

# PLANT DISEASE AND INSECT ADVISORY



Entomology and Plant Pathology  
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Vol. 5, No. 8

Website: <http://entopl.okstate.edu/Pddl/advisory.htm>

May 4, 2006

## Cedar-Apple Rust: Christmas in May! Brian Olson, Plant Disease Diagnostician

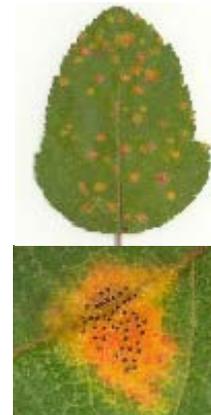


If cedar-apple rust would only occur in December, Junipers often used as Christmas trees in Oklahoma would need no decorations other than the orange galls hanging from the tree. Unfortunately these galls occur in May, not December.

**Where do cedar-apple rust galls come from?** Last summer and fall, microscopic spores (called aeciospores) of the fungus *Gymnosporangium* are wind blown. Spores which land on leaves and buds of Juniper can germinate and infect, resulting in galls the following spring. Galls will mature following rain, usually in May, with 'telial horns'.

**How are apple trees involved?** The telial horns on the Juniper rust galls produce another spore type (called teliospores). Teliospores become wind blown and can only infect apple and crabapple leaves (i.e., they cannot re-infect the Juniper leaves or buds). After apple and crabapple leaves become infected in early summer, the rust makes pustules on the leaves. These

pustules do not resemble the galls found on the Juniper, but rather are leaf spots with raised centers. By late summer, these pustules will produce aeciospores on the undersides of the leaves. This completes the life-cycle of the cedar-apple rust fungus as the aeciospores are wind blown to Juniper hosts.



**Any harm done?** Maybe. It depends on what kinds of plants are growing in the backyard. The **Juniper** galls appear to cause little if any damage to Juniper. Unfortunately, some **apple** varieties are susceptible to rust. Damage on apple is caused when rust pustules are numerous and cause early defoliation, resulting in reduced yield in addition to tree decline. It is important to understand that cedar-apple rust is a foliar disease of apple, (not systemic like dutch elm disease) and thus can be effectively managed.

**How is cedar-apple rust managed?** Here are four strategies to help combat cedar-apple rust:

- 1) **Choose resistant varieties.** For new apple plantings, consider varieties of apple which are resistant to rust. Host resistance will allow a grower to either avoid or limit pesticide applications.
- 2) **Remove alternate hosts.** One thing is for sure when it comes to rusts: They love to produce spores and lots of them. Millions. While they don't rely on specific insects or other biological vectors to spread their spores, they do rely on a 'chance' that (one in a million?) they will land on a host. Thus, increasing the distance between apple and Juniper trees will in turn reduce rust severity.
- 3) **Remove the galls** in early spring as they appear. No galls, no spores!
- 4) **Fungicide applications.** For apple varieties susceptible to cedar-apple rust and when removing the nearby alternate host (Juniper) is not possible, consider Myclobutanil (Spectracide Immunox), Ferbam, Mancozeb (Dithane, Manzate). Apply according to the label beginning at pink stage of bud development through third cover.

Otherwise, enjoy the 'gall holiday' in May. And appreciate the fact they are orange!



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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, VP, Dean, and Director for Agricultural Programs, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Dean of Agricultural Sciences and Natural Resources.