

STRAWBERRY ANTHRACNOSE CONTROL



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Anthracnose is a serious disease of strawberry that affects the foliage, runners, crowns and, most importantly, the fruit. In the Northeast, the disease is caused primarily by the fungal pathogen *Colletotrichum acutatum*. Although the pathogen is endemic to the Northeast, it is sometimes introduced into plantings on infected nursery plants. Anthracnose is considered a warm-weather disease with an optimum temperature for development near 80 F. Consequently, the disease is generally not a problem in the Northeast unless warmer temperatures and rainfall prevail during fruit set and harvest. The spores of the pathogen require free water on the plant surface to cause infection, and splashing water is required to disperse spores. Once the pathogen is established in the field, the fungus can survive the winter on plant debris and mummified fruit where it may become a problem in subsequent years.

Symptoms. The pathogen attacks the fruit, runners, petioles, and the crown of the plant; however, we have not been able to establish crown infections from greenhouse inoculation with New York isolates. On the petioles and runners, dark elongated lesions develop which often girdle the stem (Fig. A). When petioles or runners become girdled, individual leaves or entire daughter plants may wilt and die. On fruit, symptoms first appear as whitish, water soaked lesions up to 3 mm in diameter. As lesions develop, they turn a light tan to dark brown and eventually become sunken and black with in 2 to 3 days (Figs. B and C). This is known as black spot. After several days, lesions may be covered with salmon-colored spore masses. Infected fruit eventually dry down to form hard, black, shriveled mummies. Fruit can be infected at any stage of development. Both ripe and unripe fruit can be affected. When crown tissue becomes infected, the entire plant may wilt and die. The internal tissue of infected crowns will be firm and reddish brown (seen by slicing through the crowns). Crown tissue may be uniformly discolored or streaked with brown, and infected tissues may also produce salmon-colored spores. Leaves can also become infected and advanced lesions appear similar to those caused by *Phomopsis*.



Disease management. In plantings with a history of the disease, control measures should begin early and continue through harvest. Anthracnose first develops on petioles and/or as latent infections (invisible) on leaves where the lesions produce spores that serve as the source of inoculum for fruit infection. Anthracnose fruit rot is very difficult to control if disease has been left to develop unchecked prior to fruit development and environmental conditions are favorable for infection during harvest. Because the pathogen is splashed dispersed, implementing tactics that reduce the amount of water movement and splashing is one of the best means to minimizing disease. Cultural methods that reduce splashing, such as the use of drip irrigation rather than overhead and adding extra layers of straw mulch, are recommended in fields with anthracnose.

Fungicides are only partially effective at stopping an epidemic once the disease is easily noticeable

in the field; therefore, fields should be scouted regularly, particularly during fruit set. Quadris 2.08F, Captan 50WP, 80WP, or 80WDG and, possibly, Switch 62.5WG are the most effective fungicides against anthracnose. Optimally, fungicides should be applied to maintain continuous coverage ("calendar applications") or they should be applied before an expected rain event. If applications are planned around rain events, fungicides should be applied to give enough time prior to wetting to allow the fungicide to dry completely on the foliage and fruit; I recommend 3 to 8 hours prior to wetting. Quadris 2.08F (12 fl oz/A) is the most effective fungicide against anthracnose during fruit development and through harvest. Captan is also effective but must be applied on a calendar schedule. Using Captan in this manner will leave a noticeable residue, generally something growers wish to avoid during harvest. Switch 62.5 WG is an excellent gray mold fungicide with some activity against anthracnose. I generally will recommend its use during bloom.

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