

# Cole Crops

## **Alternaria Leaf Spot**

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### **Identification and Life Cycle**

Alternaria leaf spot is caused by the fungus *Alternaria brassicicola*, and is generally only a problem on cabbage and Chinese cabbage during extended cool, rainy weather. Broccoli and cauliflower are rarely infected by this pathogen. Infection occurs when windblown spores land on leaves and infect through natural openings, wounds, or directly penetrate the leaf. Lesions on diseased plants release abundant spores during dry periods, and alternating cycles of evening leaf wetness followed by daytime drying favor disease and sporulation. The pathogen survives between susceptible hosts in crop debris and on seed.

### **Plant Response and Damage**

Alternaria leaf spot lesions first appear as small, dark areas that develop into large, circular lesions with concentric rings that resemble a bull's-eye pattern. A lesion appears dark brown when wet, but when dry the lesion appears velvety. The disease reduces the photosynthetic area of infected plants, but may also cause lesions on brussel sprouts.

### **Management Approaches**

#### **Biological Control**

No biological control strategies have been developed for Alternaria leaf spot.

#### **Cultural Control**

Plant only high quality seed free from the Alternaria leaf spot pathogen. Practice a three-year or longer rotation to non-hosts. Deeply incorporate crop residues after harvest to

reduce pathogen survival. Avoid overhead irrigation where possible. Promote air movement in the canopy by planting wide rows parallel to the prevailing wind direction. If possible, irrigate so that the canopy dries before dusk to prevent extended periods of leaf wetness.

## Chemical Control

Fungicides are most effective when used in combination with cultural control strategies.

### *Product List for Alternaria Leaf Spot:*

<b>Pesticide</b>	<b>Product per Acre</b>	<b>Application Frequency (days)</b>	<b>Remarks</b>
<b>Azoxystrobin</b>			
Quadris	6.2-15.4 fl oz	7-14 days	Maximum of 3 applications or 2.88 quarts per season; Do not make more than 1 application of Quadris before rotating to a fungicide with a different mode of action; 0 day PHI
<b>Chlorothalonil and Chlorthalonil Mixtures</b>			
Bravo Ultrex	1.4	7-10 days	Maximum of 14.5 pounds per season; 7 day PHI
Bravo Weather Stik	1.5 pt	7-10 days	Maximum of 16 pints per season; 7 day PHI
Echo 720	1.5 pt	7-10 days	Maximum of 2 gallons per season; 7 day PHI
Echo 90DF	1.25 lb	7-10 days	Maximum of 13.3 pounds per season; 7day PHI
Echo Zn	2.25 pts	7-10 days	Maximum of 2.9 gallons per season; 7 day PHI
Ridomil Gold/Bravo	1.5 lb	14 days	Make 2 to 4 total sprays; 7 day PHI
<b>Copper Fungicides and Copper Mixtures</b>			
Basicop	3-4 lb	7-14 days	Crop injury can occur
Champ Dry Prill	0.33-0.66 lb	7 days	Crop injury can occur
Champ Formula 2	1.33 pt	5-7 days	Crop injury can occur
Copper-Count-N	1-3 qt	7-10 days	Crop injury can occur
Cuprofix Disperss	1.5-2.5 lb	5-10 days	Crop injury can occur
Kocide 3000	0.5-0.75 lb	7-10 days	Reddening of older leaves may occur on broccoli and a flecking of wrapper leaves may occur on cabbage
Ridomil Gold/Copper	1 pack/per 2.5 acres	14 days	Make 2 to 4 total sprays; 7 day PHI

Top Cop + S                      4 pt                      7-10 days                      Crop injury can occur

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**Cyprodinil / Fludioxonil**

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After 2 applications, rotate with other mode of action; Maximum of 56 oz/A; 7 day PHI

Switch 62.5WG                      11-14 oz                      7-10 days

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