

Crown Gall

Crown gall affects many plants including woody plants in at least 77 different genera. It is prevalent on euonymus and roses in Delaware and is often found on willow and raspberry. Ornamental plants that can be infected include cypress, euonymus, forsythia, hibiscus, lilac, flowering cherry, privet, rose, viburnum and willow.

Symptoms

Rough-surfaced tumors or galls occur at or near the soil line, at graft or bud union, or on roots and stems. On fruit trees they are often found at the base of the trunk, just below the soil level (crown portion of the tree).

The galls may be hard, or soft and spongy as on euonymus. They can be large and usually are flesh-colored, greenish or dark. They vary in size from that of a pea to several inches in diameter. In some rare cases, the galls may weigh several pounds. The effect of crown gall will depend on the species of plant infected, age of plant when infected and the location and number of tumors. As the disease progresses, plants often become stunted and weak, fail to respond to fertilization, exhibit yellowish foliage, and may eventually die.

Cause

Crown gall is caused by a bacterium, *Agrobacterium tumefaciens*. Many soils may already be infested with the bacterium and healthy susceptible plants may contract the disease when planted in such soil.

Factors Affecting Development

The bacterium gets into the plant only through wounds which are often provided during planting, cultivation, grafting and pruning. Chewing insects, feeding beneath the soil, may provide injuries through which the bacterium enters the plant. Once in the soil, the crown gall bacterium can persist several years in decomposing galls from infected plants. The disease is often more severe on limed than on more acid soil.

Control in the Home Garden

Destroy heavily infected plants, especially woody ones, since they will continue to appear unhealthy and may eventually die. Remove as many infected roots as possible. Where only a few galls are present above ground, cut off and destroy the stems on which they occur. Disinfect pruning shears between cuts.

Avoid wounding of any kind, especially wounds that occur during transplanting or cultivating. Avoid wounds from chewing insects in the soil by treating with a soil insecticide . Do not buy or plant any ornamentals that have suspicious swellings or galls on the roots or stems. Be aware that some ornamental plants have nitrogen fixing nodules on the roots that can be confused with crown gall swellings. Do not plant susceptible species in soil where crown gall has been found or has been rotated with a non-susceptible plant for at least 4 years, or preferably both. Also, maintain the soil as acid as practical for the plant(s).

Biological control of crown gall by a nonpathogenic strain of *Agrobacterium* is an option as well. This strain known as K84 was found to protect plant wounds from infection by *A. tumefaciens*. Plants are treated by dipping them in a suspension of K84 before planting. This product is available as Galltrol-A.

Caution: The information and recommendations in these fact sheets were developed for Delaware conditions and may not apply in other areas.