



PACHYSANDRA LEAF AND STEM BLIGHT

Pachysandra leaf and stem blight, sometimes called dieback or canker, is caused by the fungus *Volutella* (perfect stage *pseudonectria*) *pachysandricola*. Leaf and stem blight is widely distributed and can be destructive in northern humid areas of the United States, where this popular ground cover is grown. The disease also has been reported in northern Europe.

Pachysandra leaf and stem blight can kill large patches of plants, especially in beds that are overcrowded, have a heavy mulch, and are mechanically bruised, injured, or under stress from (1) cold winter winds, (2) being kept too moist by matted tree leaves, (3) an extended drought, or (4) being infested with scale insects or other pests. The causal fungus is weakly parasitic, developing only on plants that are weakened or wounded.

Symptoms

Enlarging chocolate brown to black blotches, which are sometimes zoned, form in the leaves (Figure 1). Later, the leaves become generally blighted along with portions of the stems, especially at the tips. Irregular dark brown to black, expanding cankers, up to several inches long, may form anywhere on the stems above or below the soil line (Figure 2). The stems become shriveled and withered, causing the plants to die out in patches. When

severe, large, spreading, more or less circular patches of dead and dying plants can be found in an otherwise healthy bed. The fungus can also cause a brown basal rot of cuttings. In wet spring and early summer weather, numerous, minute, salmon pink to orange brown spore pustules (sporodochia) cover the undersides of affected stems and blighted leaves (Figure 3).

Disease Cycle

The leaf and stem blight fungus produces innumerable numbers of spores (conidia and ascospores) that germinate in moist weather and enter pachysandra leaves and stems through wounds. Within a few days, the minute, cushion-shaped sporodochia appear. (These are easily observed by placing infected leaves



Figure 1. *Pachysandra* leaf blight. Chocolate brown to black blotches often develop concentric ring patterns (C.C. Powell, Ohio State).



Figure 2. Cankered stems and roots caused by *pachysandra* stem blight fungus (J.L. Forsberg photo).

For further information contact Nancy R. Pataky, Extension Specialist and Director of the Plant Clinic, Department of Crop Sciences, University of Illinois at Urbana-Champaign.

and stems in a plastic bag together with a moist paper towel for several days). The sporodochia produce tremendous numbers of microscopic, one-celled, colorless spores (conidia) on their surfaces. These spores are disseminated from plant to plant primarily by splashing and flowing water. Spread of the fungus is most rapid in dense plantings or where heavy mulches are used. The optimum temperature for spore germination and for mycelial growth of the fungus is 82°F (28°C).

The older sporodochia, as stromata, may each give rise to one or several fruiting bodies (perithecia) that are bright orange red to dark red, egg shaped, and produce large numbers of microscopic, two-celled, colorless spores (ascospores). The ascospores and conidia germinate in moist weather and reinfect pachysandra plants. The disease cycle is repeated as long as weather conditions are favorable and wounds exist in the leaves.

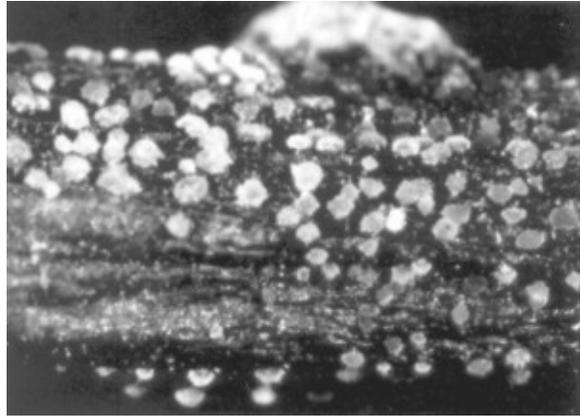


Figure 3. Close-up of sporodochia of *Volutella* on a diseased pachysandra stem (Dr. C.C. Powell, Ohio State).

Control

1. For new beds, select and plant the highest quality, disease-free plants available. If any disease is noted on plants in a nursery or garden supply store, purchase your plants from another source. Cuttings should be taken only from known, disease-free plants. Set out healthy plants where they will be relatively free of drying winter winds.
2. For established beds, carefully remove all severely infected plants and prune out all diseased parts of remaining plants. The dead and infected plant material and accumulated plant debris should be burned, buried in an out-of-the-way place, or hauled away with the trash. The cutting knife or shears should be dipped in 70 percent rubbing alcohol after being used to trim off dead stems or leaves. These sanitary practices should be carried out in late autumn, again in early spring, and periodically during the growing season if and when the disease reappears.
3. Control scale insects and other pests by timely applications of insecticides that are suggested by University of Illinois Extension entomologists.
4. Mulch plants for winter with a light organic material that does not hold water. Avoid excessive moisture. In autumn, remove tree leaves that cover the planting. If irrigating during dry periods, water early in the day so that the foliage will dry before late afternoon. Try to avoid splashing water on the foliage—this aids in dispersal of the spores.
5. Periodically thin out pachysandra beds. A general thinning of a thick stand will increase light and promote better air circulation, thus allowing plants to dry off more quickly after wet periods.
6. If these cultural practices do not adequately control leaf and stem blight, contact your nearest Extension center or a Plant Pathologist at the University of Illinois in Urbana-Champaign.