UT Extension
W275

Plant Diseases

Sooty Blotch and Flyspeck of Apple

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Sooty blotch and flyspeck is a complex of fungi that grow on the waxy cuticle of apples and pears and reduce the quality of the fruit. Formerly thought to be separate diseases caused by different fungi, sooty blotch and flyspeck is now thought to be one disease. These fungi cause little or no damage to the fruit, but their presence on the fruit's surface lowers the market value. Heavily affected fruit may shrivel more readily in storage, because the causal fungi digest some of the waxy cuticle, which normally prevents moisture loss from the fruit.

The sooty blotch and flyspeck fungi occur on the leaves, stems and fruit of about 25 different plants, including ash, blackberry, elm, maple, pear, persimmon, sassafras, sumac, sycamore and willow. Many of these plants are commonly found in uncleared areas near orchards.

Symptoms

Sooty Blotch

Sooty or cloudy patches with an indefinite outline form on the surface of the fruit (see photo). The blotches are light gray to dull black, and may be small and circular or may run together to cover practically an entire apple. These signs result from the presence of hundreds of minute, dark fungal fruiting bodies that are interconnected by a mass of loose, interwoven hyphae (fungal filaments). The sooty blotch fungus is usually restricted to the outer surface of the cuticle and can be removed by vigorous rubbing or bleaching.

Apples with sooty blotch (left) and flyspeck (right).

Flyspeck

Fungal fruiting bodies appear as groups of a few to 100 or more black, shiny, slightly raised dots on the fruit (see photo). Like sooty blotch, flyspeck can also be removed by vigorous rubbing or bleaching.

Sooty blotch (smudges) and flyspeck (black dots).

Disease Cycle

The causal fungi overwinter on the twigs of many wild woody plants and on young apple twigs. Spores and fungal fragments are carried to apple fruit by splashing or wind-blown rain. Tennessee research has shown that this infection can occur as early as the first two cover sprays. However, most infection of apple fruit and current-season twig growth occurs in mid-summer to early autumn.

The fungi are favored by mild, humid, rainy weather. The optimum temperature range is 59-75 degrees F. Neither fungus will develop at 85 F. These diseases are absent or scarce when hot, dry weather prevails until close to harvest. Sooty blotch infections that occur in early summer may not become visible until late summer if the weather becomes hot and dry soon after infection occurs. These diseases are more abundant in years in which cool, rainy weather in early summer is coupled with late summer rains and cool weather in early fall.

Control

Some sites are more prone to sooty blotch and flyspeck because of poorer "air drainage" than other sites. Low, shaded areas of orchards tend to experience more of these two diseases, because these areas do not dry out as quickly as other areas. Control can be difficult to achieve in such areas. The following moisture management practices recommended for all orchards would especially benefit these areas.

Try to maximize air circulation and sunlight penetration in the orchard, thereby reducing the time the trees remain wet after a rain or dew. Orient orchard rows in the direction of the prevailing winds, if possible. Follow recommended pruning practices each year to eliminate unnecessary growth and excessive shading.

Fence rows and uncleared areas should be kept free of brush, if feasible. Pay particular attention to bramble thickets, as bramble canes are very good hosts for these fungi.

Backyard growers should remember that the fungi are superficial and do not affect the quality or safety of the fruit. Removal of the fungi by washing, rubbing or peeling the fruit results in fruit that is acceptable for cooking or eating fresh.

Follow a fungicide spray program as outlined in *Integrated Orchard Management Guide for Commercial Apples in the Southeast*, or the UT Extension PB 1622, *Disease and Insect Control in Home Fruit Plantings*. Captan is a mainstay for protection of fruit against these fungi. Fungicides suitable for organic production have low activity against sooty blotch and flyspeck. Organic growers may wish to remove the fungi by rubbing or bleaching after harvest, but should check with their certifier first.

References

Integrated Orchard Management Guide for Commercial Apples in the Southeast
http://www.ces.ncsu.edu/fletcher/programs/apple/2011orchard-management.pdf

Disease and Insect Control in Home Fruit Plantings
http://www.utextension.utk.edu/publications/pbfiles/PB1622.pdf

Training and Pruning Fruit Trees
http://www.ces.ncsu.edu/depts/hort/hil/ag29.html

Pruning Neglected Fruit Trees
http://utextension.tennessee.edu/publications/Documents/SP307-K.pdf

A UT Extension Reminder…

Small Batch Preparation of Fungicides

Many pesticide labels express rates as amount per acre or amount per 100 gallons of water. These rates are not suitable for small-acreage growers, who often wish to apply pesticides in small sprayers. Conversion of pesticide rates is different for liquid pesticides than for dry pesticides.

Liquid Pesticides: This simple rule of thumb holds for all liquid pesticides:

1 pint per 100 gallons = 1 teaspoon per gallon

Dry Pesticides: Dry pesticides are measured by weight rather than volume. Pesticide densities can vary widely from one product to another, so the weight of a tablespoon of one product can be quite different from that of another. Do not attempt to convert pounds per 100 gallons to tablespoons per gallon, unless you know the density of the product. Some dry pesticide labels tell how much to use in a gallon water.

Precautionary Statement

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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