

## **Frogeye (Sphaeropsis) leaf spot**

The asexual stage of *Botryosphaeria obtusa* causes frogeye (*Sphaeropsis*) leaf spot on apple and crabapple (*Malus*) leaves. Spores from frogeye (*Sphaeropsis*) leaf spot contribute inoculum to canker infections attributed to *Botryosphaeria obtusa* (sexual stage). *Botryosphaeria obtusa* causes black rot canker on branches and stems of apple and crabapple.



### **Host plants:**

Frogeye (*Sphaeropsis*) leaf spot occurs on apple and crabapple. There are frogeye leaf spots on leaves of other trees and shrubs. The appearance of the leaf spot is similar, but fungi other than *Sphaeropsis* cause these infections.

### **Description:**

The concentric pattern of light brown to tan center portions of the leaf spot ringed by darker purple margins is the origin the name “frogeye leaf spot.” Young leaves exhibit circular spots with indistinct purple edges about 2 weeks after petal fall. Many of the spots develop no further and a well-defined circular brown spot is present by summer. However, in other spots, there is secondary enlargement during the summer and the brown spots develop irregular discolored lobes. Tiny black fruiting structures often develop in the center of the leaf spots. Extensive spotting of leaves initially causes chlorosis followed by early leaf loss.



**Black rot canker: Early symptoms – infection near base of branch beginning to girdle it and disrupt water and mineral transport.**



**Frogeye leaf spot on apple**



**Black rot canker: a couple of years of infection – branch dieback with killed bark peeling off;**  
**– Black fruiting structures are erupting through the bark.**

Photos: A. R. Biggs and J. W. Travis, Kearneysville Tree Fruit Research and Education Center, West Virginia University

### **Disease cycle:**

Fruiting structures develop in black rot cankers on apple and crabapple branches and twigs in the spring and they release spores via wind and rain splash. If spores land on wet unfolding leaves, they germinate and penetrate the leaves through stomata. Later that season fruiting structures develop in the spots and these can serve as an inoculum source for black rot canker infections on nearby apple and crabapple branches with wounds or cracks in the bark.

### **Management strategies:**

Usually, frogeye leaf spot alone does not threaten the health of apple and crabapple trees. However, it can be an important source of spores for black rot canker infections that cause extensive branch dieback. Remove and dispose of cankered branches when conditions are dry to reduce inoculum available to initiate frogeye leaf spot

and well as cankers. Use fungicide treatments to prevent infections of fruit in orchard situations if sanitation does not sufficiently suppress fruit spot infections.

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