

## *Plant Disease Notes*

# **Black Rot of Cabbage**

**ANR-937**

**B**lack rot, caused by the bacterium *Xanthomonas campestris*, is the most important disease affecting cabbage production in Alabama.

**Symptoms.** The disease is easily recognized on most crucifers by the presence of yellow, V-shaped or U-shaped areas extending inward from the margin of the leaf. As the disease progresses, the yellow lesions turn brown and the tissue dies. Within the affected leaf area, the midrib of the leaves turns black and the veins darken. This vein discoloration progresses toward the base of the leaf as the bacteria spread through the leaf veins into the stem. When infected stems are cut in cross section, a black vascular ring may be evident where the bacteria have moved into water-conducting vessels. The discoloration extends from the stem to the upper leaves and down into the roots.

The lower leaves on infected plants are usually stunted, yellow to brown, and wilted and often drop prematurely. Infected plants may consist of only a long, bare stalk topped with a tuft of leaves. Infected cabbage heads rarely reach full size. Plants may quickly rot immediately before or after harvest, due to a secondary soft-rotting bacteria.

### **Persistence and Transmission.**

The bacterium may persist from one year to the next on infected seed, on overwintering cruciferous weeds, or in infected plant refuse. Black rot is spread on seed, seedlings, or cultivation equipment; in irrigation water or splashing rain; or by insects, field workers, or movement of contaminated material.

In the spring, the bacterium is typically spread from plant debris to young plants by splashing rain. It invades young leaves through natural openings or wounds. It then moves through the water-conducting vessels into the main stem, down into the roots, and up into leaves. Root infection can occur through wounds when infested soil is saturated with water.

The disease develops best under warm, wet conditions. Temperatures of 80 to 86 degrees F favor growth of the bacterium. Free moisture, in the form of rain, dew, or fog, is required for infection to occur.

**Control.** Black rot of cabbage can be controlled by the following strategies:

- Purchase and plant only certified, disease-free transplants.
- Grow plants in fields that have not been in cruciferous crops for at least 2 years.

- Rotate cabbage with plants from other families that are not hosts of black rot.
- Plant cabbage only in areas that provide good soil drainage and free air movement.
- Provide a balanced fertility program.
- Control all cruciferous weeds in and around the production area.

- Do not work in fields when plants are wet.
- Destroy or bury all crop debris immediately after harvest.
- Use a copper-containing fungicide. Follow the manufacturer's directions and restrictions.



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**Edward J. Sikora**, *Extension Plant Pathologist*, Professor,  
Entomology and Plant Pathology, Auburn University

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**For more information**, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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