

# Home Pecan Diseases and Control

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## Introduction

Pecan trees are widely grown in Arkansas for both shade and nuts. There are a number of important disease problems that can affect both the shade value and the nut crop.

**Pecan scab**, caused by the fungus *Cladosporium caryigenum*, is the most widespread and destructive disease of pecans. It also affects hickory trees. Even though scab can occur on leaves and twigs, the main damage is caused by infection of the nut shuck (husk). Infected nuts fall prematurely or fail to reach full size. Repeated infections also weaken the tree.

**Powdery mildew**, caused by the fungus *Microsphaeria alni*, can be an occasional problem on most pecan varieties under favorable environmental conditions. This fungus forms a white, dusty covering on the surface of developing nuts and shoots of the tree.

**Downy spot** is caused by the fungus *Mycosphaerella caryigena*. This fungus only attacks the leaves and is usually seen in late June or early July.

## Symptoms

**Scab** damage depends to a large extent on weather conditions and variety. Frequent rainfall and

extended periods of wetness and dew on leaves and nuts are critical for infection and disease development. The scab fungus forms small, circular, olive green to black sunken spots or blotches on leaves, nut shucks (husks), leaf blades and leaf petioles (**Figures 1 and 2**). Leaf spots may become numerous, leading to premature leaf drop, and may lead to infection of the nuts. As spots on the nut shuck grow together, entire nuts may become blackened. Other fungi such as pink mold quickly colonize the damaged nuts causing additional decay. Scab infections of the shucks may also produce "stick tights," a condition in which the shuck does not separate from the nut during harvest.



Figure 1. Pecan scab on nuts



Figure 2. Close-up of scab lesions on leaf tissue

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Symptoms of powdery mildew are most obvious when the nuts become covered with a white, fuzzy growth on the surface (**Figure 3**). Infections that occur in the early stages of nut development may also lead to a reduction in nut size, while late-season infections have only a minor effect on nut quality. Leaf infections often result in misshapened and wrinkled leaflets.



Figure 3. Powdery mildew on nuts

**Downy spot** produces leaf spots that are pale green to white (**Figure 4**). Spots from 1/8 to 1/4 inch across form on the undersides of the leaflets and then become brown on the upper surface. Spots develop a faded appearance, and infected leaflets drop from the tree in early August.



Figure 4. Early downy spot on pecan foliage (courtesy of R. Sanderlin, LSU)

## Disease Cycle

The **pecan scab** fungus survives the winter on infected shucks, leaves and stems from the previous season. Spores produced by the fungus are spread by dew, rainfall and wind currents during the early spring and can germinate and infect when the temperature is between 65 to 85 degrees F. The disease is active in Arkansas during the entire growing season.

The **powdery mildew** fungus overwinters on infected leaves on the ground or that hang on the tree. Spores produced by the fungus are released into the air during early spring after rain showers and are carried to new leaves and buds on the tree.

The **downy spot** fungus survives the winter on infected leaves from the previous season. Cool, cloudy days with frequent rainfall favor infection. Most infections occur prior to pollination but may not become visible until later in the summer.

## Management

The most practical long-term management practice for controlling **scab**, **powdery mildew** and **downy spot** is to plant varieties that have resistance. However, the scab fungus can change over time and adapt to resistant varieties. Therefore, this practice is not foolproof, so preventative fungicide applications may become necessary for control of scab.

While commercial pecan growers have the equipment and fungicides to make their use practical, this is not the case for homeowners with only a few trees. Because good spray coverage is required and trees may be very large, only special spray equipment can be used. Growers should consult Extension publication MP154, *Arkansas Plant Disease Control Products Guide*, for a list of fungicides.

Before hiring a commercial sprayer to treat pecans, homeowners should try good sanitation practices. That is, you should remove and destroy all fallen leaves, shucks and nuts each winter or in the early spring before buds begin to swell. These fallen leaves and nuts can be primary sources for new infections in the spring. Removing damaged twigs and limbs by selective pruning should also be practiced during the dormant season, if possible.

Pecan trees should be fertilized according to a recent soil test and watered well, especially during hot, dry weather conditions. Low fertility can make trees more susceptible to diseases and reduce growth and fruit set. If you suspect a pecan disease or need assistance with collecting and submitting a soil sample for testing, contact your local county Extension office for additional information.