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APPLE DISEASE - ALTERNARIA BLOTCH

Apple Disease - Alternaria Blotch

Alternaria blotch, caused by *Alternaria mali*, is a disease that affects apple leaves.

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Alternaria blotch of apple has been a serious issue in North Carolina for several decades. The disease was first observed in West Virginia in 2008.

In Pennsylvania, alternaria blotch of apple is present, but hasn't been an economical issue. Severity can vary from year to year. Alternaria blotch severity is affected by severe mite infestation.

Consequently, a good mite management program is important for managing this disease.

Symptoms

Lesions first appear on leaves in late spring or early summer as small, round, purplish or blackish spots, gradually enlarging to 1/8 to 1/4 inch in diameter and have a purple border. Some spots turn grayish brown, but most lesions may coalesce or undergo secondary enlargement and become irregular and much darker, acquiring a "frog-eye" appearance. When lesions occur on petioles, the leaves turn yellow and 50 percent or more defoliation may occur. Severe defoliation leads to premature fruit drop. Fruit infections result in small, dark, raised lesions associated with the lenticel.

Alternaria blotch is most likely to occur on Delicious strains and should not be confused with Marssonina blotch, frog-eye leaf spot, captan spot, or Golden Delicious necrotic leaf blotch. Marssonina blotch will always have small, black fruiting bodies visible on the surface of the lesion. Frog-eye leaf spot usually appears earlier in the season and is associated with nearby dead wood or fruit mummies. Captan spot spray injury occurs when captan fungicide is applied under wet conditions and associated with 2 to 4 leaves on terminals, representing a spray event. 'Golden Delicious' necrotic leaf blotch commonly occurs in July and August as a result of physiological stress caused by fluctuating soil moisture. Alternaria blotch tends to be uniformly distributed throughout the tree.

Disease cycle

Caused by *Alternaria mali*, the fungus can overwinter as mycelium on dead leaves on the orchard floor, in mechanical injuries in twigs, or in dormant buds. Primary infection takes place about one month after petal fall. The disease advances rapidly in the optimum temperature range of 77 to 86 °F and wet weather. At optimum temperatures infection occurs with 5.5 hours of wetting, and lesions can appear in the orchard two days after infection, causing a serious outbreak. The fungus produces a chemical toxin which increases the severity of the disease on susceptible cultivars.

Disease management

Protective fungicides are recommended at the time of primary infection (petal fall to mid-June), as well as for a summer disease program since these chemicals will protect the fruit. In addition, some strobilurin fungicides (FRAC group 11) are registered for management of Alternaria blotch in the U.S. Chopping leaves with a mower or removing them from the orchard will help reduce the inoculum level for the following season. Since defoliation from the disease is more severe if high mite populations are present, mites should be maintained at or below the established IPM thresholds.