midges. Vein pocket galls are elongate swellings that occur along mid- and lateral leaf veins of scrub and pin oak. The process begins when the unfolding leaves begin to flatten out. At this time, the small midge lays its eggs. The tiny maggots move to the veins and begin to feed. After a few days they are covered by gall tissue and complete development by mid-spring. The mature larvae drop to the ground and remain there over the winter. A related midge species causes the marginal folds or leaf pockets that can be found on red oak or pin oak. Several small larvae may be found inside the swollen folds of the leaf.

Jumping Oak Gall

Caused by a small wasp, they typically appears on the leaves of valley oak and California white oak. These round, seed-like galls fall off leaves when mature. One wasp lives inside each gall; the wasp's activity may make the gall "jump" several inches off the ground. Female wasps emerge in the spring from galls on the ground and lay eggs in opening buds. After several weeks, small blister-like galls form on the young leaves. During the summer, males and females lay eggs in the mature leaves.