

## Bracing for a Possible Cherry Leaf Spot Epidemic

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We've been receiving samples and hearing reports of cherry leaf spot infections in tart cherry blocks throughout the state of Michigan. Leaf spot is a cause for major concern at this time with harvest still several weeks away in much of Michigan. The occurrence of symptoms right now indicates that leaf spot will be exceedingly difficult to control this year. The initial symptoms of cherry leaf spot are small (1-3 mm) red to purple leaf spots on the upper leaf surface (looking at leaves with back-lighting is helpful); these spots will then turn brown (Fig. 1). Note: higher resolution color images are available in the on line version of this article. In heavy infections, spots can overlap producing larger areas of dead leaf tissue. Leaves that are accumulating lesions will soon begin to turn yellow. On the underside of these leaves, whitish spore masses are usually visible on each lesion (Fig. 2). These spore masses are a sign of the pathogen and represent inoculum for new infections. It does take a few days after leaf spot is visible for spores masses to become evident; we've recently received samples showing leaf spot symptoms with no sporulation. After incubation in the laboratory, viable spores were produced from these lesions. Leaf spot symptoms are also showing up on pedicels of fruit (Fig. 3); we currently do not have data to know if these lesions affect fruit size or quality.

Leaf spot is usually effectively controlled early in the season. In years with extended drier weather, such as in 2003, leaf spot symptoms were not initially seen in most orchards until August-September. We recommend scouting the tops of trees for yellow leaves because infections are usually initiated there due to spray coverage problems. However, in this season, symptoms are not necessarily limited to the tops of trees and may be observed throughout the foliage. The occurrence of leaf spot infection on bract leaves (Fig. 4) is also evidence of early season infections. Record rainfall combined with several extended wetting periods this season has fostered the rapid proliferation of leaf spot.

What is the best action plan to attempt to manage leaf spot in orchards with visible leaf spot infections? We recommend the use of a sterol-inhibitor (SI) fungicide (i.e., Elite, Indar, Nova, or Rubigan) at the maximum label rate combined with Captan used at the maximum (4 lbs. / acre) rate for your next cover spray. The SI fungicides have some back action in controlling new infections and will greatly reduce sporulation from existing infections. Captan is a protectant that is also used for fungicide resistance management concerns. **Because of the extremely high disease pressure conditions, it is critical to use the maximum label rates of fungicides and also to cover entire orchard blocks; i.e., do not use an alternate middle row spray plan.** Dodine could be substituted for Captan as the tank mix since dodine is a better leaf spot fungicide than Captan. However, we do not know the current status of dodine resistance in the cherry leaf spot fungus population, therefore, dodine should be used with caution. If dodine has been used with success in your orchards and used sparingly, this fungicide could be used as a mixing partner with an SI.

We recommend using two consecutive applications of the SI/Captan or SI/dodine cover spray keeping the interval to seven days, using the maximum label rates, and covering entire orchard blocks. These sprays should be followed up with a strobilurin at the full label rate which would be effective for prevention of new infections. The interval should be kept to seven days unless we experience significantly drier weather which would allow stretching the interval to no more than 10 days. Again, with the high pressure we are experiencing, cover entire orchard blocks.

Leaves currently exhibiting a number of lesions are almost sure to defoliate. The amount of leaves remaining on trees is a critical factor for fruit ripening. A rule of thumb is that trees need at least two healthy (non-yellow) leaves per fruit to properly mature the fruit. If the ratio is  $<2$  leaves per fruit, maturity may be delayed and trees with ratios of  $<1$  leaf per fruit may not produce mature fruit. The goal of this management plan is to limit the infection of currently healthy leaves by eradicating new infections and protecting against subsequent infections. The cherry leaf spot spore load will probably be high in most orchards for the remainder of the season. These blocks must be intensively managed for the next several months.

Fig. 1. Symptoms of cherry leaf spot on Montmorency tart cherry leaves. Shown are a range of diseased leaves from early infections (leaves still green) to later infected yellow leaves that will soon defoliate.



Fig. 2. Upper and lower surfaces of a Montmorency tart cherry leaf infected with cherry leaf spot. Note lesions on upper surface and whitish masses of spores on lesions on lower leaf surface.

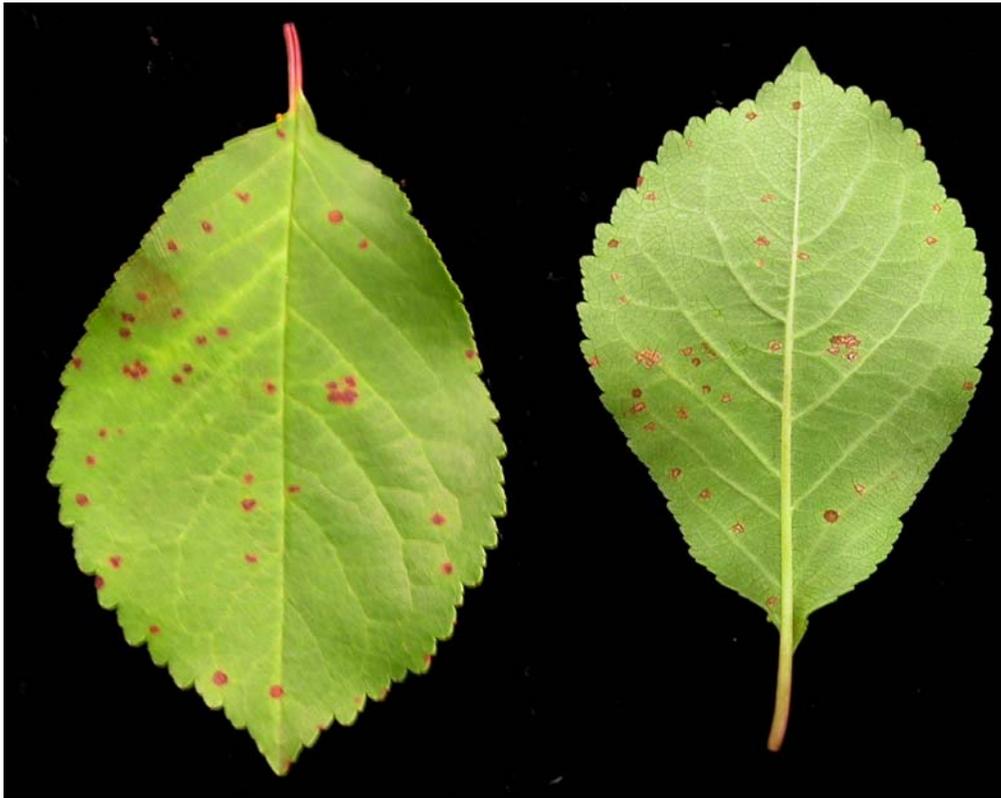


Fig. 3. Cherry leaf spot lesions on pedicels of Montmorency tart cherry fruit.

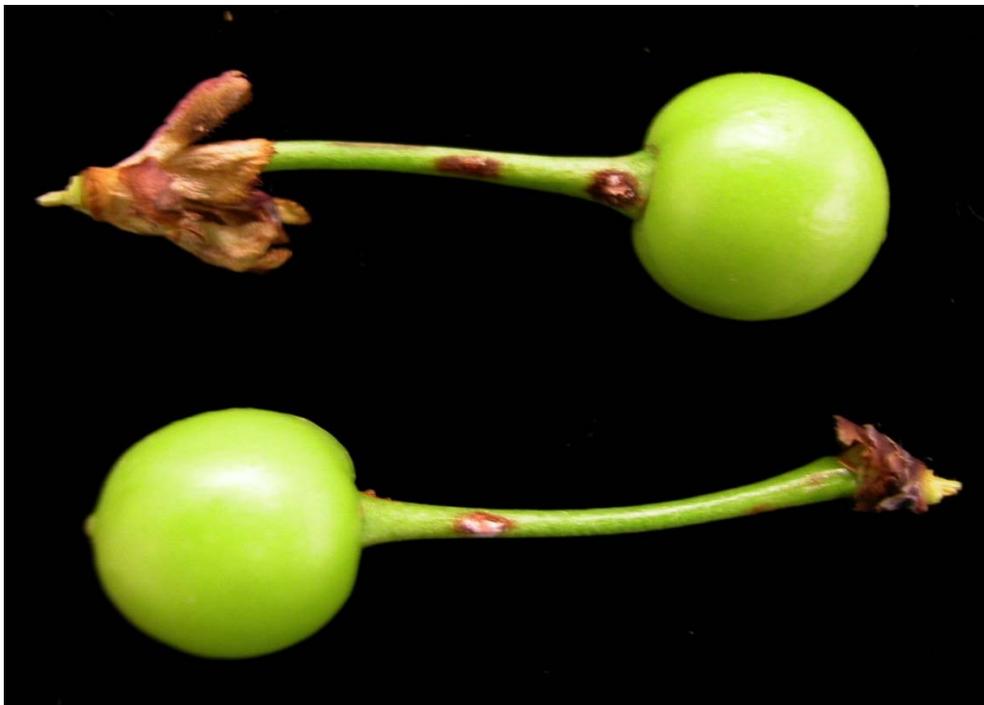


Fig. 4. Early season cherry leaf spot infection on bract leaf (white arrow) of Montmorency tart cherry.

