



## Anthracnose Fruit Rot (*Collectotrichum acutatum*) of Strawberry<sup>1</sup>

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### Causal Agent and Symptoms

Anthracnose fruit rot produces dark sunken lesions that are typical for anthracnose diseases. Lesions on immature fruit are hard, dark brown or black, sunken, and small 1.6 to 3.2 mm (1/16 to 1/8 inch) in diameter (Figure 1), although larger lesions may also develop.



**Figure 1.** Young lesions of anthracnose fruit rot.

The disease may also cause a blackening of individual seeds causing the fruit to grow unevenly (Figure 2).



**Figure 2.** Young lesions of anthracnose fruit rot can cause fruit to become misshapened.

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Lesions on ripe fruit are round, sunken, firm, light brown to black, and vary from 3.2 to 12.7 mm (1/8 to 1/2 inch) or more in diameter (Figure 3).



**Figure 3.** Three coalescing lesions of anthracnose on a ripe fruit.

Salmon-colored masses of spores (conidia) are typically produced in acervuli within mature lesions, under wet conditions (Figure 4).

Crusty masses of spores on the seeds are considered diagnostic for anthracnose fruit rot. Several lesions may coalesce and consume most of the surface of a fruit (Figure 5).

During severe epidemics, the pathogen often produces lesions on petioles that become covered with orange masses of conidia under warm and wet conditions (Figure 6).

Flowers and young immature fruit often become blighted by the pathogen, turn brown or black and remain attached to the pedicel, giving them an appearance similar to an inflorescence blighted by *Botrytis cinerea* (Figure 7).

### Disease Development and Spread

Anthracnose fruit rot is one of the most important disease problems in Florida where warm weather and wet conditions favor the disease. The



**Figure 4.** Anthracnose fruit rot lesion with masses of orange/salmon-colored spores (conidia).



**Figure 5.** Severe fruit infections are common with anthracnose fruit rot.

pathogen (*C. acutatum*) is typically introduced into a field on infected transplants, after colonizing the plants in the nursery. Non-strawberry host plants (i.e.



**Figure 6.** *Colletotrichum acutatum* can infect and sporulate on petioles during severe anthracnose epidemics.



**Figure 7.** Whole hand of fruit consumed by *Colletotrichum acutatum* during a severe anthracnose fruit rot epidemic.

weeds, trees, etc.) around a field may also be a source of inoculum for anthracnose fruit rot although there is no evidence that this occurs in fruit production fields. The pathogen appears to spread throughout a field by first infecting the foliage of the plant without causing any symptoms of disease. The fungus then colonizes and sporulates on this foliage as it senesces, although the pathogen can produce lesions and sporulate on intact petioles during severe epidemics. The spores (conidia) are then splash dispersed or moved by harvesting operations to flowers and fruit where they infect and cause anthracnose. Lesions develop, and abundant spores are formed, on maturing fruit. These spores are then moved by harvesters within and between fields and initiate new infections. When abundant inoculum is produced in the nursery, the pathogen can colonize roots, causing a root rot and stunting of plants when transplanted in fruit production fields.

## Control

The best way to control anthracnose fruit rot is to prevent the introduction of the pathogen into the field by using pathogen-free transplants. Because the pathogen reproduces asexually and has limited genetic diversity, the use of anthracnose resistant cultivars like Sweet Charlie can effectively control the disease. Chemical control relies upon preventative applications of a protective fungicide like captan or thiram. These regular (weekly) applications prevent or reduce pathogen colonization of the plant and prevent fruit infection. In Florida, epidemics of anthracnose fruit rot typically develop as the weather warms in late January, and can become serious in late February and early March. To prevent epidemics of anthracnose, it may be advisable to supplement a regular fungicide program with applications of fungicides such as azoxystrobin that are more specific for control of anthracnose. These fungicides should be applied on a 14-day schedule, and protectant fungicides should be applied weekly when the specific fungicides are not applied. Benzimidazole fungicides like Benlate® or Topsin M® are not effective in controlling anthracnose fruit rot.