



BUL 1042

# Phytophthora Bleeding Canker of Maple Trees

## James Woodhall

Plant Pathologist, Parma Research and Extension Center, University of Idaho

## Susan Bell

Extension Horticulture Educator, University of Idaho Extension, Ada County

## Contents

- 1 Introduction
- 1 Diagnosis
- 2 Disease Management
- 3 Further Reading

## Introduction

IN RECENT YEARS, bleeding cankers have been observed on mature maple trees in southern Idaho. The causal agent is *Phytophthora cactorum*. This plant pathogen has a wide host range, capable of infecting over 200 species or 160 genera of trees, ornamentals, and fruit crops. Typically, it causes root and crown rots, with infection most often occurring during wet, warm periods. In maples, the pathogen kills the bark and outer sapwood tissues. If left untreated, it can result in premature tree death.

## Diagnosis

A dark-colored sap oozing from bark cankers is the most distinctive symptom of this disease in maple trees. Cankers are typically found on the main trunk and are observed as high as 8 ft, although in severe infections, lesions can be observed as high as 15 ft up on the trunk and the main scaffold branches. Multiple cankers can occur on trees with diameters usually between 4 and 17 inches. Removing the outer bark reveals the infection on the inner bark. Although diagnosis is primarily based on the presence of dark brown to black bleeding sap dripping down the surface of the trunk (Figures 1 and 2), twig and/or branch dieback and discolored, cracked, sunken, or raised bark are also symptomatic of the disease. Decreased leaf number and leaf size, with leaf yellowing and premature autumnal senescence, can be seen in older trees. If left untreated, severe infections cause tree death, especially if secondary rots occur or the tree becomes completely girdled with cankers.



University of Idaho  
Extension



**Figure 1.** Bleeding canker lesion on main trunk of a mature maple tree in July 2019 (with 10 cm ruler for scale).

Early diagnosis and effective treatment can significantly prolong the life of the tree. Often diagnosis is based on the presence of bleeding cankers alone, but for confirmation email photographs of the affected tree or trees to your local University of Idaho (UI) county Extension office plant clinic. If a laboratory diagnosis is required, submit plant material to the diagnostic laboratory at the UI Parma Research and Extension Center. When collecting infected tissue below the bark surface, use a hole saw or wood chisel. The tissue around the margin of an infected area is the most useful for a laboratory diagnosis; submit at least three pieces of tissue from each lesion.

## Disease Management

*Phytophthora* bleeding canker progresses slowly within an infected tree and its spread to other local trees is rare; therefore, an infected tree is not an immediate threat to nearby trees. The lack of spread provides time to attempt various disease management approaches without the need to remove the infected tree. It is important to remember when managing *Phytophthora* diseases that this group of pathogens is not a true fungus. The class of organisms are called “oomycetes” and tend to require moisture to complete their life cycle—its presence or availability governs the speed and severity of an infection. Consequently, one of the most important management practices is to avoid directly wetting



**Figure 2.** Bleeding canker lesions observed on the trunk and main scaffold branch of a mature maple tree in July 2019 (with 10 cm ruler for scale).

the tree trunk. To ensure that sprinklers do not soak the trunk, consider looking at an alternative means of irrigation, such as drip or trickle. Prevent ponding water around trees because not only does it create the optimum environmental conditions for the fungus to develop on the ground the water also might splash onto the tree trunk.

Maintain vigorous growing conditions for trees by applying the most appropriate fertilizing practices and pest management. Avoid inflicting mechanical injuries to the lower trunk with string trimmers or mowers, since splashing spores easily contact wounded bark areas. Reports note that in some cases bark shaving to expose the canker margin arrests disease development (Zwart n.d.). If adopting this technique, immediately afterwards treat the shaved surface with a disinfectant to prevent further expansion of a cankered area.

Certain chemical products have been proven to be effective against *Phytophthora* diseases, especially when applied to recently infected trees. Phosphorous acid-based treatments (Group P7 Fungicides) can prolong tree life but may not completely cure the tree. Use of carriers such as Penra-Bark is advised when applying the group P7 fungicide chemicals to avoid having to inject or wound the bark, as are spring applications to coincide with the emergence of new growth. Make sure that the entire lower trunk is treated. Apply an additional treatment in the fall. Copper products

are not recommended after a group P7 fungicide treatment. Always follow the label on all pesticide treatments.

If an infection of *P. cactorum* results in a tree's death, remove and destroy all infected plant material. When replanting, choose a nonsusceptible tree species, not maple, and plant it in a well-drained area.

## Further Reading

Brown, L., M. Harrington M. R. Murdock, J. W. Woodhall, S. Bell, and J. Spinazola. 2021. "*Phytophthora cactorum* Causing Bleeding Canker of *Acer x freemanii* in Southern Idaho." *Plant Disease* 105(12): 4172. <https://doi.org/10.1094/PDIS-12-20-2629-PDN>.

Zwart, D. n.d. *Phytophthora* Canker. Research Lab Technical Report (Bartlett Tree Experts). 2 p. <http://www.bartlett.com/resources/phytophthora-canker.pdf>, accessed 19 December 2022.

## Acknowledgment

The authors acknowledge funding support from the Idaho Nursery and Florists Advisory Committee and the National Plant Diagnostic Network.

---

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

**Trade Names**—To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

**Groundwater**—To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.