

Diseases of Peony

F.L. Pfleger, Professor, Department of Plant Pathology

J.L. Fetzer, IPM Specialist, U of MN Landscape Arboretum

W.J. White-McDougall, Sr. Lab Technician, Department of Plant Pathology

The peony is one of the most popular and showy of the garden perennials grown in Minnesota landscapes. Peonies can be healthy, vigorous and disease-free if grown on a favorable site that includes full sun, good air circulation, adequate water, and good drainage. However, in a year with excessive rain or if planted on a less than ideal site, peonies may suffer from disease. Diseases must be properly identified and their biology understood if they are to be successfully managed.

Managing Disease: Prevent and Protect

It is very difficult to stop any disease in the season it appears. Prevention through proper site selection, cultural management and good sanitation is by far the most important step in reducing the incidence and spread of disease. Cultural measures such as improving air circulation, watering midday and watering only at the base of the plant (don't get the leaves wet) will greatly reduce infection.

Sanitation—or removal of any spent flower blooms, infected buds, leaves and stems—is best done during a dry, calm time of the day. It is very important to clean your pruner by dipping in 10% bleach solution or by spraying it with 70% rubbing alcohol after cutting off diseased plant material and prior to pruning any healthy plants. Carefully dispose of any infected plant material. Do not discard this debris in your compost pile.

In the fall, cut any diseased plants back to the ground or just below the ground and dispose of the infected material. Add well-composted organic material as a light mulch in early fall to help add nutrients and improve the soil. This organic compost can be lightly worked into the top inch or two of soil.

Fungicides help protect plants from disease; however, they are not very effective at “curing” a problem once it has started. A fungicide can be applied to protect new shoots, leaves and buds from infection. For optimum results, apply early in the season, spraying to thoroughly cover all plant parts including the base of the plant. Carefully follow label directions.

Botrytis Blight

The fungus *Botrytis cinerea* attacks stems, buds and leaves. This disease can appear at any time of the growing season, but is most common in cloudy, rainy weather. It begins early in the spring when the shoots are about six inches tall. Young stalks decolor at the base, wilt, and fall over. This wilt and shoot death may continue throughout the summer if conditions are wet. Other symptoms during the growing season include large, irregularly shaped spots on leaves and brown flower buds that are covered with a mass of gray, fuzzy fungal spores. The fuzzy fungal spores, produced after rain or watering, are characteristic of Botrytis infection (Figure 1).

Good sanitation (including prompt removal of spent flower



Figure 1. Gray, fuzzy spores are characteristic of Botrytis blight.

blooms) and following the cultural recommendations above will greatly reduce Botrytis problems. Fungicides are of limited effectiveness against this disease, but basic copper sulfate or Mancozeb can be applied early in the season when shoots are about six inches tall to help protect the plant. Spray all plant parts to thoroughly wet foliage and soil. Read and follow all label directions.

Phytophthora Blight

The symptoms of blight caused by this fungus, *Phytophthora cactorum*, may be confused with the symptoms produced by *Botrytis* sp. The stems, leaves, and buds can be affected by both diseases. However, with Phytophthora blight, there is no felty growth or sporulation on the plant surface when in a wet environment. Infected parts become dark brown or black and somewhat leathery. The entire shoot may turn black and die (Figure 2). Cankers may appear along the stems and cause them to fall over. While *Botrytis* sp seldom invades the crown, *Phytophthora* sp often does, causing a wet rot to develop and destroy the entire plant. Because infections of this disease generally occur in the roots and lower portions of the stem, spraying with fungicides is of little value. Confirmed cases should be removed and destroyed, together with adjacent soil. Planting healthy clumps in new

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Figure 2. *Phytophthora* blight often invades the crown and causes a wet rot.

locations where the soil is well drained usually prevents further trouble.

Leaf and Stem Spots

Several fungal organisms are capable of causing spots of varying sizes and colors on peony. These organisms may affect stems, leaves, bud scales, and flower petals. Most infections occur when the plant is still young and the leaf and stem tissues are very succulent. Spots may appear as small elongate reddish areas that enlarge to lesions with gray centers and reddish borders and may develop into extensive zonate cankers. Cankers on stems may cause twisting or, if the stem is very young, it may be killed. Spots on the leaf may occur along the veins as well as on the tissue between the veins and on the petioles. Buds also may be "blasted" (destroyed) when the bud scales and outer petals become infected.

Another disease appears as small, circular, red discolored spots occurring first on the leaves. A number of the spots may run together so that the leaves appear irregularly blotched. The under-surface becomes light brown (chestnut color) while the upper surface remains a dark glossy purple. On young stems the spots appear as reddish brown streaks. All parts of the plants may be infected and during severe drought conditions infected leaf cells are killed. Leaf and stem spots may be controlled best by removing old top material in the fall, cutting the stems at ground level and destroying those parts. Thorough sanitation should adequately control these diseases.

Wilt

If some peony shoots wilt, yet the basal parts look perfectly sound, your plant may be suffering from *Verticillium* wilt. A soil-borne fungus (*Verticillium albo-atrum*) causes this disease. If you prune off the wilted shoot near the base and look at it in cross-section, you will see that the water conducting system inside the stem has turned brown. *Verticillium* sp is a destructive fungus and nearly impossible to kill because it lives in the soil. Because of this, if you have a confirmed case of *Verticillium* wilt (check with your county extension office), remove and destroy the infected plant. Do not replant with another peony or other plant susceptible to *Verticillium* sp.

White Mold

Sclerotinia sclerotiorum can cause stem rot on peony as well as on many different herbaceous plants found in the garden. The entire plant or portion of the plant may wilt. The infected part of the stem turns a light tan color and may become dry and stringy. Fluffy white mycelium often appears under humid conditions, thus the name, white mold. Slice the stem lengthwise to help you diagnose this disease. Various sizes of irregularly shaped, hard black sclerotia may be found inside the tan area of the stem. Sclerotia are the overwintering structures for this fungus and they can survive for many years in the soil. Remove and dispose of any infected plant parts being careful to not drop the sclerotia. *Sclerotinia* is a soil-inhabiting fungus that is nearly impossible to remove. Replant infested areas with nonsusceptible plants. Wider spacing to improve air circulation will minimize infection by this fungus.

Virus Disease

There are several virus diseases of peony including ringspot, mosaic (Figure 3), leaf curl and crown elongation. Viruses may cause patterns of dark and light green on the leaves, stunting, leaf curl, or just a reduction in vigor. Virus-infected peonies may grow and bloom normally except for the strange patterns on the leaves or other subtle symptoms. No treatment is suggested to help cure a virus-infected peony. If symptoms are severe, and growth and flowering are greatly reduced, the plant can be removed and discarded.



Figure 3. Mosaic virus is one of several attacking peony.

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