

Pseudomonas syringae pv. syringae on lilac and other woody ornamentals.

By: Janna Beckerman, jbeckerm@purdue.edu

Pseudomonas syringae pv. *syringae* is an opportunistic bacterial pathogen that attacks a diversity of woody ornamental plants.

The bacteria cause flower blights, cankers, shoot blights, and diebacks.

Symptoms

Symptoms often begin as expanding leaf spots. On lilac and viburnum, small spots expand to irregularly shaped brown lesions with yellow halos (Fig. 1). For most other hosts (cherry, pear, basswood, dogwood, hydrangea, high bush-cranberry, mountain-ash), infected leaves turn reddish brown or black and usually remain on the branch after they die (Fig. 2). As the bacteria spread into woody tissue, dark, sunken sections of the stem (cankers) expand, working their way back toward the trunk from infected leaves and flowers. Leaves attached to a cankered branch will wilt while the tip of the affected branch curls and droops like a shepherd's crook (Fig. 3). Cloudy droplets of sticky fluid (ooze) may accumulate on leaf tips, leaf surfaces, stems, and even infected fruit.



Figure 1. Bacterial leaf spots are often angular with chlorotic

halos, as seen on this high bush-cranberry. Photo by Janna Beckerman.



Figure 2. Infected flowers result in blossom blast. The continued growth of the bacteria can result in cankering and blight. Photo by George Sundin.



Figure 3. Bacterial blight is a common scourge to common lilac. Using resistant varieties is the best way to protect against the disease. Photo by Janna Beckerman.

Life Cycle

The bacteria overwinter and persist in cankers, along with asymptomatic bud and twig tissue. In presence of water and

warming temperatures, bacteria multiply and may ooze from infected tissue. Wind-driven rain, insect, or mechanical pruning spread *Pseudomonas*. Bacteria enter the plant through flowers or injury.

Management

All bacterial pathogens, including *Pseudomonas*, invade flowers or wounded tissue. To prevent or minimize the risk of infection:



Figure 4. Freeze damage from a combination of late frost and over-fertilized plants predisposes lilac to bacterial blight.

- Use disease-free plants and budwood.
- Prune in the late winter/early spring.
- When pruning, do not mix pruning to shape woody ornamentals with pruning to manage disease.
- When pruning to remove infected shoots, be sure to disinfect shears between plants.
- Minimize overhead irrigation when possible to minimize splashing and pathogen spread.
- Avoid over-fertilization practices that drive excess succulent growth.
- Avoid late season fertilization practices that prevent plants from achieving timely dormancy and promote freeze damage and/or winter injury (Fig. 4).
- Choose zone appropriate plants to avoid freeze damage

and/or winter injury.

- Choose disease resistant plants, when available. The following lilac varieties were found to be resistant over a four-year trial: Donald Wyman, Royalty, Superba, Miss Kim, Edmund Boisier, Victor Lemoine, Dwarf Korean, Mme. Antoine Buchner Isabella, Sensation, Anna Amhof, Krasavitska Moskv, Michael Buchner, and Alphonse Lavallée.

Foliar sprays of some copper-based bactericides (e.g., Camelot, Kocide, and Nu-Cop) were found to reduce disease incidence in trials on lilac (Vey and Palmer, 2018). Avoid using copper under cool, humid conditions to reduce the risk of phytotoxicity and damaging plants. Copper resistant populations of *Pseudomonas syringae* have been reported in other crops (vegetables, stone fruit). Products containing acibenzolar have provided inconsistent control in multiple trials but is labeled for use. Use of quaternary-ammonium disinfectants (KleenGrow) have been found to reduce bacterial populations and disease incidence and should be considered as part of any rotation with copper products. Due to the diversity of copper products, be sure to test for phytotoxicity issues prior to large scale treatment of crops.

References:

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