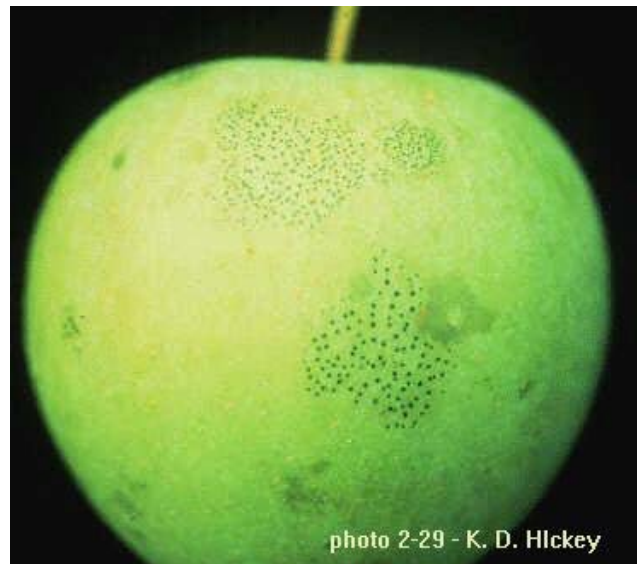
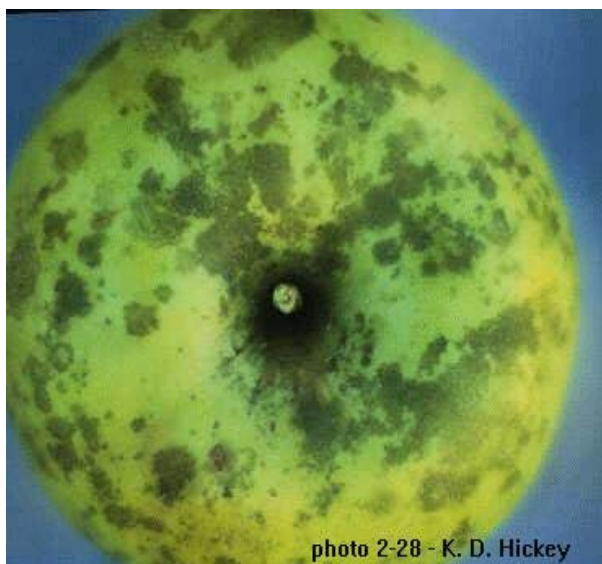


Sooty Blotch and Flyspeck

Erwinia amylovora

I. Introduction: Sooty blotch and flyspeck are surface blemish diseases that commonly appear together on apple or pear in late summer and fall. Although these diseases may shorten the storage life of fruit due to increased water loss, they do not cause decay, and losses are attributed to unacceptable appearance. During wet growing seasons, losses of 25 percent or more are commonly found even in orchards treated with fungicides.

II. Symptoms: Sooty blotch appears as sooty smudges or olive-green spots on mature fruit (photo 2-28). Individual spots or smudges vary from discreet circular colonies to large lesions with diffused margins. Different colony appearances are attributable to different fungal pathogens which comprise the disease complex. Flyspeck is characterized by clusters of 10 to 50 sharply defined black shiny specks on the fruit surface (photo 2-29). These superficial colonies are round to irregular and usually measure 1/16 to 1 inch (8-25 mm) in diameter. The individual dots or specks are fruiting structures in which spores are formed that cause secondary spread. Although these diseases may appear separately, they are commonly found together on the same fruit. Typically fruit symptoms are observed by the first of July and become more easily found as the season progresses. 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 cuticle appear to be more severely affected.



III. Disease Cycle: These fungi are commonly found on the stem surfaces of many woody plants, including apple shoots. Infections may occur on fruit as early as two to three weeks after petal fall, and are highly favored by frequent rain periods and poor drying conditions. Mycelial growth that forms the sooty blotches can occur in the absence of free water at relative humidity greater than 90 percent. Symptom development of both diseases is relatively slow, typically requiring 20 to 25 days in the orchard, but may occur in 8 to 12 days under optimum conditions. Optimum conditions for conidial production for the flyspeck pathogen are 60 to 70 F (16-21 C) and relative humidity greater than 96 percent.

IV. Monitoring: At midseason, observe 25 fruit in the interior canopy of sample trees. Symptoms (photos 2-28, 2-29) 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.

Continue to observe 25 fruit in the interior canopy of sample trees. Fungicides should be applied to fresh fruit showing any infections. Presence of these diseases is a good indicator that fungicide surface residues are lacking or very low, and signals potential need for treatment to control these diseases or the decay producing fungal pathogens.

V. Management: The diseases are managed by orchard sanitation and the use of fungicides. Removing reservoir hosts, especially brambles, from the orchard and surrounding hedgerows helps reduce the amount of inoculum from external sources, but in wet years this practice alone may not be adequate for disease control. Some cultural practices may help prevent the diseases and/or reduce the severity of sooty blotch and flyspeck. These include dormant and summer pruning to open up the tree canopy and thinning to separate fruit clusters. In addition to facilitating the drying of fruit after rain or dew, these practices favor better spray coverage and improve fruit quality. Both diseases are difficult to control in orchards with restricted air movement.

A predictive model for sooty blotch was developed in North Carolina by Turner Sutton. 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.

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