



Managing Large Patch of Zoysiagrass

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Large Patch of Zoysiagrass, formerly called Zoysia Patch Disease, is one of the most serious diseases of Zoysiagrass in Oklahoma. Large Patch is caused by the fungus *Rhizoctonia solani*. A Zoysiagrass turf affected by Large Patch is shown in Figure 1. Proper identification of the disease is the first step in controlling any disease. To determine if your turf area has Large Patch of Zoysiagrass, read the information provided below to try to match the symptoms of the disease and time of year of occurrence with the problem found in your turfgrass. Positive identification of the disease can also be made by taking a sample of your problem turf to your local Oklahoma Cooperative Extension Service county office for submission to the OSU Plant Disease Diagnostic Laboratory at Stillwater, Oklahoma. A small fee is charged for processing diseased samples.

To collect a proper sample for diagnosis, select several turf plugs measuring 4 inches in diameter by 3 inches deep from the outer edge of the affected patches. The plugs need to contain both healthy and diseased turf. Take the samples to your county cooperative extension service for proper packing and shipment to the diagnostic laboratory.

Symptoms

In Oklahoma, Large Patch of Zoysiagrass is most commonly seen in early April through May. Diseased Zoysia can be new patches or perennial patches from previous years. Spring patches are visible in April as light-brown sunken areas that recover slowly from winter dormancy while healthy turf around the patches greens up more rapidly. Patches may expand and show a bright orange border. The fungus is most active at thatch temperatures between 50° and 86°F. By late May, thatch and soil temperatures are high enough to stop the spread of the disease.

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<http://osufacts.okstate.edu>



Figure 1. Meyer Zoysiagrass infected with Large Patch Disease. Note the orange outer ring of the patch, which is helpful in diagnosing the disease during its active phase.

In the fall, thatch temperatures are lower and the disease becomes active again. From late September to mid-October, roughly circular patches of bright orange discolored turf appear. These patches later fade to a tan color. The outer ring of the patch will usually remain bright orange in color as it continues to expand. Grass shoots on the outer edge of the patch may develop reddish-brown to black lesions on the lower leaf sheaths on the plant. The enlargement of the lesions eventually girdles the plant and cuts off the water and nutrients supplied to the shoot. Some uninfected Zoysiagrass as well as other turfgrass species and weeds will remain uninfected and grow rapidly inside the patch. Infected areas range in size from 6 inches to 20 feet in diameter.

Managing for Large Patch Prevention and Recovery

Severity of Large Patch Disease can be reduced though not necessarily cured through proper lawn management. As Large Patch does not usually kill stems or roots, the infected areas can heal over very quickly in warm weather if the Zoysia turf is properly managed.

Watering and Drainage

Proper irrigation and drainage of Zoysia areas are critical in controlling this disease. Large Patch of Zoysiagrass is favored by very wet soil or wet thatch and is most severe in low or poorly drained areas. Low areas should be regraded for proper surface drainage. Tiling or slit trenches can be used to assist in drainage of water through the soil. In severe cases, sod should be removed with a sod cutter and sand should be tilled into the soil to improve soil drainage characteristics.

Zoysia should be watered when it first begins to foot print or wilt. Water such that there will not be standing water. Additionally, if a Zoysia area needs water, it should be watered in the early morning hours (5 to 9 a.m.) to lessen the period of leaf wetness that favors disease development.

Mowing Practices

The fungus causing the disease can be easily spread over an area if the area is mowed or tread over by people or equipment when the turfgrass leaves are still wet. Mow infected Zoysiagrass areas only after the turf has dried off. Severity of Large Patch of Zoysia increases with lower mowing heights. Try to maintain Zoysiagrass at 1 to 1 1/2 inches in height.

Fertilization

Zoysiagrass that is already established should be fertilized with no more than 3 pounds of nitrogen per 1000 square feet per year. Apply this amount of nitrogen in three separate and equal applications. The first application should be in late April to early May, with the second and third applications at 8 weeks intervals. Delay nitrogen fertilization during periods of rapid development of Large Patch of Zoysia. Use of a controlled release fertilizer source that has at least 40% of its nitrogen in a slow release form is suggested. Avoid deficiencies in other essential nutrients, especially potassium. Soil nutrient levels can be checked with a soil test.

Core Aerifying, Power Raking or Dethatching

Zoysiagrass areas should not be disturbed by aerification or dethatching when Large Patch of Zoysia is active (spring and fall). Perform these activities once the soil and thatch have warmed up and the disease is

no longer active. Core aerification can help reduce soil compaction and allow improved water and air movement into the soil. Power raking or dethatching can help remove thatch in a lawn. Consider dethatching only when thatch exceeds 1/2 inch in thickness.

Cultivar Resistance

At press time, no information was available on resistance of Zoysiagrasses to Large Patch Disease.

Fungicidal Application

Fungicides can help control Large Patch of Zoysia. The timing of spray application of the fungicide is very important. Ideally, fungicides should only be applied to areas which are likely to have a reoccurrence of the disease. Areas that were infected in the previous spring or fall are more probable locations for the disease to occur than areas that were not previously infected. Fungicide application should be made prior to the occurrence of infection. If fungicide applications are to be made prior to reinfection, likely application dates will be early April to early May and late August to mid-September. Always read and follow fungicide label directions. The label is the law.

The following fungicides have been successful in suppressing Large Patch of Zoysiagrass in this region of the country and are labeled for this use: Chipco 26019 (active ingredient iprodione), Banner (active ingredient propiconazole) and Prostar (active ingredient flutolanil). The turfgrass fungicides Lynx (active ingredient tebuconazole) and Eagle (active ingredient myclobutanil) have been found successful in suppressing Large Patch of Zoysia, but were not labeled specifically for control of this disease at press time.

Homeowners should consider the use of a professional pest management service to apply fungicides, as i) packaging size may not be convenient or practical for homeowners, ii) the fungicide labels may preclude purchase or application of the material by nonprofessional turf managers, or iii) homeowners may not possess proper fungicide application equipment. Several applications as per label directions may be required to achieve acceptable control of the disease. As these fungicides are expensive, spot treatment of the infected areas and a small area immediately outside the area of infection is an excellent way to achieve control yet reduce the amount of fungicide used and control costs.

The pesticide information presented in this publication was current with federal and state regulations at the time of printing. The user is responsible for determining that the intended use is consistent with the label of the product being used. Use pesticides safely. Read and follow label directions. The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

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