CFS CANADIAN FOREST SERVICE

PEST Notes

No. 2

Butternut Canker

What is it?

Butternut canker is a disease caused by a fungus, *Sirococcus clavigignenti-juglandacearum* Nair, Kostichka & Kuntz. It is mostly found on butternut (*Juglans cinerea* L.) trees, although other members of the walnut family (*Juglandaceae*) show some susceptibility to infection. The disease is a serious threat to butternut populations in North America and has killed up to 90% of the butternut population in some areas of the United States. Damage from the *Sirococcus* fungus was first noted in Wisconsin in 1967, but it was not until 1979 that the fungus itself was described. Scientists believe that the disease was introduced to North America much earlier than the first report. First reports in Canada occurred in 1990 in Quebec, 1991 in Ontario, and 1997 in New Brunswick.

What does it look like?

Cankers caused by the *Sirococcus* fungus are elongated, sunken, black blemishes that form under the bark of twigs, branches, or stems of infected trees, making them difficult to detect. In early spring and summer, cracks in these cankers may exude a blackish fluid. However, in the early stages of the disease, these distinctive bleeding
cankers may only be present on the uppermost branches of large trees, making it next to impossible to spot the infection from the ground. In the summer, the cankers may appear as sooty black patches with whitish margins. As infected trees try to heal over the cankers with bark, symptoms may only be visible after the bark has been peeled from a branch or twig. Once exposed, the cambium layer under and around the canker will be dark brown or black in color, indicating that it is dead.

What damage does it cause?

Infection usually occurs first in the lower crown of trees, and then spreads downward as fungal spores from the cankers are washed by rain along the branches and down the main stem. As the disease intensifies, multiple cankers will form on the branches, stem, and roots, and the infected tree will stop producing nuts. As the cankers grow and join together, affected branches will die, and if the stem is girdled by cankers, the tree will die. Cankers also serve as entry points for other decay organisms.

Where is it found?

Butternut canker is widespread in both the Ontario and Quebec populations, causing significant decline. In New Brunswick, the disease was first found in June 1997 on trees in the Saint John River watershed in Carleton Co., within 20 km of the Maine border. The size and stage of the cankers found in 1997 suggest that the disease has been present in New Brunswick since about 1990. Recent finds along the Saint John River watershed in Victoria and Carleton counties suggest that butternut canker has become more widespread in recent years.

The butternut tree, native to North America, is at the northeastern limits of its natural range in New Brunswick and is, therefore, subject to many stresses. The difficulty in identifying butternut canker is compounded because trees may have a number of different cankers that are outwardly similar to those caused by the butternut canker fungus, but that are actually caused by winter frost, physical injury, or other pests. Planted specimens of butternut also occur in Nova Scotia and Prince Edward Island, but there are no known butternut trees in either Newfoundland or Labrador.

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Butternut Canker . . .

What are the social, environmental, and economic impacts?

Butternut trees are valued for veneer wood, furniture, cabinet work, and interior trim but, as large trees are seldom available, the wood is scarce. The nuts are edible and the outer husks can also be used to make a yellow dye. Butternut canker discolors the wood, destroying its commercial value, and affects the quality of the nuts as well. Furthermore, mortality caused by the canker threatens the already limited wood supply.

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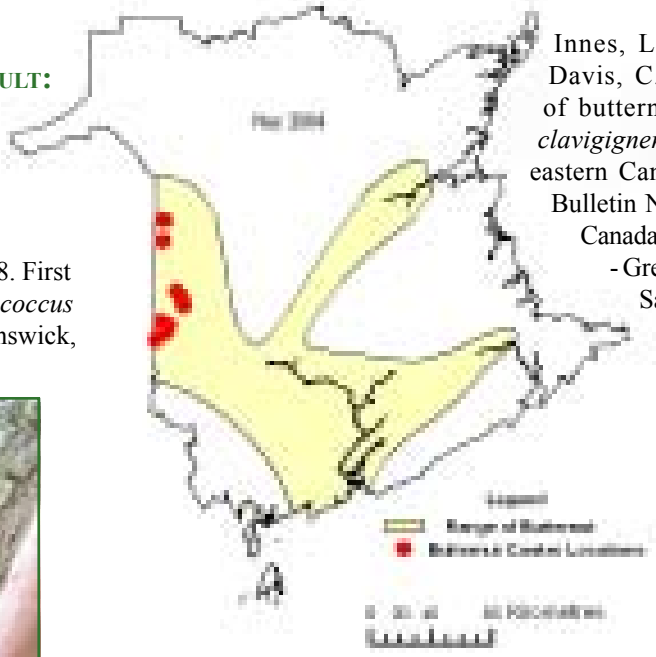
For further information, please consult:

Davis, C.N., Myren, D.T., and Czerwinski, E.J. 1992. First report of butternut canker in Ontario. Plant Disease 76: 972.

Harrison, K.J., Hurley, J.E., and Ostry, M.E. 1998. First report of butternut canker caused by *Sirococcus clavigignenti-juglandacearum* in New Brunswick, Canada. Plant Disease 82: 1282.

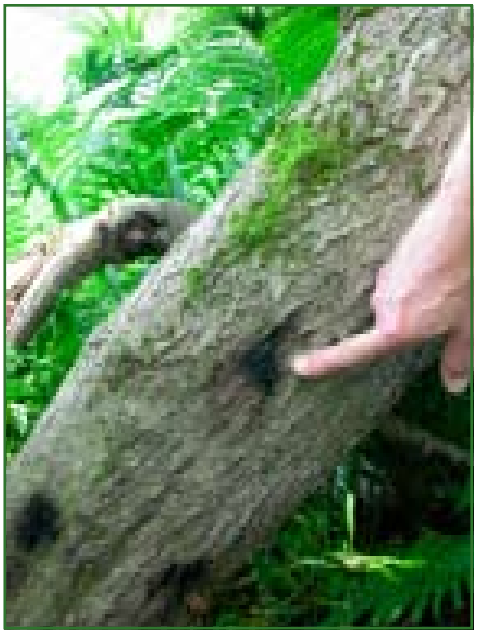
Harrison, K.J., Hurley, J.E., MacKay, A.W. and Sabine, D.L. 2005. Expansion of known distribution of butternut canker (*Sirococcus clavigignenti-juglandacearum*) in New Brunswick 2004. Canadian Plant Disease Survey, Vol. 85 (*in press*).

Innes, L. 1998. *Sirococcus clavigignenti-juglandacearum* on butternut and black walnut fruit. Pages 129-132 *in* G. Laflamme, J.A. Bérubé, and R.C. Hamelin, editors. *Foliage, shoot and stem diseases. Proceedings of the IUFRO WP 7.02.02 Meeting*, May 25-31, 1997, Quebec City, Quebec, Canada. Information Report LAU-X-122. Natural Resources Canada, Canadian Forest Service - Laurentian Forestry Centre, Ste.-Foy, Quebec.



Innes, L., Harrison, K.J., and Davis, C.N. 2001. Distribution of butternut canker (*Sirococcus clavigignenti juglan-dacearum*) in eastern Canada. Frontline Express Bulletin No. 2. Natural Resources Canada, Canadian Forest Service - Great Lakes Forestry Centre, Sault Ste. Marie, Ontario, Canada.

Ostry, M.E., Miekle, M.E., and Anderson, R.L. 1996. How to identify butternut canker and manage butternut trees. Pamphlet HT-70. USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota, USA. (Online. URL: http://www.na.fs.fed.us/spfo/pubs/howtos/



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