

Pear Trellis Rust

Bruce R. Fraedrich, PhD, Plant Pathology

Pear Trellis Rust (PTR), caused by the fungus *Gymnosporangium sabinae*, was introduced into the United States from Europe in the 1990's and has been progressively spreading through states in the East and West. The disease affects common pear (*Pyrus communis*), Callery pear (*P. calleryana*) and several species of juniper including *Juniperus virginiana* and *J. chinensis*.

Biology, Symptoms and Signs

PTR, like other *Gymnosporangium* rusts, requires two unrelated host genera, both pear and juniper, to complete development. In early spring, spores (teliospores) are produced on small, round, orange, gelatinous galls that form on juniper twigs during cool moist conditions (Figure 1). The same galls can produce teliospores for several consecutive years. Wind and rain disseminate these spores to pears causing conspicuous yellow to orange leafspots (Figure 2) and spindle shaped lesions on petioles and twigs. By late summer, fruiting structures, that resemble trellises form on the undersides of diseased leaf tissue (Figure 3). Spores (aeciospores) from these fruiting structures disseminate by wind and rain to juniper where infection occurs on twigs and shoots. These infections eventually produce galls that will be the source of spores for future infections on pear.

Figure 1: Sporulating pear trellis rust gall on juniper



Figure 2: Leafspots on pear caused by pear trellis rust



Figure 3: Fruiting structures of pear trellis rust on undersides of pear leaves



PTR can have a significant impact on the health and survival of pear trees. Reduced growth, crown thinning and branch dieback will occur after several consecutive years of infection (Figure 4). In areas with high disease pressure, PTR can eventually cause death of the pear host. No significant impact in plant health is usually associated with infections on the juniper host.

Figure 4: Declining Callery pears after two consecutive years of severe infection by the pear trellis rust pathogen



Management

It is unlikely that removal of the juniper host or pruning rust galls from diseased junipers will have a significant impact on new infections on pear. Junipers tend to be very abundant in landscapes and are often growing in natural areas as well. Spores of rust fungi can be carried by as much as ½ mile by wind thus

ensuring a potential source of new infections in areas where PTR is present.

Fungicide spray treatments are highly effective in preventing new infections on pear. Apply treatments when new growth begins in spring and repeat twice at two-week intervals. Fungicide treatments are seldom warranted to protect juniper from infection.

There is no published research that documents resistant varieties of pear to PTR. Observational reports suggest that all Callery pear cultivars that are commonly planted in the landscape are susceptible to PTR.



Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.