

IPM Fact Sheet Series**UMass Extension Fruit Team**

Fact Sheet #AD-006

Apple – Sooty Blotch and Fly Speck (*various fungi* and *Zygothia jamaicensis*)**Overview (from NETFMG)**

- **Sooty blotch and flyspeck** (SBFS) are, for practical and management purposes, one disease that blemishes the surface of apple fruit, though several fungi may cause the disease.
- **Initial infections** start from spores produced primarily from wild plants along orchard borders, particularly trees and shrubs.
- **Disease activity.** The disease is most active from one to two weeks after petal fall through to harvest.
- **Cultural controls** such as pruning, mowing and removing plants on orchard borders or planting as far as is practical from woodland and other sources of inoculum decrease SBFS risk.
- **Fungicides** are the primary control for SBFS. The initial fungicide application each season can be timed using accumulated leaf wetness hours from petal fall. Later fungicide applications should be timed according to the amount of rain or the time that has elapsed since the previous application.

Symptoms

Sooty blotch and flyspeck (SBFS) is common in temperate, humid apple growing regions around the world. SBFS is a complex of several fungi that cause dark blemishes on the surface of apple fruit. These blemishes appear in one of two general forms: round, black spots with no mycelium between them (flyspeck), and colonies consisting mainly of dark mycelium with or without spots (sooty blotch). Sooty blotch and flyspeck commonly appear together on apple or pear in late summer and fall. There are no significant differences among apple cultivars in susceptibility to these diseases, but symptoms are more apparent on yellow, green, or light colored fruit. Fruits of apple and pear having the thickest waxy cuticle appear to be more severely affected.

Sooty blotch appears as sooty smudges or olive-green spots on mature fruit. Flyspeck appears as clusters of 10 to 50 sharply defined black shiny specks on the fruit surface. Although these diseases may reduce visual appeal and shorten the storage life of fruit, they do not cause decay; however, SBFS can increase desiccation rates, decreasing the storage life of the fruit. During wet growing seasons, losses of 25% or more can be found even in orchards treated with fungicides.



Figure 1) Left to right – Sooty Blotch and Flyspeck on apple, Flyspeck around stem end, where water collects and leaves shade fruit, SBFS on a wild blackberry cane, a common host and source of inoculum. **From:** [New England Tree Fruit Management Guide](#).

Disease Cycle

The fungi that cause these symptoms overwinter on infested apple twigs and on numerous reservoir hosts such as wild brambles and bittersweet. During rains in the spring and early summer the spores are dispersed, with secondary spread occurring throughout the season. Fruit infection can occur as early as 2-3 weeks after petal fall. Infections are most likely to occur during periods of frequent rain and high humidity. Temperatures between 60 and 70°F with a relative humidity greater than 96% are optimal conditions for infection. Symptoms of infection may not be apparent until sometime (three weeks or more) after the initial establishment of infection.

Management Strategies

Monitoring:

Monitoring: At midseason, begin weekly observations of 25 fruit in the interior canopy of sample trees. Symptoms are more likely to be found in poorly pruned trees in the wetter, foggy, slow-drying areas of the orchard. Expect first symptom expression by early to mid-July.

A predictive model for sooty blotch is available. The model is driven by the accumulation of wetting hours beginning 10 days after petal fall. The goal of the model is to help time the first spray for sooty blotch based on the appearance of sooty blotch symptoms, which occurs after 270 hours of leaf wetness have accumulated at this time.

Control Strategies

Cultural/Biological

- Remove alternate hosts from the orchard and from the perimeter of the orchard as much as possible. This practice alone will not fully control these diseases but can reduce their severity.
- Thin fruit to separate fruit clusters to improve drying conditions after rainy periods.
- Prune trees to open the canopy to light, air, and spray penetration.
- Keeping ground cover mowed short also decreases humidity and can lessen SBFS on fruit in the lower canopy.

- Early maturing cultivars are less prone to developing SBFS than those that mature later, possibly because the apples are exposed to fewer hours of wetting and high humidity.
- Fruit mummies have been shown to harbor SBFS fungi, so cultivars that do not retain mummies may have a lower risk of developing SBFS. Remove fruit mummies from apple trees that retain them.

Chemical

- Refer to the [New England Tree Fruit Management Guide](#) for specific materials and rates recommended for managing Cedar Apple Rust in Apples.
- Apply recommended fungicides from 1-2 weeks after petal fall until 2-3 weeks before harvest.
- Rotate fungicide materials from different FRAC groups to avoid promoting the development of resistant strains of this disease.
- Because they live on the fruit surface and do not penetrate the cuticle, SBFS fungi must be controlled by fungicides with contact activity.
- Early in the season, SBFS infection may be controlled by fungicide applications for apple scab. In areas where SBFS is an issue, growers may need to consider early season sprays on scab-resistant cultivars.

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