

Peony disorders: Phytophthora and Botrytis blights

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These diseases may strike peonies anywhere in Wisconsin. Although distinct, *Phytophthora* and *Botrytis* are discussed together because their symptoms and control measures are similar.

Symptoms and effects

Diseased areas that are leathery and dark brown or black may infect any part of the aboveground plant tissue: young shoots, leaves, buds, and—occasionally—more mature stems. The blighted areas usually appear on the lower half of young shoots or stems. There, black lesions several inches long may appear, and the entire shoot may collapse. Infections sometimes appear only on one side of a stem, but on older, multi-stemmed plants they develop more often near the center of the plant. In addition, *Phytophthora* symptoms often develop at the base

of blighted leaves, and the entire crown of the plant may be invaded in severe cases.

Buds may also turn brown and rot suddenly at any stage of the development of these blights. Sometimes the bud is the only part of the plant affected. *Botrytis* is more likely to cause bud rot than *Phytophthora* is.

Botrytis infection is often accompanied by a brown or gray, moldy covering over the blighted areas, especially if wet weather continues after the initial, brown or black lesions appear. This condition is known as “gray mold disease.” Detecting the mold is very helpful for diagnosis, and it can be induced by placing diseased tissue in a plastic bag containing moistened paper towels. Compare the mold that develops with the *Botrytis* mold. *Botrytis* occasionally invades

Phytophthora-infected tissue as a secondary organism.

Distinguishing the two blights in the field is not always possible, but either disease can be separated from other peony maladies. Frost injury, sometimes confused with blight, usually affects growing tips and leaves.

Sclerotinia rot resembles blight, but damage occurs almost exclusively at the ground level or lower crown area and has not been a problem in Wisconsin. Severe outbreaks of several leaf spot diseases may also be confusing to the casual observer. Anthracnose, for instance, damages young plants in spring; yet it can be distinguished from blight by its characteristic gray-red leaf and stem spots, and by its considerable stem distortion.

Often laboratory examination is required for diagnosis. If so, carefully collect a sample of recently diseased tissue, wrap it in a moist (not wet) paper towel and place the sample in a perforated plastic bag. Then package it for mailing. Your county Extension office can provide you with an address and further instructions.

Cause

Two fungi cause these peony diseases: *Phytophthora cactorum* and *Botrytis cinerea*. Both organisms survive indefinitely in the soil and spread via splashing rain or infected plants. The fungi also survive in infected plant debris. They lie dormant for years if conditions are unfavorable for their development.

Blight outbreaks are seldom serious except when wet weather conditions persist past spring. Neither disease is likely to occur every year. However, if *Phytophthora* or *Botrytis* is permitted to build up in a peony bed, environmental conditions become less critical, and the chance of infection increases considerably.



Botrytis bud blast. The bud has died and turned brown, and the stalk below is rotted. A felt-like covering of fungal spores will subsequently develop in wet weather.

Control

Cultural

Sanitary measures are essential for effective control of both diseases. Remove and destroy infected parts as they appear. Remove all stalks and leaves at the end of the growing season. If they are diseased, do not place them in the compost pile, as the organisms probably will survive and may attack other garden crops.

Improving aeration by increasing the space between plants helps reduce the chance of Botrytis blight. You may also reduce Phytophthora infection by improving drainage. Remove the top 2 inches of soil around the infected plants and replace it with fresh soil and a topdressing of sand or very fine pebbles.

Various peony varieties differ somewhat in disease susceptibility. For instance, the variety 'Avalanche' is reportedly especially susceptible to Phytophthora. Selection of less susceptible planting stock may be possible. Also, Phytophthora rarely develops in light, sandy soils.

Chemical

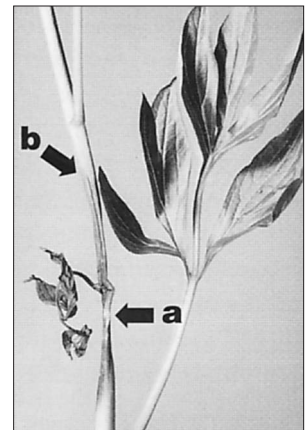
Peony beds with a history of disease should be sprayed with a registered fungicide several times in the spring at 5- to 10-day intervals. Begin when shoots first emerge. Spray more often during wet periods and less during dry periods. Maneb and zinc maneb (Fore) are registered and should be effective against both dis-

eases. Bordeaux should be effective against Botrytis. Follow label recommendations for dosage rate and coverage suggestions. Fungicide registrations change, so be sure to check the label of any fungicide to ensure it is registered for your purpose.

References to products in this publication are for your convenience and are not an endorsement of one product over other similar products. You are responsible for using chemicals according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from chemical exposure.



Botrytis gray mold development. The gray, fuzzy appearance of the mold is caused by the clustering of spores, an important clue in distinguishing this fungus from other mold organisms.



Phytophthora blight of peony. Left: leaf blight symptoms. Note the dark and wrinkled leaves scattered among healthy ones. Right: crown or shoot blight symptoms. Note the dark, shriveled stem (a), and the juncture of healthy and diseased tissues (b).

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A2563 Peony Disorders: Phytophthora and Botrytis Blights (1995)

SR-05-95