



# Brown Patch

## The problem

Brown patch can be a severe foliar disease of almost every cool-season turfgrass grown for putting greens, fairways, tees and roughs. This disease is caused by the soil-borne fungal pathogen *Rhizoctonia solani*. *Rhizoctonia* diseases are perhaps the most widely recognized plant-pathogenic species across the globe and incites diseases on a wide host range including agricultural crops, trees, ornamental plants and turfgrasses. The most susceptible grasses to infection include the bentgrasses, fescues, ryegrasses and low mown bluegrasses.

## What to look for

Brown patch is most active in warm, wet conditions, when minimum temperatures are above 15 °C and daily leaf wetness periods are 10 hours or more. Night time temperatures above 20 °C with extended leaf wetness are associated with severe brown patch outbreaks on golf course turf. Disease development is often greater in areas with saturated soils/poor drainage.

Symptoms of brown patch are often variable depending on the turfgrass species and mowing height. On tall fescue and perennial ryegrass mowed at 2 inches or higher, symptoms include irregularly shaped tan-to-brown lesions with a thin dark border along the perimeter. On turfgrasses maintained at lower mowing heights, lesions may not be as easily distinguishable. As the disease progresses, lesions often coalesce and entire blighting of the affected leaf occurs. Patches can range in size from a few centimeters to a metre in diameter.

Visible signs of infection also aid in the diagnosis. During times of disease activity, white thread-like mycelium is produced by the pathogen in the early morning when dew is present. Under a microscopic lens, *Rhizoctonia* mycelium can be easily distinguished from other fungi through observations right angle hyphal branching and a constriction at the branching point. The presence of mycelium is useful in determining whether the disease is still active and affecting new turf areas. On turf grown at a lower height of cut (< 1 inch) a dark gray-to-purple ring of infected turf may be observed on the outer edge of the patch. This is often termed the 'smoke ring' and is also a good indication the disease is active and spreading.

Brown patch can be confused for *Pythium* blight. Rapid diagnosis and selecting the right treatment are essential for management of brown patch.

## Envu solutions

Brown patch management requires an integrated approach. Avoid excessive amounts of nitrogen; spoon-feeding nitrogen at low rates in the summer is recommended. Schedule irrigation at night from midnight to early morning to minimize periods of prolonged leaf wetness. Increase air movement by addressing excessive tree and shrub growth on the golf course. Installing fans in areas near golf greens where stagnant air is a problem can reduce brown patch pressure significantly.

Whenever possible, the mowing height should be adjusted higher because low mowing heights are associated with greater brown patch development. Core aeration will

reduce thatch accumulation and this also helps to improve drainage. Avoidance of highly susceptible turf species, such as colonial bentgrass, is warranted in humid areas where brown patch is most problematic.

Preventive applications are more effective than curatives; brown patch causes disease quickly and significant injury to turf can occur prior to curative treatment. Additionally, all cool-season turfgrasses have poor recuperative potential during midsummer, a time when brown patch activity peaks. Preventive fungicides to target brown patch should begin late spring/early summer when low temperatures exceed 15 °C consecutively for two to three days.

There are a number of choices for controlling brown patch, and Envu solutions provide added control of other diseases that can be active at the same time. Mirage® Stressgard® provides broad-spectrum control of brown patch, anthracnose and dollar spot. Exteris® Stressgard® and Compass® 50 WG are great rotational choices for brown patch as well.

Fungicides with Stressgard® Formulation Technology can help reduce summer stress on turfgrass, increasing turfgrass recovery potential. Exteris® Stressgard® and Mirage® provide Stressgard benefits and fungicidal activity to directly control brown patch. Signature® XTRA Stressgard® tank-mixes can further promote plant health and reduce the effects of summer decline and stress.

Solution	Rate per 100 m <sup>2</sup>	Application interval* (days)
Exteris® Stressgard®	140–200 mL	14–21
Mirage® Stressgard®	32–64 mL	14–21
Compass® 50 WG	4.6–6.1 g	21 (preventive) 14 (curative)

\*See fungicide labels for complete details. Always read and carefully follow label instructions.



**Severe brown patch development on a creeping bentgrass green.**

Photo: Jesse Benelli, Envu



**Characteristic smoke rings indicative of active disease development.**

Photo: Jesse Benelli, Envu



**Symptoms of brown patch on a rough bluegrass landscape.**

Photo: Jesse Benelli, Envu



**Brown patch lesion on tall fescue turf.**

Photo: Jesse Benelli, Envu

To talk about your specific needs or to learn more about our solutions, please contact an Envu representative.

