

Lilac Blight

Lilac blight is a bacterial disease spread by wind and rain, affecting many species of lilac. Buds may blacken and brown spots appear on the leaves that may subsequently develop into large areas of blight, spreading to the stems and causing canker lesions. Stems can be girdled, leading to wilting and dieback of young shoots.

Quick facts

Common name: Lilac blight

Scientific name: *Pseudomonas syringae* pv. *syringae*

Plants affected: Chinese, Japanese, Persian and common types of lilac. However, all types may be affected.

Main symptoms: Leaf spots, leaf shriveling, cankers on stems, blossom and bud blackening, wilt and die back of stems.

Caused by: Bacterium

Timing: Symptoms begin to develop soon after new shoots emerge in spring.

What is lilac blight?

Lilac blight is caused by the bacterium *Pseudomonas syringae* pv. *syringae*. Many ornamental plants and edible crops are affected by host-specific strains (pathovars, abbreviated to pv.) of *Pseudomonas syringae*. *Pseudomonas syringae* pv. *syringae* differs by having a wide distribution on woody plants and can also affect stone fruit trees, as well as *Vaccinium* (blueberry) and *Forsythia*.

The pathogen is capable of living on the surface of the plant in a harmless state until the right conditions occur for it to enter the plant and cause disease.

Pruning and other cultural measures can be used to control the disease in gardens. It can be a more serious problem in a nursery setting, and can spread rapidly with overhead watering systems.

Stressed plants suffer more than those that are healthy.

Symptoms

You may see the following symptoms:

- **Spots:** The first symptoms are normally angular brown spots on leaves and stems. These coalesce to form large areas of blight.
- **Blackening:** Blackening occurs at the margins and/or along the central vein of newer leaves, moving downwards. These leaves can then shrivel and drop. Buds also looked scorched and blackened with blossoms browning and shriveling.
- **Canker:** Canker lesions develop on stems
- **Die back:** Dieback occurs on young shoots; blackening and curling into a 'shepherd crook' shape. Branches can also show dieback.

Control

- Lilac blight is difficult to control as the bacteria are readily dispersed by wind and rain. Because the disease prefers cool, wet conditions it can be naturally restricted during periods of hot, dry weather. Avoid overhead watering of young plants to help prevent spread of the bacteria.
- Prune out affected twigs and branches as soon as you notice them. Make your pruning cut at least 6-8 inches below the infected area into healthy wood. Do not prune when leaves are wet as this could further spread the infection. Spread can be further mitigated by disinfecting your tools between cuts.
- Ensure fallen leaves are raked up and disposed of (by burning) as the pathogen can overwinter on plant debris.

- Weakened plants can be more susceptible to lilac blight and the impact of this disease on such plants can be more severe. Try to maintain overall good health of lilacs by pruning them in the spring, once they have finished flowering, to increase air circulation.
- Do not over fertilize (especially young plants) late in the season, and ensure you are using a balanced fertilizer; the use of high nitrogen fertilizers can result in a large amount of soft new growth that is more susceptible to infection.
- Young trees are more susceptible to the disease than mature ones. There is some evidence that white flowered varieties are more susceptible and dwarf varieties less so.

Chemical control

We recommend applying Fertlome 'Fungicide 5' a bio-fungicide & bactericide which lists treatment of *Pseudomonas* on its label. Application should be done at bud break and then 7 to 10 days later with a third application 7 to 10 days after the second. 'Fungicide 5' uses good bacteria (*Bacillus amyloliquefaciens* strain D747) as its active ingredient making it safe for organic gardening.

Biology

The bacterium favors wet, cool conditions with infection likely to occur in winter or spring. The pathogen can overwinter in cankers and other diseased plant material like twigs and leaves. It can lay dormant until the right conditions for development occur. It is most commonly spread from affected tissues by the wind and rain, but can also be spread via insect vectors and pruning tools.

Disease occurs when the pathogen enters the plant through wounds or natural openings like the stomata (air pores) in the leaves, and releases toxins which by-pass the plant's immune system and damage plant cells. The pathogen then multiplies in the apoplast (the spaces between plant cells). The effects of this damage typically manifest in the new growth first. Leaf and shoot infections can expand, girdling the stems and disrupting nutrient and water supply, which causes the die back. The dieback can be limited to just the young shoots with the woody branches remaining intact.

Infected plants can have a greater susceptibility to frost damage, due to the bacterium producing a protein which helps to form ice crystals both inside and outside the plants. As the crystals grow, they pierce the plant cells and create wounds through which more bacteria can enter, making colonization easier.

Lilac blight is profoundly influenced by external conditions. For example, stomata open in response to high atmospheric humidity, which could promote bacterial entry into the plant.