Forest Health

Butternut Canker

by Diana Olszowy

Butternut (white walnut) is being killed throughout its range by *Sirococcus clavigignenti-juglandacearum* (Sc-j for short), a non-native fungus that was introduced into North America in 1967. The fungus initially infects trees through buds, leaf scars and other openings in the bark.

Spores produced on branches are carried down the stem by rain, resulting in multiple, perennial stem cankers that eventually girdle and kill infected trees. Produced throughout the growing season, the spores can survive and be dispersed long distances during cool weather. Branch cankers caused by the fungus usually occur first in the lower crown, and stem cankers develop later from spores washing down from cankers above. Cankers are elongated sunken areas, often with an inky black center and whitish margin. Brown-to-black elliptical areas of killed cambium can be seen under peeled bark. Older branch and stem cankers are perennial, often covered by shredded bark and bordered by successive callus layers. The cankers reduce the quality and marketability of the wood, and the girdling effect of multiple coalescing cankers eventually kills the host tree.

While its spread to adjacent trees is understood, just how the fungus travels long distances to find new hosts remains a mystery. Several beetle species have been found on infected trees carrying fungal spores, but it is not known which species (if any) carry spores over long distances. The fungus has also been found on the fruits of butternut and black walnut, causing lesions on the husks of both species, which means that the movement of seeds can also spread the disease.

Aside from basic practices that promote tree health, little can be done to control the spread of butternut canker disease. Those trees of good vigor and in a competitive crown position may be better able to delay mortality due to canker infection, but there is currently no practical method for preventing butternut canker infection of forest trees, and the disease is ultimately fatal.

References and additional information on butternut canker can be found at:

- www.na.fs.fed.us/spfo/pubs/howtos/ht_but/ht_but.htm
- www.fs.fed.us/r8/foresthealth/hosf/buttcank.htm
- www.extension.purdue.edu/extmedia/FNR/FNR-421-W.pdf
- www.forestencyclopedia.net/p/p1428

Photo courtesy: Manfred Mielke, USDA Forest Service, Bugwood.org

Butternut trees are being killed by a nonnative fungus that was introduced in the 1960s.The fungus creates cankers (above) that will over time kill the tree. The cankers start out small (left) but grow larger and more numerous until the tree is effectively girdled.

Photo left courtesy: Joseph O'Brien, USDA Forest Service, Bugwood.org

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