

Controlling Entomosporium Leaf Spot on Woody Ornamentals

► Learn the best practices for inhibiting spread of this destructive disease, including recommended fungicides and rates for both commercial operations and home landscapes.

Leaf spot, caused by *Entomosporium maculatum*, is a widespread and destructive disease of woody ornamentals in the rose family (Rosaceae). Red tip photinia and other photinia species along with Indian hawthorn are commonly damaged by Entomosporium leaf spot. Other hosts include loquat (*Eriobotrya japonica*), flowering and fruiting pear (*Pyrus* sp), firethorn (*Pyracantha* sp.), hawthorn (*Crataegus rhipidophylla*), Juneberry (*Amelanchier* sp.), and quince (*Cydonia olonga*).

Entomosporium leaf spot typically damages plants in home landscapes and nurseries following periods of frequent rainfall in the spring and fall. Disease outbreaks on Indian hawthorn also occur often in winter.

Symptoms

Small circular, bright red spots on both the upper and lower surfaces of young expanding leaves are the first symptoms of Entomosporium leaf spot. Large purple to maroon blotches, much darker than the surrounding healthy tissue, may be found on heavily diseased young leaves of photinia (figure 1). On Indian hawthorn, these blotches are bright red (figure 2).

Leaf spots on mature leaves are often sunken with ash brown to gray centers and a distinctive deep red to maroon margin. On pears the spots have a thin brown margin.



Figure 1. Typical leaf spot symptoms on photinia



Figure 2. Bright red leaf spotting associated with Entomosporium leaf spot on Indian hawthorn.

Don Fern, Louisiana State University Agricultural Center, Bugwood.org

On heavily diseased leaves, the spots merge, forming large, irregular blotches. Tiny black specks, fruiting bodies of the causal fungus, are often found in the center of each leaf spot (figure 3).

Spots similar to those on the leaves may develop on leaf petioles and tender shoots. Light infections usually cause little more than cosmetic damage, while severe infections often result in early and heavy leaf drop (figure 4). Severe disease-related defoliation not only slows growth but also increases plant sensitivity to environmental and cultural stresses.

Disease Cycle

Spots on the leaves, young shoots, and fallen diseased leaves are important survival sites of the causal fungus *E. maculatum*. Masses of spores are released from the fungal fruiting bodies from late winter through much of the growing season. These spores are spread to healthy foliage by a combination of splashing water and wind. During warm, humid weather, symptoms will appear 10 to 14 days after infection.

In nurseries, year-round problems with Entomosporium leaf spot often result from the combination of continuous plant growth, closely spaced plants, and overhead irrigation. Disease development is more seasonal in home landscapes.

On most hosts, leaf spot symptoms appear mainly during the spring growth flush on the younger leaves. The wetter the spring, the more severe the spotting and shedding of leaves. Little fresh damage is usually found during the summer months because mature leaves are resistant to infection, and hot, dry weather slows disease spread and development. In Alabama's southern counties, this disease may also be active, particularly on Indian hawthorn, during warm, humid weather from late fall through early spring.

Control

For a commercial nursery, propagate clean plant material collected from disease-free stock plants. For a home landscape, purchase plants showing no symptoms of *Entomosporium* leaf spot. Do not locate new plantings near established diseased plants.

In both nurseries and landscapes, slow the spread of disease by spacing plants to improve air movement and speed evaporation of moisture from the foliage. Surface or drip irrigation is preferred to watering with overhead sprinklers. Schedule overhead irrigation between 2 and 6 a.m. or at midday to reduce the period of time the foliage remains wet. If possible, collect and discard fallen diseased leaves, which are an important source of fungal spores.

Most photinia selections are susceptible to *Entomosporium* with red tip photinia being most and *P. serratifolia* least sensitive. Cracklin Red red tip photinia may be partially resistant to this disease. The Indian hawthorn cultivars, 'Dwarf Yedda', 'Olivia', 'Indian Princess', 'Snow White', *Raphiolepis* × *delacourii*, and 'Eleanor Tabor' have shown partial resistance to this disease as have 'Blueberry Muffin', 'Eskimo', 'Georgia Charm', 'Georgia Petite', and 'Majestic Beauty'. Cultivars

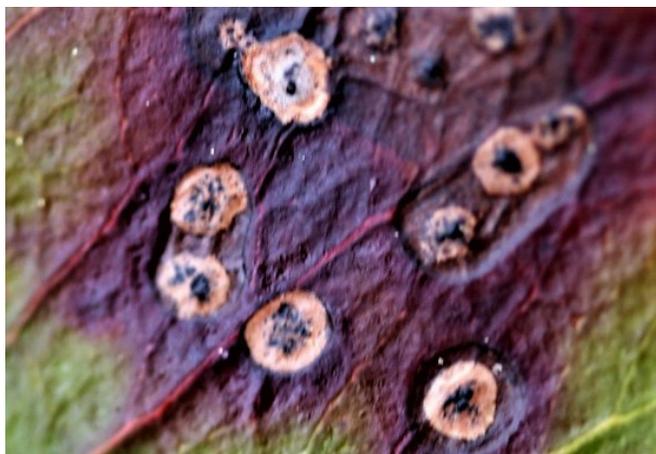


Figure 3. Distinctive black fruiting bodies of *E. maculatum* in center of sunken tan to brown lesions surrounded by maroon leaf discoloration on red tip photinia



Figure 4. Leaf spot-incited defoliation on red tip photinia (right) compared with fungicide-protected red tip photinia (left)

of Indian hawthorn that consistently suffer severe disease-related leaf drop are 'Pinkie', 'Harbinger of Spring', 'Enchantress', 'Heather', 'White Enchantress', 'Springtime', and 'Spring Rapture'. These cultivars are so sensitive to *Entomosporium* leaf spot that they may require routine preventive fungicide sprays in the winter to preserve their health and beauty.

Fungicides can provide protection from *Entomosporium* leaf spot. See table 1 for a complete listing of fungicides labeled for disease control.

Preventive fungicide sprays may be needed year-round in nurseries to ensure production of disease-free plants, whether *Entomosporium* leaf spot is present or not. In home landscapes, routine fungicide applications are rarely needed on healthy plants unless diseased plants are nearby.

On photinia, apply fungicides every 10 to 14 days from the bud break until all new foliage has matured. Fungicide applications may be resumed in the fall during periods of mild, wet weather. In the nursery, a preventive spray program should run from bud break in early spring through the first hard frost in late fall. If winter weather is unseasonably warm and wet, monthly fungicide applications are suggested in the southernmost counties in Alabama.

For Indian hawthorn, begin fungicide applications in late fall or early winter. Continue once or twice monthly applications through mid-spring.

On partially defoliated plants, a rigorous curative fungicide spray program is often necessary to control *Entomosporium* leaf spot. Weekly fungicide applications plus severe pruning to stimulate shoot growth should restore the beauty of badly diseased plants. Once the plants have produced a healthy leaf canopy, good sanitation and monthly preventive fungicide sprays should keep the disease in check.

Table 1. Fungicides Recommended for Entomosporium Leaf Spot Control

Fungicide	Homeowner Rate (per gal)	Commercial Rate (per 100 gal)	Labeled Host Plants	Application Interval
azxystrobin				14–28
HERITAGE 50W	–	1–4 oz	all	
chlorothalonil				7–14
DACONIL WEATHER				
STIK 6F	2 t	1.4 pt	photinia, pyracantha	
DACONIL ULTREX	–	1.4 lb	photinia, pyracantha	
FUNG-ONIL CONCENTRATE	2 1/4 t			
GARDEN DISEASE CONTROL	2 1/4 t			
chlorothalonil + thiophanate-methyl				7–14
SPECTRO 90	–	1–2 lb	photinia	
myclobutanil				7–14
EAGLE 40W	–	3–6 oz	photinia, pyracantha	
IMMUNOX	2 T	–	photinia, pyracantha	
propiconazole				7–14
BANNER MAXX	–	5–8 fl oz	photinia	
thiophanate-methyl				7–10
3336 50W	2 1/2 t	12–16 oz	all	
3336 4.5F	–	10–20 fl oz		
HALT 50W	2 1/2 t	–		
thiophanate-methyl + mancozeb				7–14
DUOSAN 79W	2 1/2 t	1.5 lb	Indian hawthorn, photinia	
ZYBAN 79W	2 1/2 t	1.5 lb	Indian hawthorn, photinia	
triadimefon				7–14
BAYLETON T/O	–	8–16 oz	photinia	
SYSTEMIC FUNGICIDE FOR TURF AND ...ORNAMENTALS	2–4 fl oz	–		
triforine				7–10
ROSE AND SHRUB DISEASE CONTROL	1 T	–	photinia	

Pesticides are recommended for use only in accordance with label directions. Pesticide recommendations depend on their registration with the Environmental Protection Agency and/or the Alabama Department of Agriculture and Industries. In the event of registration cancellation, a pesticide's recommendation is automatically cancelled. Contact county Extension offices for the latest recommendations and information on registration changes.



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