



Yellow or orange spores give this disease its name, since they mimic the colour of rusted metal. The airborne spores can travel long distances by wind.

Symptoms

- Begins as small **yellow** flecks
- Raised structures called **pustules** that are yellow, orange, or brown
- Yellow or orange spores may transfer onto clothing
- Yellow **halo** may form around infection sites
- Severe infection may cause **dieback** or even death of grass
- Small **black pinpoint** spots may be found on dead leaves in the fall

Turfgrass Rust

Causal Agent

- *Puccinia* species

Disease Common Names

- Leaf rust
- Stem rust
- Crown rust

Background Information

Turfgrass rust is caused by a foliar obligate pathogen that becomes active in late summer to early fall, with symptoms appearing during high temperatures, drought stress, and long dew periods. This disease is generally considered cosmetic or a nuisance, especially when the orange or yellow spores transfer onto clothing and equipment.

Conducive Environment

Areas with poor airflow and/or drainage are favourable for disease development. Rust outbreaks are likely to occur in slow growing turf when temperatures are over 16°C and evening dew periods are longer than 10 hours. Symptoms will become more severe during hot summer months, or when the turf becomes stressed by nitrogen deficiency, compaction, lack of mowing, or shade.

Pathogens causing rust will cycle through multiple spore stages which involve an alternate host. Symptoms first appear in July after periods of high temperatures and rainfall. Shortly after infection the turf will exhibit characteristic orange or yellow structures called pustules.

Susceptible Hosts

Kentucky bluegrass, perennial ryegrass, St. Augustine grass, zoysiagrass, fine fescue, and Bermudagrass are susceptible to rust. Most rust pathogens require a secondary host, which is usually a woody shrub or tree species.

Appearance

Symptoms initially appear as small yellow flecks on the stems and leaves of grass. As the disease progresses, flecks expand and develop into raised yellow-, orange-, or brown-coloured pustules surrounded by a yellow halo. Severe rust infection can cause leaf tip dieback, progressing into full leaf necrosis. Infected areas may become thin and blighted, resulting in irregularly-shaped patches across a grass field. Towards the end of summer and into fall, black pinpoint structures may be formed on dead or dying leaves.





Black or dark orange pin-prick spots may form on dead leaf tissue towards the end of the growing season.

Turfgrass Rust

Management Strategies

Cultural Management

Promoting deep rooting and foliar growth is the easiest way to maintain healthy turfgrass and reduce disease. Small applications of nitrogen, specifically in problematic areas, will allow the grass to outgrow the rust symptoms. Irrigating deeply and infrequently will reduce drought stress and thus lessen symptoms.

Maintenance practices which reduce leaf wetness duration will discourage infection. Avoid irrigation in the early evening and prune trees to increase air movement. Raking and removing dead leaf debris in the spring may reduce early-season disease pressure. Avoid aggressive cultural practices such as excessive fertilizer applications or low mowing heights during hot, dry weather. Seeding with turf blend mixtures or using resistant species of grass is also recommended for disease suppression.

Chemical Management

For a complete list of pesticides for turfgrass rust, please refer to OMAFRA Publication 384: Protection Guide for Turfgrasses.

<http://www.omafra.gov.on.ca/english/crops/pub384/pub384.pdf>

Be sure to follow all integrated pest management guidelines as well as local, provincial, and federal regulations when using pesticides.

Other Controls & Considerations

Rust infection occurs in the springtime, while symptoms appear late in the summer when disease control is less effective.

Preventative control early in the season is recommended for optimal disease coverage specifically in areas that consistently suffer from rust infection.

If the infestation is severe, chemical control methods can be implemented when nighttime temperatures are above 15°C. For chemical applications on larger areas, appropriate spray coverage should be ensured to maximize blade coverage.

Management Summary

Reduce risk by:

- Increasing airflow and reducing leaf wetness period
- Ensure good drainage
- Removing infected leaf matter
- Introducing resistant grass species such as tall fescue
- Removing alternate host plants in surrounding areas

Manage infection by:

- Applying nitrogen fertilizer to promote growth
- Avoiding irrigation in early evening
- Raising height of cut

