TURF ISSUES

As part of Twin Oaks' Core Values, this resource document was created for our team to educate and provide on-site reference of common issues with lawns.

TWIN OAKS
LANDSCAPE

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DOLLAR SPOT

Dollar spot is characterized by round, bleached-out or straw-colored spots, ranging from the size of a quarter to the size of a silver dollar. Spots appear as sunken areas in the turf, especially low mown turfgrass (0.5 inches or less). Fluffy white mycelia can be seen when fungus is actively growing during morning periods of heavy dew. Symptoms on individual grass blades appear as bleached-out or tan lesions that are often accompanied by reddish brown bands present at the outer edge of the leaf lesion (except on annual bluegrass).

Dollar spot occurs when daytime temperatures are between 59-88° F (15-31° C) and disease development is favored by warm, humid weather followed by cool nights that produce heavy dews.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]

TWIN OAKS LANDSCAPE

MELTING OUT

Symptoms of melting-out resemble leaf spot symptoms and these two diseases are often grouped together. Melting out however is a cool-weather disease where leaf spot is a warm-weather disease. Symptoms first appear as black to purple spots on the leaf blades. Spots eventually move to the leaf sheaths, and the fungus invades the crowns and roots of the grass plant. The turf stand will appear yellow or blackish brown from a distance depending on the nitrogen level of the turf during infection.

Melting-out has two stages of disease development; one being in the early spring in cool, wet weather, which brings about spotting on the leaves of the turf. As cool, wet conditions persist, the crown and root rot stage of the disease follows, and infected turfgrass begins to thin and die. Fall infection should also be noted, but is rarely seen unless extended cool, wet weather occurs.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]

POWDERY MILDEW

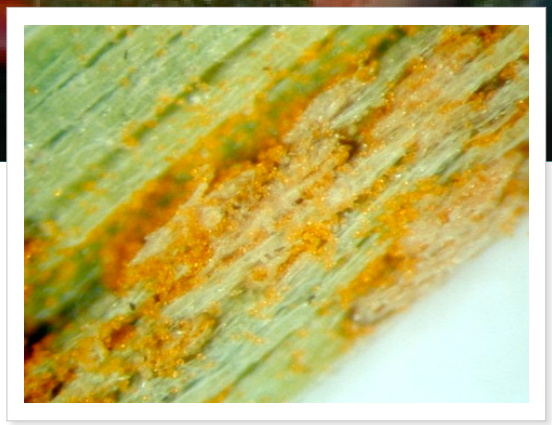
Turf affected by the disease has a grayish white cast, with initial symptoms appearing as white patches on the leaf blade. Eventually the whole leaf blade becomes covered by a white mass of spores. Leaves begin to deteriorate, turn yellow, and eventually die, and brown to black fungal structures (cleistothecia) may be seen.

The pathogen can overwinter via specialized structures and germinates in the spring of the year infecting turf in the late spring or early summer. Secondary spore production on leaves serve to re-infect new grass plants throughout the season. The pathogen is favored by cool cloudy conditions and high humidity. The disease also only occurs in turf located in areas where sunlight is at a minimum due to shade.

The location of this disease is home lawns and golf courses. General and foliar symptoms are dusty. This can occur during the months of April, May, June, July, August, September, and October. Hosts of the disease are Kentucky Bluegrass, Perennial Ryegrass, Fine Fescue, Annual Bluegrass, and fine-leaf fescues.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]

RUST



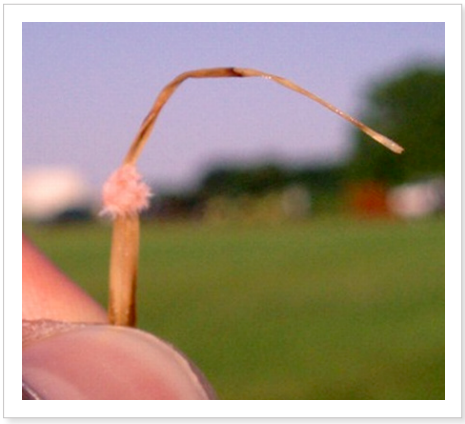
Rust diseases are characterized by yellow to dark brown urediospore infestations that, from a distance, make turf stands appear orange or yellow. These rust-colored urediospores protrude through the plant's epidermis causing spots that elongate parallel to the leaf or stem axis. When rust is severe, areas of infected turf appear thin, weak and have a red, brown, or yellow tint. Heavily infected plants may wither or die from excessive loss of moisture from rusted leaves.

Rust populations sporulate at a variety of temperatures, but generally optimal temperatures for epidemics are between 68° and 86° F (20-30° C). In warmer regions, the fungus can overwinter as mycelium or active spores in infected plants. Spores land on susceptible hosts in the spring, germinate, and infect plants. Initial sporulation is followed in many cases by successive rounds of sporulation, leading to exponential production of inoculum. Rust diseases are typically most severe in slow growing grasses that are under stress. Parameters optimal for infection include low light, high dew points, and moderate temperatures.The location of this disease is home lawns and golf courses. General symptoms are irregular coloring. Foliar symptoms are dusting and turning orange. This can occur during the months of May, June, July, August, September, and October.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]

RED THREAD

Red thread is a disease of slow growing turf. Red thread is easily recognized by the red to coral-pink fungal strands (stromata) produced on leaf blades and sheaths. When turf is wet, the fungal stroma looks gelatinous and fleshy. As the grass dries, the stroma also dries and becomes thin and thread-like. Infected turf often appears to be suffering from lack of water, often times symptoms resemble dollar spot. Under close examination of the grass blades reveals red to coral-pink stromata. Under conditions of high humidity, pink cottony flocks of arthroconidia can be seen in the patches.



Red thread is favored by high humidity at temperatures between 60F - 90F. Cool, drizzly days of spring and fall are ideal for the development, and the disease spreads from plant to plant by growth of the stromata. These can be spread by wind, and mechanical equipment.

The location of this disease is home lawns and golf courses. General symptoms are a spot, patch, or irregular coloring. Foliar symptoms are browning. This can occur during the months of March, April, May, June, July, August, September, and October. Hosts of the disease are Kentucky Bluegrass, Perennial Ryegrass, Fine Fescue, Creeping Bentgrass, and Annual Bluegrass.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]

GRAY SNOW MOLD

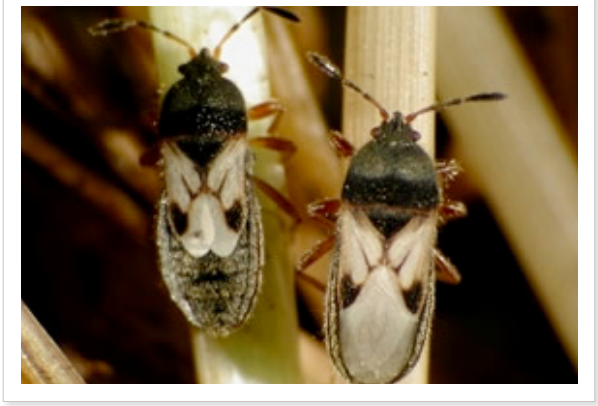
This disease is important in northern regions of the United States, where snow cover remains on the ground for extended periods, usually 3 months or more. After the snow melts in the spring, symptoms can be observed as circular straw-colored or grayish brown infection centers in the turf. The spots range from 3 inches to 24 inches (7.6 cm - 60 cm) in diameter, but most are between 6 and 12 inches (15-30 cm). Infected turf is matted down with grayish white mycelium of the fungus often seen along the margins of the diseased area shortly after snow melt.

Typhula blight is worse in winters when snow falls on unfrozen turf. The fungus grows and infects at temperatures between 30 and 55° F (-1° and 12.7° C). The two species T. incarnata, and T. ishikariensis can be distinguished by the fruiting structures, or sclerotia, they produce on infected turfgrass. T. incarnata produces relatively large, copper-colored sclerotia with diameters that are typically larger than the width of the grass blade, while T. ishikariensis produces small, black sclerotia whose diameters are less than the width of the grass blade. T. incarnata is most significant in the eastern U.S. and Canada, and T. ishikariensis prevails in the colder regions of the world, where snow cover remains for three or more months.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]

CHINCH BUGS

Distant: Patches of turf turning brown in July or August. The damage resembles drought stress, but turf damaged from chinch bugs does not recover after a rain.



Up close: Dead and dying grass plants, and small (1/8 inch) black bugs in the surface duff or thatch when it is scratched or parted.

When damage is found: July and August

Host: All grass species including perennial ryegrass, Kentucky bluegrass, red fescue and creeping bentgrass.

Site: Chinch bugs are more likely to be a problem in non-irrigated turf. Sunny areas of lawns, sandy soils, and thatch lawns are most likely to become infested.

Description of damaging stage: The adult stage and large larvae cause the most damage. Adults are 1/8 inch long and have piecing/sucking mouthparts, like a needle, which are inserted into the grass plant to suck sap. Saliva injected into grass plants when the chinch bugs are feeding causes a burn-like reaction. Large larvae are almost entirely black, but adults have wings with angular white markings. Young larvae are smaller and red.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

EUROPEAN CHAFER

In an average year in southern Michigan, adult flight begins in mid to late June and continues for 2 to 3 weeks. European chafer is a nondescript light brown beetle, 0.5 inch long (smaller than June beetles and larger than Japanese beetles) and robust. They do not feed as adults. Beetles emerge at dusk each evening and tend to congregate in trees for several hours. Homeowners may not even see the beetles because of this nocturnal behavior. Eggs are laid from late June through July. Larvae hatch from eggs in 10 days and begin to feed on the roots of turf. They feed through late summer and fall, not stopping until the ground freezes. They resume feeding in the spring before the grass begins to grow. The larvae pupate (and stop feeding) in late May.

Notes: A healthy, well-maintained turf can support up to 5 grubs per square foot without the grub damage becoming obvious. Since the adults fly mostly after dark, the first indication that European chafer has moved into an area may be dead patches of turf and skunk damage.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

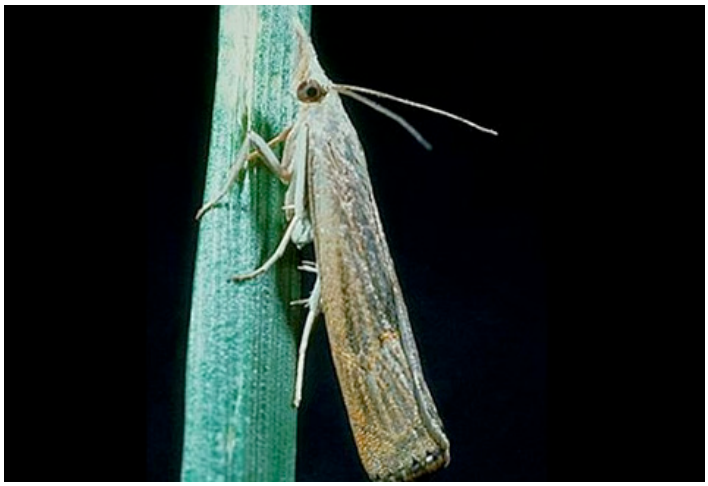
JAPANESE BEETLE

Japanese beetles can be present from June through September. Japanese beetle adults are metallic green or greenish bronze with reddish wing covers and several white spots near the abdomen tip and along the sides. They have 6 or 7 small tufts of white hair around the posterior (rear) abdomen, just under the wing covers. Japanese beetles are active during the day and feed on many species of trees, shrubs and flowers, sometimes causing serious damage to roses, linden trees, grapes and others. Adults are known to feed on over 300 species of plants, although some are preferred over others. Eggs are laid in late July and August. The eggs hatch in about 10 days and the small (1/8 inch long) grubs begin feeding on turf roots. Larvae are larger C-shaped grubs that live in the soil. They grow larger as they feed until late October when they are nearly 3/4 inch long. When the soil temperature cools below 50° F the grubs begin to move deeper into the soil to overwinter. The move back into the root zone and start feeding on turf roots in April, but new damage is rarely observed from Japanese beetle grubs in the spring.

Japanese beetles are often present in a mixed population with European chafer. Healthy turf can easily support a population of 5 grubs per square foot, even when not irrigated, or up to 15 per square foot where it is irrigated. Proper mowing, fertilizing and watering should be the first line of defense when dealing with Japanese beetle grubs.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

SOD WEBWORM



The adults are 3/4 inch long silvery or cream colored moths that fold their wings length-wise over their abdomen into a tube shape when at rest. Webworm moths also have soft mouthparts that project forward on the head (hence, they are sometimes called snout moths). The adults can be seen flying over lawns at various times during the summer, but this does not indicate a problem unless very high numbers are observed. Webworms spend the winter as larvae hiding in the thatch and soil. More than one species is found in Michigan, but the bluegrass webworm has two generations per year with larvae present in late June to July and again in September.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

CUTWORM

The adults are nondescript brown or grey moths. There are several species that can be a problem on turf. The insect does not usually overwinter in Michigan and flies in on wind currents in the spring. They can go through several generations per year, so damage can occur at different times over the summer.

Notes: There is a new species of cutworm called the winter cutworm in northern Michigan that does overwinter in Michigan and causes its damage during the winter or early spring months.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

CRANEFLY

The insect generally has a single generation per year. The adults, which resemble giant mosquitos, begin to fly in August. The two species are difficult to distinguish from each other and can also be confused with several species of native craneflies that do not harm turfgrass. There are two destructive of the two European species - European cranefly and common cranefly. The European cranefly is more destructive. The European cranefly deposits eggs in the soil in August or September. Young leatherjackets begin feeding on turf roots in September. They overwinter in the soil and resume feeding in April and May. Larger larvae come to the surface at night and feed on grass blades and crowns, sometimes causing a scalping effect in small patches. Larvae complete development in early June, moving about 3 inches deep into the soil to pupate. European cranefly adults do not emerge until August, but common cranefly may have two generations per year with adults emerging in the spring and the fall.

Notes: This pest was first reported in Michigan about 2005. In 2012, there were a few locations in the metropolitan Detroit area and Grand Rapids that were damaged, in some cases, severely. It is expected to slowly spread across the entire state.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

BILLBUG

Adult bluegrass billbugs are a small dark gray to black weevil approximately 5/16 of an inch long. Individuals are typically found in small numbers in most lawns. They have a single generation per year with adults becoming active in May. Eggs are deposited inside small holes chewed into the grass stem between late May and early July. Eggs hatch in about 6 days and the larvae feed inside the stems. It is the larval stage that causes the damage. Larvae pupate and adults emerge in August. They find places to hide in the turf and overwinter as adults.

Notes: Damage from this pest is uncommon because of predators and diseases. Regular applications of a synthetic pyrethroid insecticides (such as deltamethrin, cyfluthrin, bifenthrin and lambda-cyhalothrin) after early June have been known to suppress natural enemies and allow billbugs to increase to damaging populations.

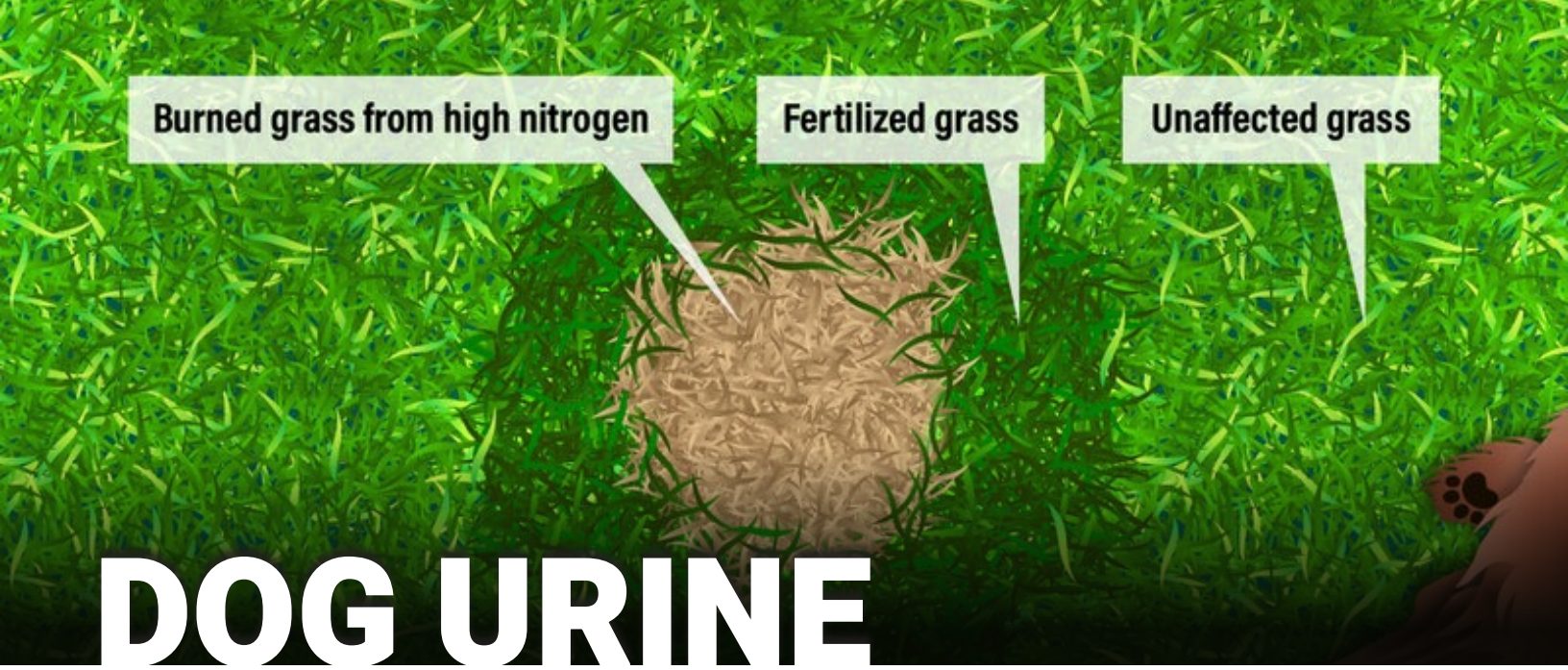
Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

FAIRY RING

Fairy rings tend to grow in circle shaped patterns through the organic matter in the soil, mat, and thatch, first appearing as dark green circular rings or arcs in the turf. Rings can range from less than one foot to more than 100 feet in diameter, and often appear as areas of increased growth, known as the “zone of stimulation.” In periods of heat or drought stress, affected areas may result in dead rings of turfgrass. The area of stimulated growth is thought to be due to organic matter breakdown which releases nitrogen sources, subsequently made available to the turfgrass plant.

Fairy ring fungi live and survive by spores or other means in dead organic matter in the soil or thatch. Most prevalent in sandy soils, these fungi are thought to be former forest dwelling fungi, which have turned into true saprophytes. Fairy rings occur in many different shapes, sizes, and patterns, some may be accompanied by above ground fruiting mushrooms known as basidocarps.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [1]



DOG URINE

Dogs produce urea naturally in their bodies by breaking down proteins in food. Urea is the main ingredient in fertilizer lending high nitrogen content. Nitrogen is the chemical in fertilizer which causes the quick green up in the spring. However, too much nitrogen can also burn turf and kill it. Older dogs usually have higher urea content as well as dogs that aren't drinking enough water. Dehydrated dogs urine is much more concentrated.

Damage from pet urine usually takes on a form of a dead brown inside surrounded by dark green "fertilized" grass where the nitrogen content wasn't too high then further out unaffected grass.

VERTEBRATES

Skunks and racoons will dig up turf to eat grubs where populations are dense enough to cause damage to turf roots.

Grubs are the larval stage of many bugs and beetles. Some only attack unirrigated turf while others only attack irrigated turf.

Photograph Source: Michigan State University Dept. Plant Soil & Microbial Sciences [2]

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LANDSCAPE

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References:

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[1] https://www.canr.msu.edu/turf/diseases

[2] https://www.canr.msu.edu/turf/insects