

FORESTRY FACTS



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Walnut Tips – Black Walnut Canker: Its Distribution and Management

A canker of plantation-grown black walnut has been observed in Illinois, Iowa, Minnesota, Missouri and Wisconsin since the early 1980's. A 1989 survey of 183 plantations, revealed a widespread distribution of this disease (Fig. 1). This canker appears to be annual (the disease-causing agent is active for one year only) yet multiple cankers can occur on an individual tree. A soil-borne fungus, *Fusarium solani*, has frequently been isolated from these cankers and probably plays a role in canker development. The following information summarizes the survey conducted in 1989.

CANKER DESCRIPTION

Cankers first appear as cracks in the bark or as expanding sunken areas. Loose bark often covers the darkly stained diseased wood. Cankered trees may die the same year cankers appear or may survive for many years. If a cankered tree survives infection, the canker may be enclosed by callus tissue as the tree grows. An affected tree may produce sprouts anywhere on its stem and at its root collar.

SITE AND CANKER INCIDENCE

The survey revealed a higher incidence of walnut canker on bottomland sites, characterized by deep, well-drained, nearly neutral soils which are generally moist and fertile. Disease incidence was lower on upland sites characterized by less fertile, shallow and more drought-prone soils. There were significantly more cankers on the south side of the trees on all sites. This higher canker incidence on the south side may be due to cankers associated with cambium injured by high temperatures incurred during sunny winter days, followed by a rapid fall to freezing temperatures at night (differential temperature injury).

CULTURAL PRACTICES AND CANKER INCIDENCE

Thirty percent of the 2,062 cankers observed were associated with some type of wound. Pruning wounds were the most common wound associated with cankers. Cankers located close to the ground were not always visibly associated with a wound. Yet these wounds close to the ground (caused by mowing or other cultural

practices) may not have been observable if the canker distorted the stem and masked the wound. Thus the percentage of cankers associated with wounds may be higher than the observed 30%.

MANAGEMENT OF WALNUT TO MINIMIZE CANKER INCIDENCE

The higher incidence of canker on bottomland sites should not discourage growers from planting walnut on these potentially more productive sites. The higher incidence of canker on bottomland sites may be related to a greater likelihood of differential temperature injury to the main stem, or a greater necessity for weed control resulting in more wounds to the walnut trees. Any management practices which reduce equipment use in plantations should be encouraged. If mowers and other mechanical equipment must be used in plantations, utmost care must be taken to avoid any injury to trees.

This study did not address the timing of pruning, yet pruning late in the dormant season will encourage quick closure of pruning wounds in the spring and minimize the time the wound is open to infection. Care should be taken not to cut into the branch collar (do not cut flush with the stem). Wound dressings should not be used as they tend to slow the wound closure process.

Walnut Tips is produced in cooperation with the Wisconsin Walnut Council. *Black Walnut Canker: Its Distribution & Management* was written by Jane Cummings Carlson, Wisconsin DNR, Madison.



WALNUT CANKER OBSERVED



WALNUT CANKER NOT OBSERVED

