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# Black Rot of Ornamental Cabbage

*Common symptoms of black rot are wedge-shaped lesions.*



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Fortunately, there aren't too many diseases that trouble ornamental cabbage; most samples we see tend to be nutritional, cultural, or insect issues. However, there are a few diseases that you might have to contend with, and one of the more common diseases of ornamental cabbage is black rot. Ornamental kale (as well as all other crucifer crops) can also be affected, though kale is less prone to infection.

Black rot is caused a bacterium, *Xanthomonas campestris* pv. *campestris*. The pathogen primarily enters the plant tissue through hydathodes, or wounds caused by insects, hail, or other injuries.

When infected through the hydathodes, a characteristic wedge-shaped or V-shaped



*Foliar symptoms of black rot on cabbage.  
Photo by Margaret Tuttle McGrath, Cornell University*

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lesion will form. The lesion will first appear as a small wilted area at the leaf edge, which will become necrotic and dried out with a chlorotic border. The lesion will progress down the leaf creating a larger lesion. When the infection originates from bacteria entering the plant through a wound, the diseased area will expand from the point of infection. In advanced stages, veins and stems will turn black and the plant will collapse as the bacteria multiply and spread throughout the vascular system of the plant. Some symptoms may be more difficult to notice on dark-leaved varieties. Young seedlings can also become infected;

symptoms can appear as discolored cotyledons or seedling chlorosis, leaf drop, or collapse. Be especially watchful for early symptoms in your crops when weather conditions become conducive to disease development and spread (warm and wet weather).

There is no cure for infected plants, so prevention is key. The bacteria can be found on or in infected seed, therefore, using certified, pathogen-free seed is one important way to help prevent this disease. Make sure you or your plant suppliers are using pathogen-free seed. An alternative is to treat your own seeds with hot water, you can



*Wedge-shaped lesion symptom of black rot.  
Photo by Margaret Tuttle McGrath, Cornell University*

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find more information on this process here: <http://vegetablemndonline.ppath.cornell.edu/NewsArticles/HotWaterSeedTreatment.html>. (Please note that seed treatment after purchase often voids any guarantees of the seed company, and make sure you know if the seed has already been treated as additional treatments might affect seed viability or germination.)

The pathogen can also survive in crop debris or in weed hosts. Make sure your growing areas are kept free of weeds (especially mustards, shepardspurse, and other cruciferous weeds) and are cleaned of any crop debris after the end of the season. Since the pathogen can enter wounds created by insects and can occasionally be spread by insects, keeping insect pests under control may also help.

Black rot can be spread rapidly through wind-blown or splashing water, and can also be spread by handling. Make sure never to handle infected plants prior to handling healthy plants and avoid overhead irrigation where possible. Keep in mind that neighboring fields of cruciferous crops may also be a source of inoculum.

While infected plants can't be cured, treating healthy plants with a labeled product may help to protect them from infection. Contact your local extension specialist for recommendations.

For more details and photos, visit: [http://vegetablemndonline.ppath.cornell.edu/factsheets/Crucifers\\_BR.htm](http://vegetablemndonline.ppath.cornell.edu/factsheets/Crucifers_BR.htm)

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