

Large Patch

[*Rhizoctonia solani*]

SYMPTOMS

Large patch is a new name for an old disease of warm-season turfgrasses. This disease was formerly called brown patch, the same disease that affects cool-season grasses during hot weather. Other than the fact that they affect different grasses, there are several important differences between brown patch and large patch that necessitated a name change: they occur at different times of the year, produce distinct symptoms, are caused by different strains of the fungus *Rhizoctonia solani*, and require very different control strategies.



Large patch appears in roughly circular patches that are yellow, tan, or straw-brown. The patches are initially 2 to 3 feet in diameter, but can expand in size rapidly up to 10 feet or more in diameter, hence the name “large patch”. Multiple patches may coalesce to encompass even larger areas of turf. When the disease is actively developing, the outer edge of the patches are often red, orange, or bronze in color. Close examination of individual plants reveals the presence of reddish-brown or gray lesions on the leaf sheaths. It may be necessary to peel away the older, dead leaves in order to reveal the lesions on the younger leaf sheaths below.



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large patch sheath lesion in St. Augustinegrass

Characteristic	Description
Host Grass Species	bermudagrass, centipedegrass, seashore paspalum, St. Augustinegrass, zoysiagrass
Month(s) with symptoms	August to May
Stand Symptoms	patches (1 foot to greater than 3 feet)
Foliar Symptoms - Location/Shape	lesions on leaf sheaths
Foliar Symptoms - Color	tan, yellow, orange, red
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

Large patch begins to develop when soil temperatures decline to 70°F in the fall, but the symptoms do not necessarily appear at this time. The symptoms of large patch are most evident during periods of cool, wet weather in the fall and spring. In many cases, symptoms may not become evident until early spring when the warm season grasses are greening up.

Large patch is favored by excessive nitrogen in the fall and spring, poor soil drainage, over-irrigation, excessive thatch accumulations, and low mowing heights. Centipedegrass and seashore paspalum are most susceptible to large patch, followed by zoysiagrass, and then St. Augustinegrass. Bermudagrass, rarely affected by large patch, recovers very quickly when the disease does occur.

CULTURAL CONTROL

Establishment of a disease-resistant turfgrass species is the most effective means for management of large patch. Bermudagrass rarely sustains significant damage from large patch, and grows out the symptoms quickly when the disease does occur. In contrast, centipedegrass, seashore paspalum, St. Augustinegrass, and zoysiagrass often sustain serious damage and recovery can take several weeks or months. Fescues and bluegrasses are immune to large patch and are also an option in areas where cool-season turfgrasses can be maintained.

Do not apply nitrogen to warm-season grasses in the fall and spring. These grasses are growing slowly during this time and do not require a significant amount of this nutrient. In general, nitrogen should not be applied to the warm-season grasses within 6 weeks before dormancy in the fall or within 3 weeks after green-up begins in the spring. Warm-season grasses vary in their fertility requirements, so refer to local University recommendations for more specific recommendations for timing and rates.

Avoid establishing warm-season grasses in low lying areas that remain saturated for extended periods of time from surface runoff. If this is unavoidable, install subsurface drainage to remove excess water from the soil. Irrigate only as needed to prevent severe drought stress in the fall and spring. Control traffic patterns to prevent severe compaction, and aerify as needed to maintain soil drainage and aeration. Mow at recommended heights, and power rake or vertical mow as needed to control thatch accumulations.

CHEMICAL CONTROL

Fungicides are available for large patch control, but must be applied on a preventative basis. Applications should be initiated in the fall when soil temperatures decline to 70°F, regardless of when symptoms have appeared in the past. One or two well-timed applications provide season-long control of large patch in many situations. In severely affected sites, repeat applications should be made on 4 to 6 week intervals as long as soil temperatures are between 40°F and 70°F. Mapping of affected areas in the spring for spot-treatment in the fall can substantially reduce fungicide expenditures.

Fungicide	Efficacy ⁽¹⁾	Resistance Risk ⁽²⁾	Class ⁽³⁾	Products ⁽⁴⁾
flutolanil + thiophanate-methyl	++++	4	benzimidazole + carboxamide	SysStar
flutolanil	++++	4	carboxamide	ProStar
triadimefon	++++	4	DMI	Bayleton, Granular Turf Fungicide, Systemic Fungicide
azoxystrobin + propiconazole	++++	6	DMI + Qol	Headway
triadimefon + trifloxystrobin	++++	4	DMI + Qol	Armada, Tartan
propiconazole	+++	4	DMI	Banner MAXX, Kestrel, Kestrel MEX, ProPensity, Propiconazole, Propiconazole G-Pro, Propiconazole Pro, Savvi, Spectator, Strider
chlorothalonil + propiconazole**	+++	4	DMI + nitrile	Concert
chlorothalonil + propiconazole + fludioxonil**	+++	4	DMI + nitrile + phenylpyrrole	Instrata
azoxystrobin	+++	6	Qol	Heritage
fluoastrobin	+++	6	Qol	Disarm, Disarm G

Fungicide	Efficacy ⁽¹⁾	Resistance Risk ⁽²⁾	Class ⁽³⁾	Products ⁽⁴⁾
iprodione + thiophanate-methyl**	++	4	benzimidazole	26/36, Dovetail, Fluid Fungicide
iprodione**	++	4	dicarboxamide	26GT, IPro, Iprodione Pro, Raven
mancozeb + myclobutanil**	++	4	dithiocarbamate + DMI	Manhandle
myclobutanil	++	4	DMI	Eagle, Myclobutanil
chloroneb	+	1	aromatic hydrocarbon	Teremec, Terraneb
metconazole	?	4	DMI	Tourney
tebuconazole**	?	4	DMI	Torque
triticonazole	?	4	DMI	Trinity, Triton
polyoxin D	?	4	polyoxins	Endorse, Affirm

** 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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