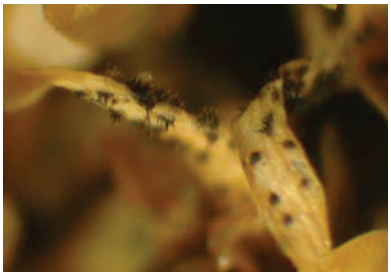
DISEASE REFERENCE

Anthracnose, *Colletotrichum cereale*

DAMAGE CAUSED



Symptoms of damage:

Foliage: older leaves attacked first. Leaves may appear water-soaked and/or display small, reddish-tan leaf spots or elongate yellow leaf spots. As the disease advances, foliage will turn brown and black, hair-like fungal structures known as acervuli (photo to right) may develop.

Crown or basal rot: lower leaf sheaths and crowns become dark-colored, leaves turn yellow-orange, and acervuli (photo to right) are common.

Overall appearance: small, irregular patches of yellowing, thinning or brown turf eventually grow larger if the infestation is not controlled.

Plants attacked:

Poa annua is the most common target.

Other hosts include (in order of frequency observed) bentgrass, Kentucky bluegrass, bermudagrass.

Pests/conditions that cause similar damage

rapid blight

black turfgrass ataenius

high soil salts (salinity)

heat or drought stress

Predictive models

Spring and summertime, once average air temperatures reach 65F (18C).

Conducive environmental conditions:

Average air temperatures greater than 65 F(18C)

Anything that stresses turf, such as:

High soil salts (salinity)

Low fertility

Compaction

Traffic

Heat or drought

Excessive shade

Poor drainage

Low mowing heights

Geographic distribution:

Worldwide

MONITORING TECHNIQUES:

Monitor air temperatures. When average air temperatures reach 65F (18C), begin scouting turf for early symptoms.

Focus scouting efforts on weak or stressed areas, or areas where the disease has occurred in the past. This is where symptoms are likely to occur earliest.

THRESHOLDS:

For golf courses where anthracnose has been a problem in the past, preventive control is warranted (see Management Strategies below).

For situations where a curative approach is used, control should be implemented as soon as symptoms are seen.

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MANAGEMENT STRATEGIES:

Strains of anthracnose resistant to QoI (strobilurin) and benzimidazole fungicides have been documented in several locations. These products are noted with a red asterisk (*).Follow resistance management guidelines by rotating products as outlined in IPM Template Reference "Fungicide Resistance Management Groups." Always consult the most recent version of all product labels before use.

TYPE	TIMING	PRACTICE	
Cultural	N/A	• Adequate nitrogen (0.1 – 0.2 lb nitrogen/wk during season), but do not exceed 20 ppm total nitrogen in soil • Maintain soil salinity below 3.0 dS/m for cool season turf • Apply Primo Maxx at 1/8 oz/1000 sq ft every 14 days during anthracnose threat period. • Schedule a monthly "venting" using small diameter (1/4") hollow cores or solid tines. • Raise mowing heights as much as possible.	
Biological	Preventive: apply when average air temperatures reach 65F (18C)	Polyoxin-D (Endorse)[1]	
Chemical	Preventive: apply when average air temperatures reach 65F (18C)	**Active Ingredient (Product)**	**Label signal word**
		Azoxystrobin (Heritage)**	Caution
		Chlorothalonil (Daconil Weatherstik) + fludioxinil (Medallion)*	Caution/Caution
		Chlorothalonil (Daconil Weatherstik) + fosetyl-Al (Chipco Signature)	Caution/Caution
		Chlorothalonil (Daconil Weatherstik) + polyoxin D (Endorse)[1]	Caution/Caution
		Fosetyl-Al (Chipco Signature) + iprodione (Chipco 26GT)	Caution/Caution
		Myclobutanil (Eagle)	Caution
		Propiconazole (Banner)	Warning
		Pyraclostrobin (Insignia)*	Caution
		Thiophanate-methyl (Cleary's 3336)*	Caution
		Trifloxystrobin (Compass)**	Caution
	Curative : less desirable strategy, with less than optimal results in most cases	Chlorothalonil (Daconil Weatherstik) + fludioxinil (Medallion)*	Caution/Caution
		Chlorothalonil (Daconil Weatherstik) + fosetyl-Al (Chipco Signature)	Caution/Caution
		Chlorothalonil (Daconil Weatherstik) + polyoxin D (Endorse)[1]	Caution/Caution
		Chlorothalonil (Daconil Weatherstik) + propiconazole (Banner Maxx)	Caution/Warning

* considered reduced risk by the U.S. Environmental Protection Agency.
* has been ineffective in some locations due to development of resistance.
[1] Designated as a biopesticide by the U.S. Environmental Protection Agency