Summer Diseases

**Time of Concern**

2-3 weeks after petal fall through harvest

**Pest Cycle**

The summer diseases most likely to affect apples are sooty blotch and flyspeck which often occur together. Sooty blotch/flyspeck (SB/FS) are caused by a complex of many different fungi found on the surface of apples. The sooty blotch/flyspeck fungi survive the winter on apple twigs and alternate host plants, typically brambles, and other woody shrubs and vines in the hedgerows. Spores from infected twigs and vines are released to infect apple fruit approximately 2-3 weeks after petal fall. Infections require many hours of high relative humidity before symptoms appear. The higher the humidity and the more rainfall, the more disease will result. In areas with lower relative humidity, it can take as long as 2 months for symptoms to develop.

Although they are only superficial infections, these fungi can leave the fruit with a very dirty, sooty and speckled appearance. Sooty blotch looks like olive green to gray sooty splotches on the surface of the apples, as in Figure 1. Flyspeck infections are tiny black dots that appear in clusters, as in Figure 2.

**Damage**

*Figure 1. Sooty blotch. Photo by K. D. Hickey, PSU.*

*Figure 2. Flyspeck is very apparent on green and yellow apple varieties.*
1. One key to managing sooty blotch/flyspeck in apple is to reduce sources of infection in hedgerows when practical. Remove or bush-hog wild brambles within the orchard and along the perimeter.

2. Improve air movement in the tree canopy by “summer pruning”. This practice speeds up drying of fruits, and reduces the number of hours of wetness in the trees.

3. Apply fungicides to prevent infection 2-3 weeks after petal fall if the weather is wet.

4. Captan and sulfur are relatively weak against sooty blotch/flyspeck and mancozeb has a 77 day preharvest interval. Therefore, captan should be mixed with thiophanate-methyl (Topsin M) for better control under high disease pressure. Other options, including Pristine, are listed in the Cornell Tree Fruit Guidelines.

5. The spray intervals under high disease pressure should be 14 days. In areas with drier climate and lower relative humidity, intervals can be stretched to 21 days.

6. The last spray can be applied 30-50 days before harvest; the longer interval in a drier season, and the shorter interval under more wet weather conditions.

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### Sooty Blotch and Flyspeck Risk Predictions for Knowlesville

- **Petal fall date for McIntosh:** 5/20/2014
- **Most recent fungicide application date:** Enter the actual date for blocks of interest and the model will calculate the accumulated leaf wetness hours since petal fall more accurately.

In the Risk Summary table, note the accumulated leaf wetness hours since petal fall (Leaf Wetness Hours) and the Risk Level. Leaf wetness hours, rain events, and the last fungicide application date are taken into consideration in assessing risk level. To estimate risk in the near future, look at the probability of rain. Consult the Risk Level IPM Guidelines below the Risk Summary table.

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### Ready for More Precision?

1. Research has shown that it takes approximately 200 hours of accumulated wetting measured by NEWA leaf wetness sensors for symptoms to develop after spores land on the surface of the fruit. Spores are typically dispersed near petal fall. Some fungicides, however, will stop development of symptoms of infection if applied before 200 hours of wetting has accumulated.

2. Check the NEWA station near you for apple diseases. At the website, NEWA Apple Disease Models (newa.cornell.edu/index.php?page=apple-diseases), select Sooty Blotch/Flyspeck. Check the petal fall date for McIntosh for your farm, and enter the most recent fungicide application date. Figure 3 below shows the risk prediction if more than 2 inches of rainfall has occurred after your fungicide application.

3. But when fungicide residues erode, the fungus will continue development. Therefore, fungicide will need to be reapplied on a 14-21 day interval until mid-August.

4. If a heavy rain, >3 inches, occurs during late August or early September in varieties that will not be harvested within 25-30 days, a later season fungicide may be necessary.