

**Problem:** Rust Diseases on Hawthorn



Cedar-Hawthorn Rust on Hawthorn



Cedar-Quince Rust on Hawthorn Fruit



Cedar-Quince Rust on Hawthorn Twig



Cedar-apple Rust Gall on Juniper

**Host Plants:** Hawthorn

**Description:** There are three common rust diseases in Kansas that have the juniper (cedar) as the alternate host. They are cedar-apple rust, cedar-hawthorn rust, and cedar-quince rust. Though cedar-apple rust is very common on apples and crabapples, it is rare on hawthorn. However, cedar-hawthorn rust and cedar-quince rust are often seen on certain species of hawthorn.

Cedar-hawthorn rust causes yellow-orange spots on the leaves of hawthorn trees. These spots begin in the late spring on the upper surface of leaves, approximately  $\frac{1}{8}$  to  $\frac{1}{4}$  inch in diameter. Gradually they enlarge and turn orange during the summer months.

Cedar-quince rust attacks the fruit and twigs of hawthorn causing whitish rod-like projections to erupt from infected tissues (see photos above).

Though each of these rusts is a different species, all three diseases work the same and the control is exactly the same as well.

**Recommendations:** A control for rust diseases must only be applied preventatively. Once the symptoms are visible on plant, it is too late to do anything about the disease, especially once the month of May is over. The fungus that causes rust is only active in April-May time period, which is when the disease infection occurs on hawthorn trees. If you would like to control the disease the following year, consider using a fungicide that contains the active ingredient myclobutanil (Immunox, Monterey Fungi-Max or Fertilome F-Stop Lawn & Garden Spray). There are other fungicides that will work but those with myclobutanil have an advantage. Most fungicides must be present on the tree before the disease spore germinates or they are ineffective. Myclobutanil will kill the rust spore up to 4 days after it germinates. This can be very beneficial in disease control.

Normally to control these rust diseases on trees, the recommendation is that trees be sprayed every 7 to 10 days starting at the beginning of April until the end of May. However, since we have this 4-day kickback with myclobutanil, we can wait until we actually see evidence of spores being released before we spray. How do we do that? First of all, remember that cedar-apple rust, cedar-quince rust and cedar-hawthorn rust must go back and forth between junipers (cedars) and the susceptible host (hawthorns in this case). The spores from junipers cannot re-infect junipers but can only infect a susceptible host (hawthorns in this case) and those from hawthorns can only infect junipers. Therefore, we look at the juniper to see when to spray hawthorns.

When you see the orange globs (galls) on the junipers (see photo above), you know you have 4 days to spray the hawthorns. These orange globs are actually cedar-apple rust but cedar hawthorn rust and cedar-quince rust develop under the same environmental conditions. We use cedar-apple rust as the visual signal because it is much more noticeable on the juniper than either of the other two rust diseases. If you see cedar-apple rust, cedar-hawthorn rust and cedar-quince rust are also likely present. It is also important to note that the orange galls only develop during rainy, spring weather. The rust disease has a minimal effect on junipers, so no control is need to protect juniper or cedar trees.

In cases where repeat leaf defoliation is a problem with the hawthorn tree or there is extensive twig swelling, or the aesthetic damage cannot be tolerated, watch the cedar trees during any rainy period between April and May. When the overwintering rust galls bloom their orange, gelatinous tentacles (orange galls appear) get ready to spray. You have 4 days to apply your myclobutanil fungicide. Once May is over, you are done until the next year.

## References:

1. [Cedar-Hawthorn Rust](#), Missouri Botanical Garden, Pests and Problems
2. [Hawthorn Rusts](#), Iowa State University, Extension and Outreach, Horticulture and Home Pest News

**Last Update:** 10/30/2023

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