

## Gall Insects

Galls are abnormal growths on plants caused by certain feeding organisms, including bacteria, fungi, nematodes, mites and insects. The attack of each species results in a distinctive deformity on leaves, twigs or stems of a host plant. There are hundreds of kinds of galls, each characteristic of the specific organism producing it. Important gall-forming insects are mites, plant lice (aphids), midges (tiny flies) and cynipids (tiny wasps).

The egg-laying and hatching of such pests stimulates the plant to form an abnormal growth at the point of injury, inside which immature stages of the pests develop. Control of the gall cannot be achieved after the galls have begun to form since the immature pest is protected inside the gall, away from pesticide contact.

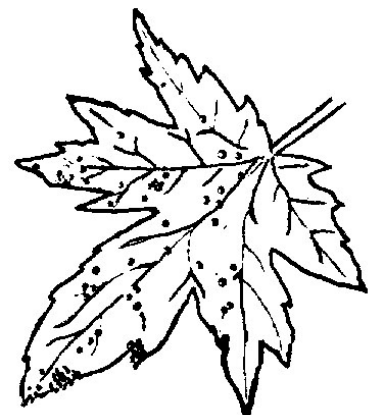
Most shade trees and ornamental plants can tolerate galls with no apparent injury. However, when environmental conditions favor the pest, gall insects can build up in sufficient numbers to damage plants. A few are potential tree killers. Diseased plants and plants of poor vigor are damaged more by galls than healthy plants.

A preventive spray treatment such as horticultural (oil) sprays or, where approved, insecticide sprays early in the growing season may lessen gall infestations. Such measures should not be expected to completely eliminate all gall problems, but may check many gall-forming pests before the adult insect can deposit their eggs. In general, it is wiser to spend your resources on keeping your plants healthy than to spend time and money trying to control gall insects by spraying pesticides. While insecticides sprays also reduce other common tree and ornamental pests occurring during this period, they may also harm beneficials that you want to encourage.

### Most Prevalent Galls Found in Delaware and Their Control

Pest host is maple; the pest is **maple bladder gall**; the insect pest involved is a tiny mite, an arthropod relative of insects. Small wart-like growths appear on the foliage. At first the galls are bright red then they turn green and finally black. The galls occur in clusters; they can cause crinkled and deformed leaves. Galls seldom affect tree vigor or health. Control before buds open with horticultural oil when the leaves are one-fourth expanded. Repeat in 10 days.

Douglas fir, blue spruce or Norway spruce can be infested with the **Cooley spruce gall** (order Homoptera)--which varies in size from



1/2 inch to 2 inches in length; the insect pest involved is aphid. The gall is terminal and slender, and usually causes bending of the twig to one side. Treat with an improved insecticide when buds are opening and again in 30 days.

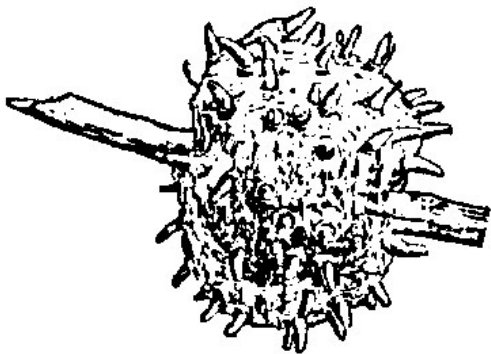
Norway spruce, white spruce, and hemlock can get the **eastern spruce gall**; the insect involved is an aphid (order Homoptera). Gall is elongated, about 1 inch long and shaped like a pineapple. Yellowish-green at first, becoming darker with age. Treat with an approved insecticide when buds are opening and again in 30 days.

**Hickory leaf stem gall can infest hickory trees**; the insect involved is an aphid (order Homoptera). Galls appear on the new twigs and petioles of the leaves in June. Bullet-shaped and green in color, they become black in these galls which vary in size from a pea to a ball 1/2 inch in diameter. They fit closely along the twig and petiole. The tree stem may become distorted and bent. Spray twigs and buds with carbaryl before buds develop.

In black locust a gall pest is **locust-gall maker**; the insect pest involved is a pale-yellow moth larva (order Lepidoptera). Galls are 1 to 3 inches long and shaped like a spindle. These enlargements show up on the twigs. Control by raking and destroying leaves in the fall.

Oak trees have a number of galls. **Gouty oak gall** is caused by a tiny wasp (order Hymenoptera). Most frequent on red oak the gall occurs on many other native species. Galls form on twigs and coalesce to form a long mass on the branch. Control is not usually necessary.

Another oak gall seen mainly on white oak is **wool sower gall**; the insect pest involved is a tiny wasp (order Hymenoptera). The insect stimulates the twig to produce a rough, shaggy, reddish globular gall 1 to 1 1/2 inches in diameter. Gall becomes covered with creamy-white growth of fibers like wool, turning light brown with age. Control is not usually necessary.



Another oak gall, mainly pin oaks is **horned oak gall**; the insect pest involved is a tiny wasp (order Hymenoptera). Infested twigs of pin oak usually have several galls forming an irregular woody mass of 2 or more inches. The gall is covered with numerous conical, hollow horn-like projections. Control is usually not necessary.

On white nut and scrub oak is **oak bullet gall**; the insect pest involved is a tiny fly (order Diptera). It occurs on small branches with galls bullet-shaped and 1/3 to 2/3 inch in diameter. They usually occur in groups of two or three. Galls are yellowish in color, tinged with red. Control flies that emerge from galls in October with a general-purpose insecticide.

On numerous oaks are **oak-apples**; the insect pest involved is a tiny wasp (order Hymenoptera). Spherical galls are found on leaves and twigs. They have a strong outer wall, 3/4 to 2 inches in diameter and are usually fastened to a vein or leaf petiole. Control is not usually necessary.

On bur oak and swamp white oak are found **noxious oak gall**; the insect pest involved is a fly

maggot (order Diptera). Galls form on the leaves and later on the stems. Galls vary greatly in shape but are more or less tuber-like. They deform the branches. Cut and burn all twig galls before the first of March. Insecticide spray may do more harm than good by killing beneficials.



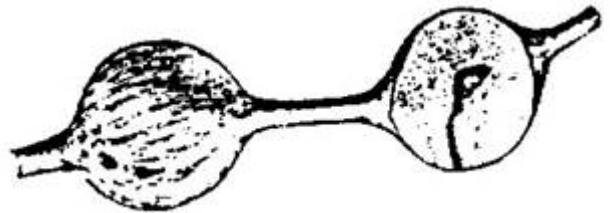
Common on elm is **elm cockscomb gall** (because galls resemble the comb of a rooster); the insect pest involved is an aphid. It occurs on the elm leaves. Treat with carbaryl or horticultural oil before the buds open.

On willows we find **willow cone-gall**. Galls are about the size of large hickory nut, cone-shaped and found one to a twig at the very tip. Treat with carbaryl or horticultural oil before the buds form.

On rose sweetbrier pest **mossy rose gall**; the insect pest involved is a larva of a tiny fly (order Diptera). It occurs on stems, usually larger than 2 inches in diameter. The gall consists of a mass of brown, moss-like filaments covering a hard kernel. Prune, remove, and burn the infested parts of the plant.

Another rose sweetbrier pest is **beaked willow gall**; the insect pest involved is a larva of a midge fly (order Diptera). The gall is large and oval-shaped and develops on lower shoots. Pussy willow is especially prone to attack. No control is usually necessary.

In the fall goldenrod plants host the **goldenrod gall**; the insect pest involved is midge a tiny wasp (order Hymenoptera) or fly (order Diptera). Stems of goldenrod have high numbers of galls. They are interesting to study and examine. No control is usually necessary.



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