

DETECTING AND CONTROLLING

EASTERN FILBERT BLIGHT

Anisogramma anomala

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Detecting and Controlling Eastern Filbert Blight *Anisogramma anomala*

J.W. Pscheidt

Eastern filbert blight is a fungal disease that has infected several of Oregon's filbert orchards in the northern third of the Willamette Valley. It can render an orchard unproductive if it's not detected early and controlled.

Heaviest infestations have been detected in the Damascus, Clackamas area. Infected orchards have also been discovered as far east and west of Portland as filberts are grown. However, the disease has been found only as far south as Aurora.

All filbert trees—including commercial orchards, back yard trees, and escaped seedlings—are at risk of contracting this disease.

Symptoms and signs

Eastern filbert blight is difficult to find by casual inspection. Usually, the fungus has been in an orchard for 4 to 5 years before it's first detected. Symptoms can occur on any portion of the tree from the top of the canopy to the main scaffold limbs.

Infected branches may suddenly die during July to September and leave dead leaves attached to the branch. These "flagging" branches are easy to spot during the summer and fall, when the leaves are still on the tree (figure 1). Since other problems may cause these symptoms, look for signs of the fungus along these dead branches.

Elongated, raised bumps begin to form on infected twigs and branches during June. When the bark is removed, the cambium below these bumps is chocolate brown. You can easily feel the bumps by running your fingers along the branch.

These bumps continue to expand until the fungus breaks through the outer bark in July and August. You can then see a white oval- to football-shaped fungal structure called a stroma (figure 2). As this stroma continues to mature from August to October, it turns black and is raised about 1/8 inch above the branch (figure 3). These stromata occur in relatively straight rows, lengthwise along the branch.



Figure 1.—In summer, it's easy to see dead leaves from infected branches.

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Disease cycle

This fungus has a 2-year life cycle (figure 4), including an 18-month latent period when no visible symptoms can be detected. The stromata first begin to develop throughout the second summer after infection. New stromata develop each year thereafter as the canker continues to expand. Embedded within the black stroma are numerous flask-shaped perithecia (figure 5).

Numerous sacks (asci), each with eight spores (ascospores), are produced within each perithecium. Thousands of these spores are released onto the top of the stroma in a sticky, white ooze during wet weather. Wind-driven rain and splashing droplets spread the spores to healthy buds.

How these spores gain entrance into the bud is not well understood. It's currently thought that the spores can penetrate buds directly or through buds infested by the big bud mite.

Infection is thought to occur during wet weather from February to May. Wounds in the bark may also be a site of possible infection.

The portion of the branch that contains the stromata is called a canker. Cankers will enlarge 1 to 3 feet along the branch each year. Numerous new infections occur each succeeding year. Most of the



Figure 2.—The stroma forms in July and August.



Figure 3.—By late fall, the stroma has turned black.

canopy of susceptible trees is usually dead within 7 to 10 years after the first infection. However, suckers may be produced for many years.

The pollinizers Daviana and Butler and the cultivar Ennis are highly susceptible to this disease. Most wild seedlings are susceptible (they may have Daviana as a parent). Ornamental contorted filberts can also be infected.

Barcelona and Hall's Giant are less susceptible but can become infected through repeated exposure to ascospores from infected pollinizers. Gasaway is the only cultivar found to have resistance.

Control

To control eastern filbert blight, you'll need to integrate several cultural and chemical measures. It's important to scout orchards carefully and thoroughly during June through August for the disease. Inspect the most susceptible cultivars again in the winter after leaves fall. Early detection will aid your efforts for control.

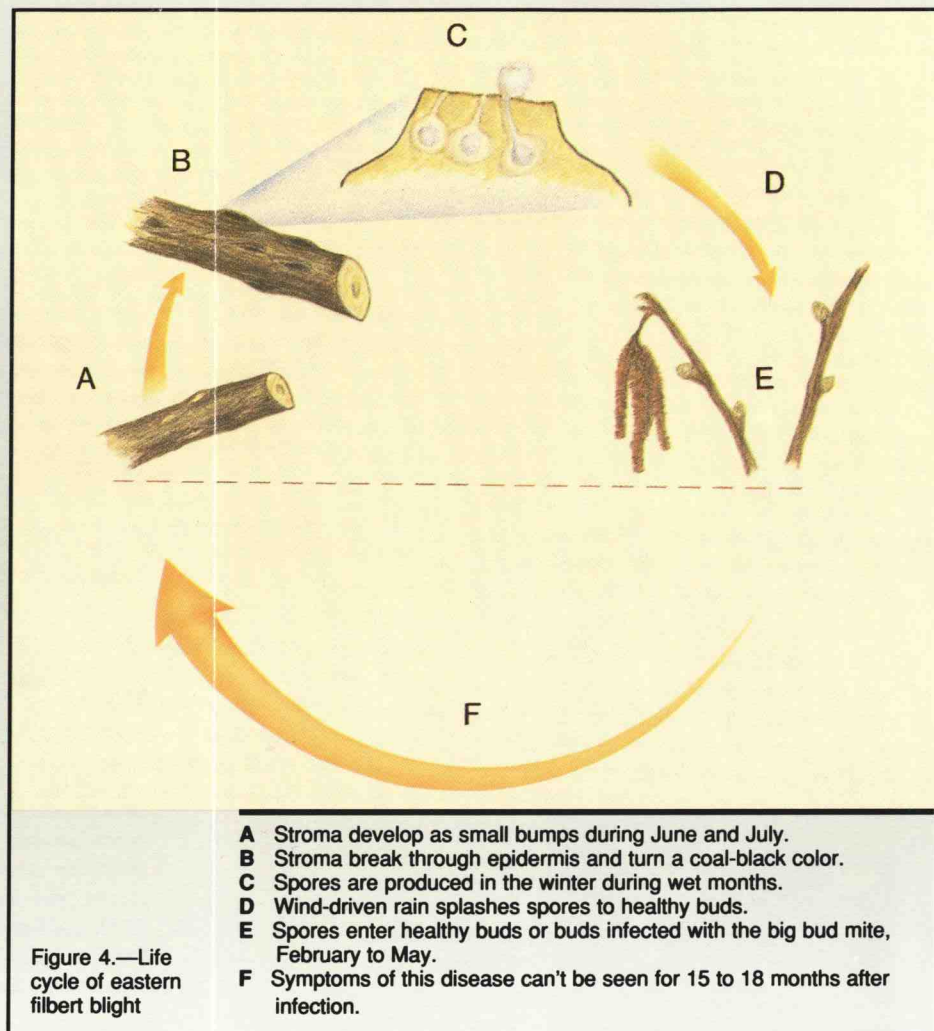


Figure 4.—Life cycle of eastern filbert blight

Cultural

1. Remove or destroy escaped seedlings and trees around the perimeter of your orchard.
2. Reduce the number of susceptible pollinizers to 4 or 5% of the trees in the orchard.
3. Remove infected branches at least 3 feet below the cankered area; burn or bury them immediately. Remove severely infected trees.
4. Severely prune susceptible pollinizers systematically over a 3- to 4-year rotational period. This practice, called dehorning, may remove unseen or overlooked infections. Regrowth will occur quickly during the next growing season.

Chemical

Contact your county office of the OSU Extension Service for details on formulations, rates, and methods of application.

1. Applications of Bordeaux mixture during October, March, and April (for a total of three applications) have been shown to be effective at reducing the incidence of this disease.
2. Control of the big bud mite may also be useful at reducing the risk of disease development.

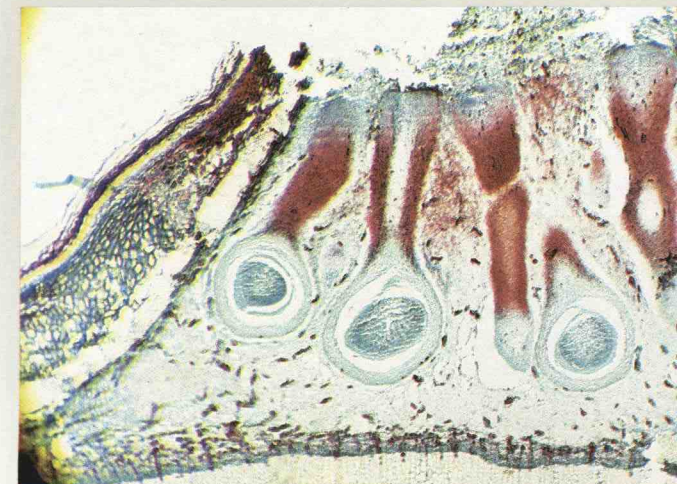


Figure 5.—In this enlarged cross-section, you can see the flask-shaped perithecia.

Use pesticides safely!

- **Wear** protective clothing and safety devices as recommended on the label. **Bathe or shower** after each use.

- **Read** the pesticide label—even if you've used the pesticide before. **Follow closely** the instructions on the label (and any other directions you have).

- **Be cautious** when you apply pesticides. **Know** your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.



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