

Diseases

What are lawn diseases - condition where plant is affected by some factor that interferes with normal growth and development.

Lawn diseases can be difficult to identify. Drought and pest-damaged grass are often mistaken for diseased grass. Also, many of the diseases and their symptoms look alike, so identifying the specific culprit will be unreliable with just a casual inspection. Virtually all turf diseases are caused by soil-dwelling **fungi**. Often these pathogens are held in check by beneficial fungi and other micro-organisms. It is only when conditions become favorable for the pathogens that they gain the upper hand. How do conditions change to favor pathogens? Generally through improper care. Fungal diseases are easier to prevent than to cure. Although you can control turf diseases with fungicides, your first action should be understand the conditions that give rise to disease, then correct them so disease won't get started in the first place.

Lawn Care and Maintenance Are Your Best Defense!

What can cause disease - abiotic agents & biotic agents

Abiotic Agents - non living factors that include nutrition, temperature, soil conditions, light, weather etc.

Biotic Agents - pathogens including parasites, bacteria, fungi, nematodes, etc.

There are three elements that need to be present for the development of a lawn disease and one or two elements of this equation won't cause a fungal disease to develop - All three must be present:

- pathogen
- the right conditions
- host plant

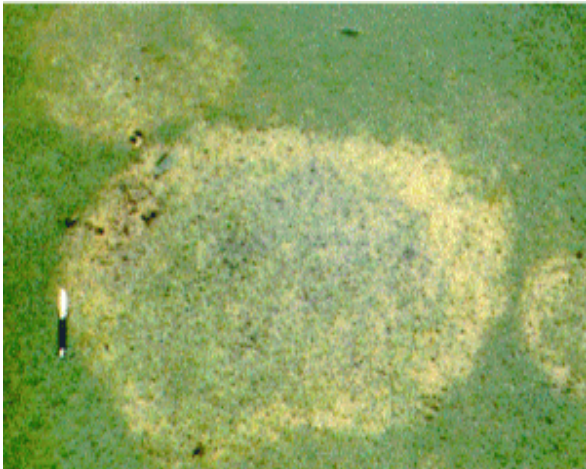
Controlling Diseases

Common Suggestions For Improved Cultural Practices

- Ensure proper nutrition
- Decrease periods of leaf wetness
- Reduce shade Increase air circulation
- Improve deep rooting
- Control thatch
- Mow often in alternating directions with sharp blade
- Water deeply and infrequently

Top Ten Lawn Diseases and How to Spot Them.

Brown Patch (*Rhizoctonia solani*)



- All turf types are susceptible.
- Purplish “smoke ring” border may be present early in the morning.
- Circular brown patches.
- Lesions on leaf blades similar to dollar spot but not bleached and more irregular.
- Lesion borders are not straight like dollar spot.
- Usually a foliar disease that does not kill crowns or roots
- Fungus survives in soil and thatch as mycelium
- Requires temperatures from 18C (64F) - 32C (90F)
- High humidity

Management of Brown Patch

- Reduce N during summer
- Avoid night watering
- Increase air circulation

Pink Snow Mold & Fusarium Patch (*Microdochium nivale*)

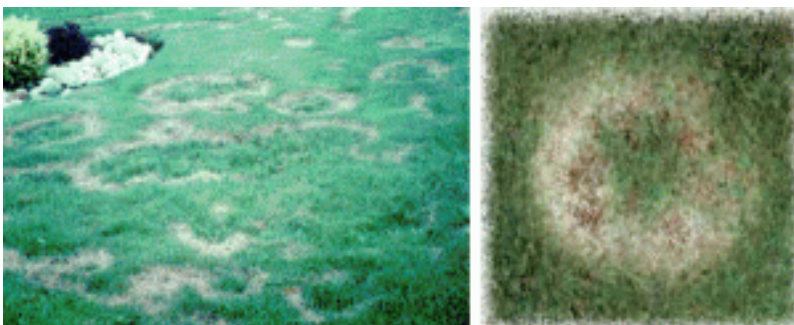


- All cool season grasses are susceptible
 - Patches with orange to red to brown appearance ranging from 10-20cm (4-8 inches)
 - Pink or white mycelium found on the outer edge of patch
 - Reddish brown patches may be evident after snow melt in the spring
 - Fungus may continue well into the spring causing fusarium patch
- Fungus survives the summer in the thatch
 - Spores or mycelium may germinate and become active again in the fall causing fusarium blight

Management- Pink Snow Mold & Fusarium Patch

- Minimize thatch
- Prevent succulent growth in the fall by mowing until leaf growth stops
- Avoid applying N late in the fall (no closer then 6 weeks before dormancy)
- Maintain adequate K levels
- Rake matted areas to encourage drying

Necrotic Ring Spot (*Leptosphaeria Korrae*)



- Fescues are susceptible
 - Disease is active in spring and fall but symptoms are not obvious until summer drought periods
 - Frog eye symptoms visible all year
 - Patches 10cm to 1m (4 inches to 3 feet) wide become evident as outer leaves yellow and bleach
- Affected leaves may turn reddish purple
 - Damage may persist long after fungi is active since roots and crowns of grass are killed
 - Summer heat and drought stress magnify damage despite disease activity being minimal during these conditions
 - Infected grass plants have dark coloured roots.

Management of Necrotic Ring Spot

- Over all this is a very difficult disease to control. A few things that can be done are:
- When rings first appear, dig them out (6”-8”) and over-seed with perennial rye grass
- Apply N to low N turf
- Control thatch and compaction
- Reduce shade
- Increase air circulation
- Avoid drought stress

Dollar Spot (*Sclerotinia homeocarpa*)

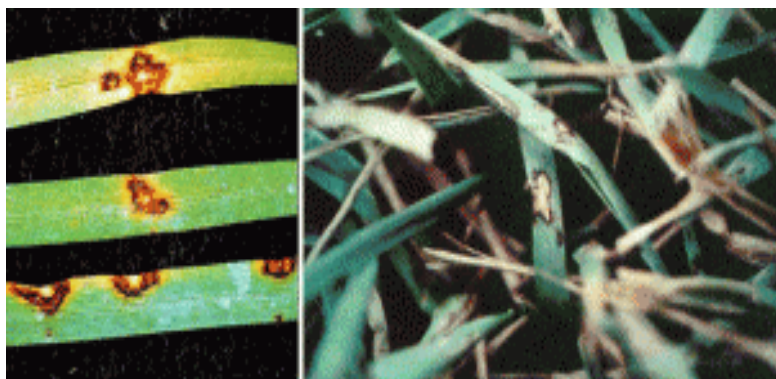


- All turf types are susceptible
- General blighting appearance
- Blades have “hourglass” lesions with bleached area, and sunken edges and brown borders
- Warm days and nights
- Heavy dew
- High humidity
- White cobweb like mycelium
- May spread by lawn equipment
- Mycelium overwinters in thatch, foliage, and soil
- Fungal growth begins at 15C (60F) and is at a maximum at 21C (70F)

Management of Dollar Spot

- Apply N to low N turf
- Control thatch and compaction through aerating
- Enhance drying of turf by reducing shade and increasing air circulation
- Avoid drought stress and night watering

Leaf Spot & Melting Out (*Helminthosporium Drechslera*)

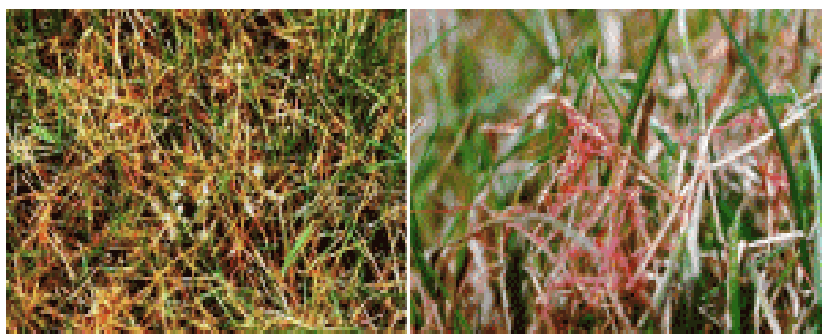


- Occurs from spring through to the autumn
- Starts as water soaked spots on lower leaves
- Spots darken to a reddish-purple, brown and enlarge to form oval spots that extend to the width of the leaf blade
- Spots may increase in size and number until leaf blade is girdled - melting out phase
- Melting out phase may lead to decay of crown and roots
- New infection is reduced in warmer temperatures (early summer) but melting out is more severe
- Survives winter as dormant mycelium in thatch or infected tissue
- Spores are produced that may spread further infection

Management of Leaf Spot

- Avoid excess N
- Increase mowing height
- Use resistant cultivars when seeding or overseeding

Red Thread (*Laetisaria Fuciformis*)



- All turf types especially fine fescues
- Spring and fall
- Reddish brown diffuse patches
- Usually top growth is only effected
- Pink or red strands called hyphae grow during advance stages of infection
- Spreads from leaf to leaf with mycelium strands being carried by wind or traffic

Management of Red Thread

- Light application of N will reduce severity of disease
- Promote good drainage
- Improve air circulation

Rusts (*Puccinnia species*)



- All grasses
- Late summer or fall
- Low light, high humidity, 70-80F weather
- Alternating warm and cool weather (extreme temp shifts)
- Survives on obligate hosts I.e., barberry, buckthorn
- Effects only leaf blades

Management of Rusts

- Increase mowing height
- Fertilize
- Reduce shade
- Increase air circulation

Fairy Ring (*Marasmius oreades*)



- All turf types are susceptible
 - Three forms: killing ring, stimulated ring, or mushroom ring
 - Killing ring starts as a circle or arc of dark purple wilted turf
 - Ring of grass then dies off
 - Rings are a result of progressive outward growth of the fungus
- Dead ring has turf that is dry with roots that are dead
 - Stimulated ring begins as a circle dark green grass
 - Rings grow a few mm/year
 - Stimulation caused by chemical reaction
 - Late summer or early fall mushrooms can be produced
 - Fungus grows in soil to a depth of 30cm (1 foot)
 - Whitish mycelium with mold or musty smell

Management of Fairy Ring

- Mask symptoms through balanced fertility, watering and repeated deep cultivation
- Mix new soil into the ring areas and re-seed
- Remove all fungus infested soil and replace with clean soil

Leaf Blight (*Ascochyta* spp.)



- Leaf Blight occurs on lawns during hot humid weather.
- The disease enters the grass plants after evening mowing, followed by excessive night watering.
- In heavily infested patches the fungus damages the lawn in circular or tubular patches that often form large bleached areas.
- Close inspection of the plant reveals individual leaves dying from the tip down with a brownish purple line running horizontally across the plant.

Pythium (*Pythium aphanidermatum*)



- Killed areas may occur in streaks as a result of the mycelium and spores being spread by mowing equipment
- Large patches of blighted turf
- Crowns and roots may be damaged with little or no recovery
- Hot, humid weather is necessary for this disease to occur
- Day temperatures exceed 30C (86F) and night temperatures exceed 22C (72F)

Management of Pythium

- Reduce shade and increase air circulation
- Deep infrequent watering only
- Avoid mowing during severe disease activity