

Turf Rust



Orange dust on shoes means the grass is infected with rust.

Have your shoes turned rusty-orange after walking across the lawn? If so, your lawn is affected by a fungal disease called rust. Rust may appear at any time during the growing season, but is most common during late summer and autumn and is often more severe in shaded areas. It appears during warm, humid, dry periods when the grass is growing slowly or not at all, and nights are cool with heavy dews. Rust is most common on Kentucky bluegrass and perennial ryegrass lawns.

There are many different rust fungi (*Puccinia* spp.; the most common one is *P. graminis*) that can infect lawn grasses, but they all produce the reddish, yellowish or orange spores that give “rusts” their name. All commonly grown lawn grasses in the Midwest, including bluegrass, fescue, and ryegrass, are attacked by one or more species of rust fungi. These rust fungi are obligate parasites that only infect living plants, especially grass under stress. The life cycle of these rust fungi is very complex, with numerous types of spores produced and many alternate hosts (mostly woody shrubs and herbaceous ornamentals).

Turf rust is easily identified by the orange pustules on the surface of the leaves. Infected areas of lawn take on a generally yellow appearance with an orangey cast. Initial sites of infection on leaves are light yellow flecks that soon enlarge to form round to elongated pustules that rupture through the grass epidermis to release the powdery spores. Depending on the species, the spores may be red-brown, brownish yellow, bright orange or yellow.



Infected areas of lawn take on a yellow-orange cast.

A single pustule may contain 50,000 or more spores, each capable of producing a new infection. The spores easily rub off on shoes, clothing, animals, mowing equipment or other objects that pass through the infected areas and may also be moved around by wind and rain. If a spore lands on susceptible leaf tissue and sufficient moisture is present, it will germinate to develop a germ tube that penetrates into the grass leaf to create a new infection.



The orange color is many rust pustules and their powdery spores.

In a week or two, new pustules and spores appear. Several cycles of infection and spore release may occur during summer and fall until it gets too cool for fungal growth. Under certain conditions other types of spores – usually brown to black in color – are produced, some of which infect alternate host plants to produce yet other types of spores that are capable of infecting turfgrass. The fungus may overwinter in the Midwest as dormant mycelium inside grass leaves, but spores blowing in from the southern US are usually the most important source of new infections.

Turf rust rarely kills the grass, but does stress the plants, thinning and weakening the planting. Thin and weak grass is more susceptible to other diseases, winter-kill, and invasion by weeds. Newly seeded lawns are more heavily impacted by rust than are well-established lawns.

Control

There are many grass cultivars that are resistant to rust. Plant rust-resistant grasses, blends, or locally adapted mixtures. But be aware that resistance to rusts is not universal because there are so many races of the rust fungi – a cultivar that is resistant in one location may be susceptible in another area.

This disease can be reduced by proper fertilization, mowing and irrigation. If you can keep the turfgrass growing vigorously, it will be mowed before spores can be produced. Maintain good vigor through optimum fertilizer applications (based on soil test results) and mow regularly at the height recommended for the type of grass you have. Collect and dispose of infected clippings if possible. Water established lawns deeply and infrequently during periods of drought to keep the grass growing. Try to water early in the day so the lawn will dry out and not have water remaining on the leaf surface for long periods of time, which increases the chances of infection by rust as well as many other diseases. Fungicide applications are generally not recommended for homeowners unless the lawn has been severely infected for several years in a row. The infection eventually disappears when the weather turns cold.



An area of turf infested with rust has a yellowish appearance.

– Susan Mahr, University of Wisconsin - Madison

Additional Information:

- Turfgrass Disease Profiles: Leaf Rust – Purdue University fact sheet BP-110-W at www.ces.purdue.edu/extmedia/BP/BP-110-W.pdf
- Rust on Turfgrass – Cornell University fact sheet at plantclinic.cornell.edu/FactSheets/turfrust/rust.htm