



Extension FactSheet

Plant Pathology, 2021 Coffey Road, Columbus, OH 43210-1087

Bacterial Crown Gall on Ornamentals in the Landscape

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Crown gall is characterized by growth of galls on roots or stems. While mostly found on woody plants, it affects some herbaceous plants as well. Although found on more than 600 plant species in over 90 families, the disease is of economic importance on relatively few ornamental plants. Some commonly affected ornamentals include rose, Prunus, (flowering cherry, flowering almond and ornamental plums), willow, and certain Euonymus species, especially wintercreeper.

Effects of Crown Gall

Crown gall can reduce the productive life of plants. Deformation of tissues due to gall formation disrupts the movement of water and nutrients between roots and leaves. Stems are weakened and growth may be reduced with a general decline in vigor. The severity of the disease depends on the size, number, and location of the galls, and also on the susceptibility of the plant and age when infected. Galls at the crown of young plants have the greatest adverse effect and can cause stunting and failure

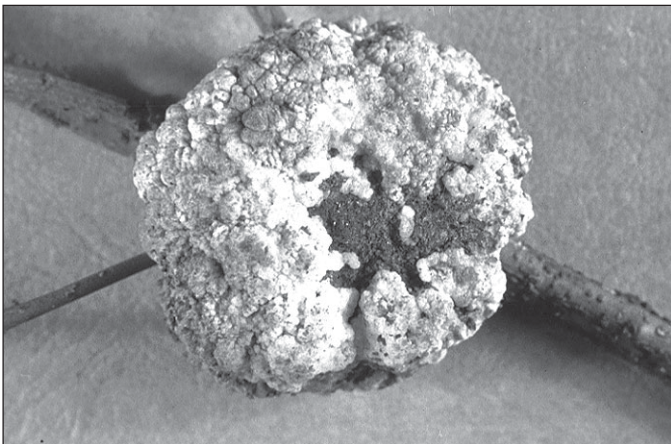


Figure 1. Crown gall on Euonymus twig.



Figure 2. Crown gall on plum branch.

to produce healthy leaves and blossoms. This disease may have little noticeable effect on older plants.

Symptoms

Galls may develop anywhere on stems and roots, but are usually found near the soil line. They vary from pea size up to several inches in diameter. Young galls are light colored and smooth. Older galls become discolored, hard and woody, and eventually crack, decay and slough off. The texture at first is softer than the normal host stem or root tissue. The galls consist of disorganized host tissues. Secondary galls sometimes form above the sites of the primary gall on stems of some hosts. The secondary galls are usually smaller and occur as separate or unbroken elongated masses of tissue breaking through the bark surfaces. Unlike insect galls, crown galls are a solid mass of tissue all the way through.

Disease Development

Crown gall is caused by the soil-borne bacterium, *Agrobacterium tumefaciens*. The bacteria can persist in the soil



Figure 3. Crown gall on euonymus bush.

for two or more years even in the absence of susceptible plants. Sometimes the bacteria are carried on seeds. Fresh wounds in stems or roots are essential for the bacteria to invade host tissues. These wounds commonly occur during planting, cultivation and pruning, and during propagation when grafting and taking cuttings. Soil insects and nematodes can also cause root wounds providing entry sites.

There are no effective chemical controls for this disease in the landscape. Cultural controls include:

1. Avoid unnecessary wounding (protect from injury).
2. Sanitation—remove infected plants.
3. Plant resistant plants in crown gall-infested areas.
4. Do not purchase plants with suspicious swelling near the soil line or on the roots.

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