



Centipedegrass Decline

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Centipedegrass

Centipedegrass, *Eremochloa ophiuroides* (Munro) Hack, is a stoloniferous, medium textured, low and slow-growing turfgrass. It is aggressive and can produce a dense, attractive weed-free turf. Although there are a few different varieties available, common centipedegrass is most widely planted. ‘TifBlair’ is the only certified cultivar. It has improved density, is cold tolerant and is increasing in popularity.

Centipedegrass is ideal for the homeowner who wants a lawn that needs little care. It can be established by either seed or vegetative parts and does not require much fertilizer. Compared to other lawn grasses, it is moderately resistant to insects and diseases. Although centipedegrass is a relatively low maintenance grass, proper management is still required.

Centipedegrass Decline

Failure to green-up in the spring or successful green-up followed by decline and death in late spring and summer is a problem that can be encountered in centipedegrass-growing areas. Centipedegrass is subject to a condition called “centipedegrass decline.” Many factors may contribute to this problem. It is important to be aware of these factors so that preventive and/or corrective steps can be taken. This problem can be prevented by proper management, which includes avoiding over-fertilization, preventing thatch accumulation, irrigating during drought stress (particularly in the fall), and maintaining a mowing height of 1 to 1.5 inches.

Centipedegrass Decline Factors

Factors that contribute to centipedegrass decline include improper plant nutrition, cultural practices, and soil and water conditions.

Plant Nutrition: The nutrient requirements of centipedegrass are different from most other turfgrasses. An acid soil pH of 5.0 to 6.0 is preferred by this turfgrass species. As the pH goes above 6.0, Iron (Fe) availability decreases. Iron deficiency causes the grass to become chlorotic or yellow. A high phosphorous level also renders iron unavailable in the soil, resulting in chlorotic symptoms. Centipedegrass has a lighter green foliage than most other turfgrasses. It will become dark green with excessive nitrogen applications, which can be a primary cause of centipedegrass decline. Additionally, unwarranted nitrogen can lead to thatch build-up and disease problems.

Thatch Build-Up: A “thatch layer” is an accumulation of dead plant material at the soil surface. In the case of centipedegrass, thatch is composed of turfgrass stems, stolons and roots. Thatch build-up prevents water from penetrating into the soil, harbors insects and disease organisms, and leads to a shallow-rooted centipedegrass that is heat-, cold- and drought-susceptible. New stolons grow on top of the thatch and roots don’t penetrate the soil as deeply. Therefore, these stolons and roots are exposed to cold temperatures and are more subject to drought and desiccation. If proper fertility and mowing practices are followed, grass clippings will not promote thatch build-up. A soft, spongy turf usually indicates an excessive thatch accumulation.

Soil and Water Conditions: Healthy aboveground growth depends on an extensive, well-developed, deep root system. The weaker and less extensive the root system, the more susceptible the grass is to drought stress and winter injury. In extreme cases, the root system may be so weakened that the grass will die even during favorable summer weather conditions. A number of factors can contribute to poor root development, including nematodes, compacted soils, pH or nutrition problems and poor watering techniques.

Centipedegrass Decline Symptoms

Diagnosing turfgrass problems can be difficult. However, familiarity with the following factors involved in centipedegrass decline can help identify specific problems.

1. Was the grass showing a definite yellowing or chlorosis as it greened-up in the spring or when it went into dormancy in the fall?

Take a soil sample for pH and fertility analysis. Look for nutrient imbalances such as low or excessive phosphorus. Your county Extension agent can provide information on the proper way to take a soil sample and assist with mailing the sample to the UGA Agricultural and Environmental Services Laboratories (<http://aesl.ces.uga.edu>).

2. Was the grass dark green for most of the previous growing season?

Centipedegrass foliage is typically light green. However, when fertilized with nitrogen, centipedegrass will become dark green. If the lawn remains dark green for much of the growing season, this usually indicates excessive use of nitrogen.

3. Can the turf be easily lifted from the soil surface by pulling on the stolons?

This is normally a sign of poor root system development, which may be due to excess thatch, compacted soil, drought stress or nematodes.

4. Is it difficult to push a soil probe, screwdriver or shovel into the soil?

Usually this is a sign of a compacted soil.

5. Have the grass blades turned dull green or curled up during dry weather?

This is a sign of drought stress and may be due to poor watering practices, excess thatch, compacted soil, poor root development or nematodes.

6. Has the grass died out in the spring, in summer in a semi-circle or complete ring in an open area or around trees?

Usually there is an advancing margin of dying grass along the edge of the circle during the summer. This may be caused by one of the fairy ring fungi. If circular patches of diseased turf are observed in the spring or fall, this may also indicate large/brown patch fungal infections.

7. Does the area feel "fluffy" when you walk over it due to numerous burrows that loosen the soil?

This can be caused by vertebrates such as ground moles or insects like mole crickets.

Preventive and Corrective Measures

The previously mentioned factors may act independently or together to cause centipedegrass decline. The following practices should help to prevent or correct centipedegrass decline.

1. Follow proper soil preparation practices during turf establishment.

This is one of the most important factors for a successful lawn. It includes a soil sample analysis; cleaning, grading and tilling the site; and preparing the topsoil correctly for planting by adding needed nutrients (based on the soil analysis) and amending the soil with organic matter. This will permit better root development and a more sustainable lawn (for more information, see UGA Cooperative Extension Leaflet 313, *Centipede Lawns*).

2. Follow recommended fertilization practices.

Proper fertilization of centipedegrass is important for plant health. Phosphorous and lime applications should be based on soil test results. A common mistake is to fertilize centipedegrass too early in the spring. The first, or spring, nitrogen application should not occur until soil temperature at the 4-inch depth is consistently 65° F. Also, it is not uncommon for centipedegrass to be over-fertilized. One pound of nitrogen per 1,000 square feet per year is ample nitrogen for most established centipedegrass lawns. Ideally, a centipedegrass lawn would be fertilized either three times during the year with 1/3 pound of nitrogen per 1,000 square feet or four times during the year with 1/4 pound of nitrogen per 1,000 square feet. On sandy soils in high rainfall areas, 2 pounds per 1,000 square feet applied during the year may be needed.

If the grass shows signs of iron chlorosis (yellowing of leaves), apply ferrous sulfate at the rate of 1 tablespoon per 3 gallons of water to each 1,000 square feet of grass. Applications of iron will only temporarily darken the green color of centipedegrass and may need to be applied every two to four weeks. Chlorosis can also be a symptom of more permanent problems like improper soil pH and an elevated level of soil phosphorus. A soil test can confirm the cause of centipedegrass yellowing.

3. Follow suggested cultural practices.

The recommended mowing height for centipedegrass is 1.0 to 1.5 inches. If the grass is mowed often enough so that no more than one-third of the leaf is removed, the clippings do not have to be discarded. During stress periods, such as summer heat or the coming of winter, slightly raising the mowing height by 1/4 to 1/2 inch can help maintain the grass.

If excessive thatch is a problem, it needs to be removed by vertical mowing or dethatching. However, centipedegrass is not as tolerant of vertical mowing as other warm-season turfgrass species and this process should be performed judiciously. Thatch decomposition can be aided by core-aeration and topdressing. These operations also reduce soil compaction and increase air and water movement into the soil.

4. Use proper water management practices.

Many factors influence the amount and frequency of water centipedegrass needs. Soil type, fertility level, rain frequency, temperature, wind and humidity all affect the amount of water needed. Consequently, a high-level fertilization program and hot, windy days tend to increase the demand for water, while low level fertilization and cool, cloudy days tend to decrease the demand for water.

Wilt is a physiological defense mechanism of the turfgrass plant. Some moisture stress actually triggers the plant to initiate rooting, allowing the turfgrass to explore a greater soil volume for water reserves. Frequent (daily) irrigation of turfgrass produces short roots incapable of tolerating periodic stresses. The key to good moisture management is finding the balance between some wilt and too much wilt. Wilted grasses appear dark and dull, the leaf blades begin to fold or roll, and footprints remain after walking over the area when the grass is under water stress. Actually observ-

ing some wilt, or moisture stress, within the lawn prior to irrigating can improve the sustainability of the turf and conserve water. Established centipedegrass only needs 1 inch of water per week. Irrigation should be applied to supplement rainfall as needed.

Apply enough water to wet the soil to a depth of 5 to 7 inches. This is usually equivalent to 1 inch of water. Do not apply water until runoff occurs. If water is being applied faster than the soil can absorb it, turn the irrigation off and allow the existing moisture to move into the soil, then apply the remaining irrigation to achieve 1 inch.

Prior to sunrise is the best time to water because there is less wind and lower temperature. Research indicates water loss at night through evaporation may be 50 percent less than during midday irrigation. Studies also suggest that irrigating after dew develops will not increase disease problems. However, irrigating prior to dew formation or after the dew has dried from the morning sun and/or wind extends the period of free surface moisture and increases disease.

For comprehensive information on turfgrass irrigation best management practices, consult *Best Management Practices for Landscape Water Conservation*, UGA Cooperative Extension Bulletin 1329.

Additional Resources

www.GeorgiaTurf.com

www.commodities.caes.uga.edu/turfgrass/georgiaturf/Articles/CentipedeCultivation.pdf

www.commodities.caes.uga.edu/turfgrass/georgiaturf/Turfgras/1112_Centipede.htm

www.commodities.caes.uga.edu/turfgrass/georgiaturf/Publicat/PCRP2011/Centipedegrass.pdf

Centipede Lawns, UGA Cooperative Extension Leaflet 313.

Fertilization for Lawns, UGA Cooperative Extension Bulletin 710.

Best Management Practices for Landscape Water Conservation, UGA Cooperative Extension Bulletin 1329.

Turfgrass Diseases in Georgia: Identification and Control, UGA Cooperative Extension Bulletin 1233.

Abiotic Injuries and Disorders of Turfgrasses in Georgia, UGA Cooperative Extension Bulletin 1258.

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