

Leaf Spot / Melting Out

[*Drechslera poae* & *Bipolaris cynodontis*]



SYMPTOMS

Leaf spot and melting out are common diseases in bluegrasses and bermudagrasses caused by species of *Drechslera* and *Bipolaris* (formerly known as *Helminthosporium*). In the bluegrasses, this disease is most active during warm and humid weather, but in bermudagrasses, most damage occurs during cool and wet periods in the fall and spring. Leaf spot symptoms are expressed in the early stages of the disease, but if left uncontrolled, the pathogen may progress into the basal portions of the plant to cause 'melting out'. Leaf spot symptoms initially appear as small, brown or black spots or flecks on the leaves or sheaths. As the lesions expand, the center of the lesions becomes tan with a dark brown or black border. The lesions may also be surrounded by a yellow halo. As the lesions expand, they coalesce and cause dieback of entire leaves or plants. Melting out symptoms appear as a reddish brown rotting of the sheaths, crowns, rhizomes, or stolons which initially leads to wilting, yellowing, or death of the foliage. Symptoms of leaf spot and melting out appear in irregular patterns, although localized 'hot spots' may be more severely damaged than others.



leaf spot/melting out in bermudagrass

Characteristic	Description
Host Grass Species	bluegrasses, bermudagrass
Month(s) with symptoms	March to June, Sept to November
Stand Symptoms	irregular distribution across turf stand
Foliar Symptoms - Location/Shape	oval leaf spots
Foliar Symptoms - Color	yellow, tan, brown
Root/Crown Symptoms	none
Fungal Signs	none

Note: Still not sure if this is the right disease? The [Turfgrass Disease Identification](#) program may be helpful. Or consult the experts at the [Turf Diagnostics Lab](#). Check the TurfFiles [glossary](#) for definitions of unfamiliar terms.

FACTORS AFFECTING DISEASE DEVELOPMENT

Leaf spot/melting out is one of several *Helminthosporium* diseases which survive in thatch during periods that are unfavorable for disease development. These fungi are most active during periods of cool (60 to 65°F) and wet weather, but some are able to cause disease whenever temperatures are above freezing.

Leaf spot/melting out is most severe on turf that is growing slowly due to adverse weather conditions or improper management practices. Shaded areas with little or no air movement result in weak turf and extended periods of leaf wetness that favor disease development. Deficient or excessive nitrogen, excessive thatch, extended periods of leaf wetness, drought stress, and low mowing heights are factors

that encourage the development of Helminthosporium diseases. These fungi may spread to the crowns and roots and cause melting out, which is most severe during periods of hot weather.

Certain cultivars of turfgrasses are very susceptible to injury from Helminthosporium diseases while many of the newly released cultivars have exhibited good resistance.

CULTURAL CONTROL

Use turfgrass cultivars with resistance to this disease when available. Planting resistant cultivars is one of the most effective and economical ways to manage leaf spot and melting out. Refer to the results of cultivar evaluation trials operated by the National Turfgrass Evaluation Program or local Universities for cultivars with leaf spot resistance that perform well in your area. If planting cool-season turf, use blends and mixtures of multiple species and/or varieties when possible..

Fertilize to meet the nutritional needs of the turf but avoid over-stimulation and the development of lush, succulent growth. Do not apply more than one pound of nitrogen per 1,000 square feet in a single application. Mowing heights and frequencies should be within the recommended range for the turfgrass species being managed. Keep the mower blades sharp to prevent open wounds through which the fungus can enter.

Reduce extended periods of leaf wetness by watering deeply but infrequently to wet the entire root zone. Use the [Turf Irrigation Management System](#) available on TurfFiles to schedule irrigation based on weather conditions and turf needs. Do not irrigate just before or after sunrise, and ensure good surface and soil drainage. Remove unwanted vegetation that impedes air movement and prune trees to allow for light penetration. Power rake or dethatch to remove excessive thatch and reduce the potential for pathogen survival. Regular aerification and topdressing of golf greens is also necessary to reduce thatch buildup.

CHEMICAL CONTROL

Leaf spot can be controlled on a preventative or curative basis. However, applications are most effective when made in the early stages of development. Once the disease reaches the melting out stage, fungicides may not cure infected plants but will help to reduce further spread of the disease. Susceptible turfs should be monitored frequently for signs of disease activity during periods of cool and wet weather.

Fungicide	Efficacy ⁽¹⁾	Resistance Risk ⁽²⁾	Class ⁽³⁾	Products ⁽⁴⁾
iprodione + thiophanate-methyl**	++++	6	benzimidazole	26/36, Dovetail, Fluid Fungicide
iprodione**	++++	4	dicarboxamide	26GT, IPro, Iprodione Pro, Raven
vinclozolin**	++++	4	dicarboxamide	Curalan, Touche
mancozeb**	++++	2	dithiocarbamate	Fore, 4 Flowable Mancozeb, Dithane, Mancozeb DG, Pentathlon, Protect, Wingman
mancozeb + myclobutanil**	++++	3	dithiocarbamate + DMI	Manhandle
mancozeb + copper hydroxide**	++++	2	dithiocarbamate + inorganic	Junction
azoxystrobin + propiconazole	++++	6	DMI + QoI	Headway
azoxystrobin	++++	6	QoI	Heritage

Fungicide	Efficacy ⁽¹⁾	Resistance Risk ⁽²⁾	Class ⁽³⁾	Products ⁽⁴⁾
chlorothalonil + thiophanate-methyl**	+++	4	benzimidazole + nitrile	Spectro, ConSyst, Peregrine, Tee-1-Up, TM/C
pyraclostrobin + boscalid**	+++	6	carboxamide + QoI	Honor
chlorothalonil + propiconazole**	+++	3	DMI + nitrile	Concert
chlorothalonil + propiconazole + fludioxonil**	+++	2	DMI + nitrile + phenylpyrrole	Instrata
chlorothalonil**	+++	2	nitrile	Daconil, Chlorostar, Chlorothalonil, Echo, Legend, Manicure, Pegasus
chlorothalonil + phosphorous acid**	+++	4	nitrile + phosphonate	Vitalonil
pyraclostrobin	+++	6	QoI	Insignia
thiram**	++	2	dithiocarbamate	Spotrete
propiconazole	++	4	DMI	Banner MAXX, Kestrel, Kestrel MEX, ProPensity, Propiconazole, Propiconazole G-Pro, Propiconazole Pro, Savvi, Spectator, Strider
mineral oil**	++	2	hydrocarbon	Civitas
myclobutanil	+	4	DMI	Eagle, Myclobutanil
thiophanate-methyl	?	6	benzimidazole	3336, Fungo, Systec, T-Bird, T-Storm, Tee-Off, TM
flutolanil + thiophanate-methyl	?	6	benzimidazole + carboxamide	SysStar
tebuconazole**	?	4	DMI	Torque
triticonazole	?	4	DMI	Trinity, Triton
fluoxastrobin + myclobutanil	?	6	DMI + QoI	Disarm M
triadimefon + trifloxystrobin	?	6	DMI + QoI	Armada, Tartan
chlorothalonil + fluoxastrobin**	?	6	nitrile + QoI	Disarm C
fludioxonil	?	2	phenylpyrrole	Medallion
fluoxastrobin	?	6	QoI	Disarm, Disarm G
trifloxystrobin	?	6	QoI	Compass

** Not for application to residential lawns.

Footnotes:

(1) **Efficacy Codes:**

- ++++ excellent control when conditions are highly favorable for disease development
- +++ good control when disease pressure is high, or excellent control when disease pressure is moderate
- ++ good control when disease pressure is moderate, excellent control when disease pressure is low
- + good control when disease pressure is low
- 0 does not provide adequate control under any conditions

? cannot be rated due to insufficient data

(2) **Resistance Risk:**

- 1 Rotating and tank-mixing not necessary, but recommended to avoid potential side effects from continuous use of same chemical class.
 - 2 Rotate to different chemical class after 3-4 applications; tank-mixing not necessary.
 - 3 Rotate to different chemical class after 2-3 applications; tank-mixing not necessary.
 - 4 Rotate to different chemical class after 1-2 applications; tank-mixing not necessary.
 - 6 Rotate to different chemical class after 1-2 applications; tank-mixing with low or moderate risk product recommended.
 - 9 Rotate to different chemical class after EVERY application; tank-mix with low or moderate risk product for EVERY application.
- (3) Continual use of fungicides with similar control mechanisms (modes of action) can result in fungi that are resistant to some chemicals. Poor or ineffective disease control can be expected when this occurs. Managers can reduce the chances of this happening by mixing or alternating fungicides belonging to different chemical classes.
- (4) Recommendations of specific chemicals are based upon information on the manufacturer's label and performance in a limited number of trials. Because environmental conditions and methods of application may vary widely, performance of the chemical will not always conform to the safety and pest control standards indicated by experimental data. When more than one brand name exists for an agricultural chemical, the name of brand that first came onto the market is listed first. Otherwise, brand names are listed in alphabetical order. The order in which brand names are given is not an indication of a recommendation or criticism.

Recommendations for the use of agricultural chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services does not imply endorsement by North Carolina State University or discrimination against similar products or services not mentioned. Other brand names may be labeled for use on turfgrasses. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact your county's Cooperative Extension agent.

Useful links:

Glossary: <http://www.turffiles.ncsu.edu/Glossary.aspx>

Turf Diagnostics Lab: <http://ncstateturfdiagnostics.com/TDL/Home.html>

Turfgrass Disease Identification Program: <http://www.turffiles.ncsu.edu/diseaseID/>

Turfgrass Disease Management Program: <http://www.turffiles.ncsu.edu/diseasemgmt/>

Turf Irrigation Management System: <http://www.turffiles.ncsu.edu/tims/>

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