



BATTLING RUST IN THE LANDSCAPE

Of all of the diseases that infect ornamental plants in the landscape, rust may be one of the most frustrating. Attacking many of the most commonly used and highly ornamental trees and shrubs, rust's insidious presence is marked by discolored foliage, early leaf drop, and disfigured fruit on crabs, hawthorns, and several other species. Rarely killing its victims, rust infestation nevertheless creates a visual blight on the summer scene.

Rust as we experience it here in the Midwest is actually one or more of three different fungi: apple rust, hawthorn rust, or quince rust. One of those complicated "two-host" diseases, rust is a little like a difficult teen who leaves home to take up residence afar for a brief time, only to return to the nest for essential sustenance. The rust complex that infects our prized ornamentals begins life as a gall or stem lesion on Eastern Red Cedar (*Juniperus virginiana* ssp.). All three of the rust varieties share juniper as one of their hosts. Just about this time every spring, these structures erupt to a visible orange gelatinous mass, spewing spores into the air. When this release coincides with spring rains and mild winds, conditions are optimal for the spread of rust to its second hosts: crabs, hawthorns, and other flowering shrubs. Apple rust spores are viable on apples and crabs, hawthorn rust spores attack crabs as well as hawthorns, pears, and serviceberries, and quince rust (the least fussy of the lot) finds its secondary home on any species favored by the other rusts, but will also thrive on chokeberry, cotoneaster, and flowering quince. The tender emerging leaves of these plants are extremely vulnerable to the water-and-windborne spores, and within as little as three weeks after exposure to the fungi, damage to the plant will be evident, with yellow spots beginning to show on the upper surface of infected leaves.

As the season warms and the disease progresses, the yellow spots enlarge and become ringed with orange (the "rust" color that gives the condition its name). On the underside of the leaves, spore sacs will begin to develop. Fruit on these plants may show damage as well. If apple or hawthorn rust are present, damage will appear as discoloration or soft spots; if your problem is quince rust, fruit will begin to have hairy, thread-like projections which are the spore-bearing vehicles of this particular fungi.

The rust-colored spores released from these structures are carried through the air back to juniper hosts where a gall forms at the site of infestation. Once spores are released, the deciduous host tree or shrub usually sheds infected leaves, and the new juniper gall will take an entire year to mature to spore-producing size.

Preventive maintenance may be the best solution to avoiding the rust menace in your landscape. By excluding Eastern Red Cedar cultivars from a design, you've reduced chances of infestation considerably, but not completely: spores can easily be carried from other neighborhood plantings. Do some preparatory research, and select only rust-resistant plants for your yard. If you fancy crabs, know that hybridizers have worked diligently to create rust-resistant varieties. If a hawthorn is in your plans, select carefully: most varieties are susceptible to some degree. *Crataegus viridis* 'Crimson King'

resists both apple and hawthorn rusts, but is quite vulnerable to quince rust, and Washington Hawthorn (*Crataegus phaenopyrum*) is reputedly the best choice if rust is a concern.

But what is the solution for those of us who have mature plantings of trees and shrubs that are for the most part satisfying - plants we hope to keep despite their unfortunate susceptibility to rust? Well, we either learn to live with trees that are leafless by July, justifying their continued presence in the garden with memories of spring flowering glory, or we take action to do battle with rust. Our options are mechanical or chemical.

If you choose a mechanical attack, prune out galls from infected plants (deciduous or evergreen), but know that your efforts will be largely cosmetic rather than effective as a “cure” for rust. Raking up infected leaves can also improve the appearance of the landscape, but does little to stem the rust life cycle, since fallen leaves have already served their role, housing and dispersing fungi spore.

Chemical applications are also essentially a cosmetic stopgap, but are very effective in reducing or eliminating early leaf drop and disfigured fruit. If you decide to spray susceptible trees, three separate applications at ten-day intervals of Daconil (active ingredient chlorothalonil) works wonders—time the first application to coincide with the appearance of the season’s first flush of new leaves. If your tree is too large to use a pump-type applicator, I’ve had success adapting a recycled window-cleaner solution dispenser—the kind that attaches directly to a garden hose-- to the task. The pressure from the hose makes it easy to reach thirty feet or more into a tree canopy.

Remember that the disease is most severe in years when the spring rains occur just as leaf buds begin to break on susceptible deciduous plants, and be ready. The same drops of moisture that we welcome as a pick-me-up elixir to thirsty perennials may be carrying rust spores to your deciduous plants.



Rust on the leaves and fruit
of hawthorn

