

Onion disorders: Botrytis leaf blight, leaf fleck, and neck rot

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Three types of botrytis diseases affect onion crops. Botrytis leaf blight is a destructive disease caused by *Botrytis squamosa*. This disease kills foliage and spreads so rapidly that growers nicknamed it “blast.” Botrytis leaf fleck, caused by *Botrytis cinerea*, is rarely an economically important disease and may occur at the same time as botrytis leaf blight. Botrytis neck rot, caused by *Botrytis allii*, is a destructive post-harvest disease. Plants infected with any of these fungi are more susceptible to blast by other diseases, insect damage, mechanical injury, and air pollution damage.

Symptoms and effects

Botrytis leaf blight symptoms appear first on the oldest leaves as tiny, oval whitish or yellowish spots. They are slightly depressed and bordered with a diffuse silver halo. Carefully slice the leaf open and you will observe that the lesions penetrate through the leaf blade. By contrast, lesions caused by **botrytis leaf fleck** remain on the surface of the leaf. During prolonged periods of wet weather, leaf blight spreads rapidly and numerous lesions appear on each leaf. Foliage may be severely injured with substantial reductions in yield. Injury from ozone may aggravate leaf blight damage and vice versa. Onions are highly susceptible to leaf blight during the early stages of bulbing.



Botrytis leaf blight will quickly kill onion foliage.

Botrytis neck rot first becomes obvious after harvest when onions are topped and have been stored for a few days. Scales soften around the neck with infected tissue taking on a brownish, sunken, water-soaked appearance. There is a definite margin between healthy and diseased tissue. Infected tissue may be watery initially, but soon dries to a “mummy-like” appearance. In high humidity, a gray mold often grows between the scales. This mold can be seen after removal of one or two outer scales. Small, black fruiting bodies called sclerotia can be seen encrusted on shriveled tissues. On red and yellow onions, the pigment



Botrytis leaf fleck lesions affect only the surface of onion leaves.



Onions topped before they're fully dry are very susceptible to botrytis neck rot.

of diseased tissue is destroyed. In red onions, the rotted tissues often appear pinkish. *Botrytis allii* cannot penetrate a perfectly healthy onion. The fungus generally enters after harvest, through succulent, trimmed tops that are not properly dried. The disease may progress slowly unless conditions are moist. Several months often elapse before the entire bulb is destroyed.

Disease cycle

The fungi survive in the soil on infected plant debris. In wet weather the spores that come into contact with susceptible plants germinate and enter through wounds. Leaf wetness for a period of at least 24 hours is necessary for infection to occur. The extent of the blight is directly related to the length of time the foliage remains wet and long wetness periods result in severe outbreaks.

Naturally occurring ozone air pollution produced during calm, hazy, hot, humid weather or following electrical storms aggravates infection by the leaf blight pathogen. Ozone pollution levels of 1 part per million for several hours are sufficient to damage onions.

Control

Always plant healthy onion seeds or sets in well drained soil where air circulation is good. Practice a 2-year or longer crop rotation to avoid other diseases that might predispose onions to Botrytis infection. Eradicate weeds, especially perennial and wild onions, in and near fields. Destroy infected plant debris after harvest.

To reduce the incidence of botrytis neck rot, select onion varieties that mature quickly so neck tissues dry before storage. Practices that help plants fully dry down at the end of the season will also help. For example, do not apply fertilizer late in the season or provide excessive irrigation when tops are drying. Harvest onions when fully mature after tops are dry. Cut close (1/2 inch from the top of the bulb) and dry stubs before storing or during the first few days in storage.

No onion varieties have been developed with resistance to botrytis leaf blight.

In years when the disease is severe, a fungicide may be needed to slow disease spread. Several options are currently available and others are under development. Refer to Extension publication *Commercial Vegetable Production in Wisconsin* (A3422) for current fungicide recommendations.



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