



Agricultural and forest stakeholders: on the alert!

Emergence of a new strain of white pine blister rust

White pine blister rust, caused by the exotic fungus *Cronartium ribicola*, has been present in North America since the early 20th century. This pathogenic fungus spends part of its life cycle on *Ribes* (black currants, red currants or gooseberries), before attacking and killing white pine. Now, a new strain of the disease has recently been discovered in northeastern North America. Should agricultural and forest stakeholders be concerned about this new development?

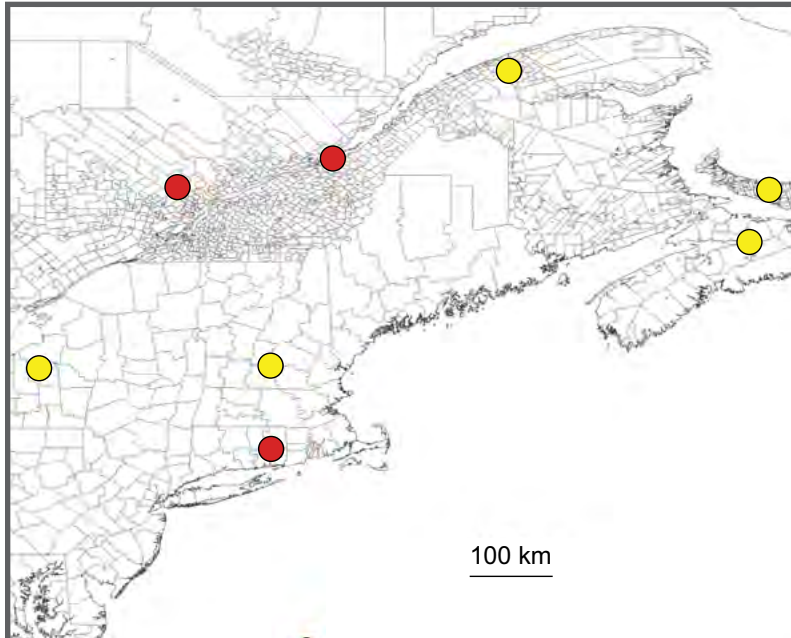
The end of immunity

For more than 50 years, agricultural producers have had access to black currant cultivars that are immune to white pine blister rust. To reduce the contamination of white pine by this disease, 15 American States have regulated the planting of *Ribes*. As a result, only immune cultivars are permitted in many of these States¹. By planting these cultivars, agricultural producers ensure their harvest of fruit, while helping to control the spread of rust in forests adjacent to their fields.

In 2008, a loss of immunity was observed in the black currant in Connecticut. In 2011 and 2013, the new virulent strain of *Cronartium ribicola* was sampled and observed in fields belonging to black currant producers in Quebec, the Maritimes and in several States in the northeastern United States. Researchers from the Canadian Forest Service also discovered it on white pine in a severely infected natural forest located close to a black currant field.

Where did this new strain originate?

Using laboratory tests, researchers from the Canadian Forest Service were able to prove that all commercially available black currant cultivars descending from the Consort cultivar had lost their immunity. According to preliminary genetic analyses, this new strain is the result of a new mutation or the genetic recombination of a North American strain of the fungus and not a new introduction of the disease.



Locations where the new strain of white pine blister rust has been observed. Map: NRCan

- Virulent race sampled and validated
- Virulent race observed in fields planted with immune *Ribes* cultivars



Orange fruiting bodies on red currant. Photo: NRCan

1. McKay, S. 2000. State regulation of *Ribes* to control white pine blister rust. HortTechnology 10(3):562-564.

Branching Out

from the Canadian Forest Service - Laurentian Forestry Centre



Testing the virulence of the new strain on different black currant cultivars. The Consort, Coronet and Crusader cultivars were selected in the late 1930's by researchers at Agriculture Canada (now known as Agriculture and Agri-Food Canada) for their immunity to white pine blister rust². They were also used as parents and the new cultivars resulting from these crosses, such as Titania and Blackcomb, are also sensitive to this new rust strain.

Photo: NRCan

The implications

This new rust strain may initially affect currant producers who thought they could avoid the disease by planting immune cultivars. If no control measures are used, early defoliation should be expected during summers when climate conditions are conducive to the development of the disease. In subsequent years, this will cause reductions in leaf surface area, shoot size, number of blooms and quantity of fruit. The greatest impact will be felt in plantations and natural white pine forests located close to black currant fields where a high rate of contamination and ultimately the death of these pines is foreseeable.

Educational activities and collaborative action by agricultural and forest stakeholders are necessary in order to effectively control this new scourge.

Useful links

Controlling white pine blister rust:
<http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/32509.pdf>

<http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/32511.pdf>

<http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/33815.pdf>

2. Hunter, A.W.S.; Davis, M.B. 1943. Breeding rust resistant black currants. Proc. Am. Hort. Sci. 42:467-468.



Multiple cankers on a young white pine trunk.
Photo: NRCan

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