



## Western gall rust



### Distribution and Hosts

Western gall rust is one of the most common and economically important diseases of hard pines (lodgepole, jack, Scots, ponderosa, and mugho) in the prairie provinces.

### Symptoms and Damage

This disease is easily recognized by the conspicuous perennial globose galls on stems and branches. Although the disease seldom kills trees, heavily infected trees generally become stunted or malformed, especially when galls are produced on main stems. The weakening effect of the main stem galls causes the trees to readily break off under heavy snow or in strong winds, and the trees are then useless for ornamental or crop purposes. A moderate number of branch galls does not significantly affect the health of the tree.

### Causal Agent

Western gall rust is caused by a rust fungus (*Endocronartium harknessii* [J.P. Moore] Y. Hiratsuka). Orange-yellow, microscopic spores are produced every year in late May until July on globose galls. The windborne spores are transmitted to the young shoots (candles), where they initiate the formation of new galls. This mode of infection is unique among pine stem rusts, because other species (stalactiform blister rust, comandra blister rust, sweet-fern blister rust, eastern gall rust, and white pine blister rust) need groups of plants other than pine as alternate hosts on which to complete their life cycles. In natural stands of lodgepole pine or jack pine in the prairie provinces, high incidences of infection occur in wave years once every 6 to 8 years, and only low levels of infection recur in other years. Other common names of the disease are globose gall rust and pine-to-pine gall rust.

### Prevention and Control

The most practical and effective control of western gall rust is to cut off the galls on infected trees. Trees with lower main stem galls must be destroyed. Although branch galls do not significantly affect the vigor of the infected trees, the galls should be pruned off to prevent infections from spreading to other parts of the tree or to nearby trees from spores produced by the galls.

Pruning branch galls and destroying trees with main stem galls should be avoided when the spores are being actively produced, because the control action itself can spread spores. Release of spores usually occurs from the end of May to the middle of July, depending on the location. Once the sporulation starts, galls produce spores for 3 to 4 weeks at a given location.

Control of western gall rust can also be achieved by preventive measures. Susceptible pine species should not be planted near a heavily infested natural stand. Instead, red pine, which is known to be immune to this disease, or tree species other than hard pines should be planted. In urban areas and shelterbelts, the major source of infection is from the transplanting of infected trees. It is therefore important to check carefully for the presence of galls when planting susceptible pines, whether they are obtained from natural forests, tree nurseries, or retail outlets.

In tree nursery or tree farm situations where there is the possibility of heavy infections being spread by spores from the surrounding infested pine stands, protective fungicide sprays during the period of spore release are effective and may be economically feasible.

For the most recent information on chemicals available for control of this disease, call

Agriculture Canada's Pesticides Directorate in Ottawa (toll-free) at 1-800-267-6315.

Chemical pesticides are toxic to humans, animals, birds, fish, and beneficial insects. Follow all instructions and precautions listed by the manufacturer.

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