

# Alternaria Leaf Blight of Carrots

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Alternaria leaf blight, a seedborne foliar disease of carrots, can decrease crop yields by reducing the size of carrots, particularly in cases of severe infection. The disease also weakens foliar (leaf) tissues. When a mechanical harvester grips the leaves of the carrot to pull the root from the soil, diseased leaves can rip away from the root, and the carrot remains in the ground.



**Figure 1.** Symptom development on leaves and petiole.  
 Source: Kimberly Cochran

## Symptoms

Symptoms first appear as dark brown to black irregularly shaped lesions (Figs. 1 and 2). They may occur on leaves and petioles (stalks that join a leaf to a stem) and initially are surrounded by a yellow margin. Individual lesions often begin on older leaves and, over time, merge to cause extensive blighted areas. Entire leaves may die, especially when lesions develop on petioles (Fig. 2). This fungus also causes damping-off (plants die in the seed or seedling stage) of



**Figure 2.** Severe disease may kill entire leaves, especially when lesions develop on petioles. Source: Kimberly Cochran

carrot seedlings, and severe disease later in the season often results in reduced yields (Fig. 3). A microscopic examination of the fungal spores can confirm a diagnosis of Alternaria leaf blight (Fig. 4).



**Figure 3.** Yield reductions due to Alternaria leaf blight disease. Source: Kimberly Cochran

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**Figure 4.** *Alternaria dauci* spores as seen through a microscope. Source: Kimberly Cochran

## Cause

The fungus *Alternaria dauci* causes the disease and the primary source of infection in the field is contaminated seeds. The fungus can also survive on crop debris and carrot volunteers (plants that grow spontaneously from a previous crop) between seasons.

## Environmental Factors

Leaves that stay wet for an extended time from weather or overhead irrigation are more susceptible to developing the disease because spores need prolonged moisture to germinate. Infection can occur over a wide temperature range (57°F to 95°F), but pathogen activity is optimal at 82°F. Fungal spores are often dispersed by air, splashing water, or machinery and then initiate new infections.

## Control

- Plant clean (pathogen-free) seeds and resistant cultivars.
- Sanitize seeds with a hot water bath treatment before planting.
- Reduce fungal inoculum with soil tillage practices that ensure decomposition of crop residue.
- Practice crop rotation (every 2 years) and avoid recently infested soils.
- Reduce inoculum levels during the season by regularly scouting fields, removing symptomatic plants, and properly disposing of them.
- Avoid overhead irrigation.
- If you anticipate a problem due to the presence of a known source of inoculum, apply foliar fungicides before infection and symptoms develop.

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