



Centipedegrass for Florida Lawns¹

L.E. Trenholm, J.L. Cisar, and J. Bryan Unruh²

Centipedegrass [*Eremochloa ophiuroides* (Munro) Hack.] was introduced into the United States from southeastern Asia. It is well-adapted to the climate and soils of central and northern Florida and is the most common home lawngrass in the panhandle of Florida. Centipedegrass is a slow growing, low maintenance grass with low fertility requirements. Centipedegrass grows close to the ground, is medium-textured and is naturally pale green in color. Overfertilizing to obtain an unnatural dark green color reduces its cold tolerance, increases long-term maintenance problems, and is believed to contribute to "centipedegrass decline."



Figure 1. Centipedegrass.

Advantages

Centipedegrass does very well in acidic and infertile soils. It has fair to good shade tolerance and good drought tolerance. It can be established from seed, sod, or plugs and spreads by stolons. Maintenance and fertility requirements are low compared to other turfgrasses.

Disadvantages

Centipedegrass is highly susceptible to damage from nematodes, particularly ring nematodes. This damage limits the use of centipedegrass in south Florida's sandy soils. It is also subject to attack from insects called ground pearls. It has a naturally pale green color and is prone to iron chlorosis. It has poor salt, wear, and freezing tolerance. Stolons from centipedegrass have a high lignin content and contribute to a heavy thatch layer, particularly under high fertility rates. The grass is often subject to "centipedegrass decline," for which a causal agent has not yet been identified. The decline is influenced by management practices and is enhanced under high fertility, high irrigation, and low mowing height regimes. Intensive management over a period of 4 to 5 years results in root dieback in the spring. This root

-
1. This document is Fact Sheet ENH8, a series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published: May 1991. Revised: October 2000. Please visit the EDIS website at <http://edis.ifas.ufl.edu>.
 2. L.E. Trenholm, Assistant Professor, Turfgrass Specialist, Department of Environmental Horticulture, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611, J.L. Cisar, Professor, Turfgrass Specialist, Ft. Lauderdale Research and Education Center, Institute of Food and Agricultural Sciences, University of Florida, Ft. Lauderdale, FL 33314, J. Bryan Unruh, Assistant Professor, Turfgrass Specialist, West Florida Research and Education Center, Institute of Food and Agricultural Sciences, Jay, FL 32565.

The Institute of Food and Agricultural Sciences is an equal opportunity/affirmative action employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex, age, handicap, or national origin. For information on obtaining other extension publications, contact your county Cooperative Extension Service office. Florida Cooperative Extension Service/Institute of Food and Agricultural Sciences/University of Florida/Christine Taylor Waddill, Dean.

dieback then reduces shoot growth and results in the death of large patches of the lawn. This condition is aggravated by thatch accumulation, which results in new stolons growing several inches above the soil surface. Proper management, with an emphasis on maintenance of a viable root system, is the best solution to this condition. This includes irrigation during drought stress, maintaining a mowing height of 1 1/2 - 2 inches, prevention of thatch accumulation, and adherence to low fertility rates.

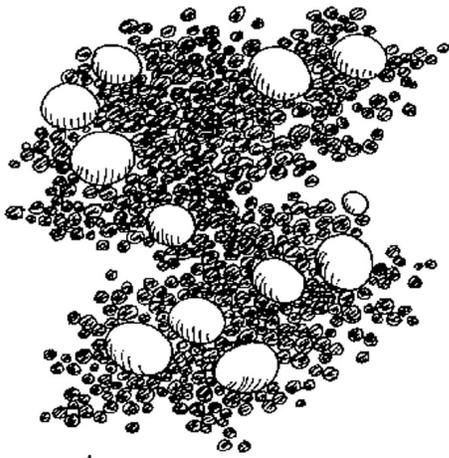


Figure 2. Ground pearl insects.

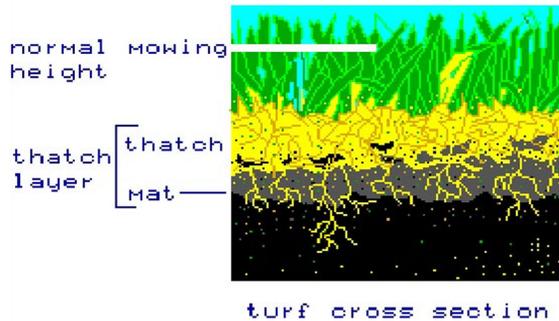


Figure 3. Thatch layer.

Varieties

Common

This is a low-maintenance cultivar that can be established by seed or vegetative means. It grows slowly and in a prostrate manner.



Figure 4. Centipedegrass decline.

Oklawn

This improved cultivar has better cold tolerance than Common. It must be established vegetatively.

Centennial

This cultivar was also selected for cold tolerance. Like Oklawn, it requires vegetative establishment, but is more tolerant of alkaline soils than Oklawn or Common.

Tifblair

This cultivar was released by the University of Georgia in 1997. It has good cold and freezing tolerance, and can be propagated by seed or vegetative means. It has a slightly faster rate of growth than other centipedegrass cultivars.

TennTurf

Released by Tennessee in 1999, this cultivar has the best cold tolerance of any centipedegrass. It is currently available only as sod, sprigs, or plugs. It prefers full sun but will tolerate some shade.

Maintenance of Centipedegrass Lawns

Centipedegrass can be established by seed, plugs, sprigs, or sod. Planting centipedegrass as sod will produce an instant lawn that will establish more rapidly and be less susceptible to various stresses. Lay the sod in a well-prepared seedbed, fitting the pieces tightly together to avoid cracks in the turf. Wet the

soil surface thoroughly prior to laying the sod. After the sod is in place water thoroughly and roll with a lightweight roller to ensure firm contact between the sod and soil. The entire area should be watered daily with 1/2 inch of water per application. Once the sod has rooted into the soil, irrigation frequency can be reduced to an as-needed basis. Although sodding is more expensive than seeding or plugging, good quality, weed-free sod will produce the best quality lawn.

Seed of centipedegrass is expensive, but the seeding rate is low and this method of establishment is probably cheaper than vegetative planting if time and labor are considered. The suggested seeding rate is 4 ounces per 1000 square feet. The best time to seed is during the period from April to July, since this permits a full growing season before winter weather. Fall seeding is undesirable because the young seedlings may not become sufficiently established to withstand cold injury during the winter. Centipedegrass seed is naturally slow to germinate, and may take up to 2 to 3 weeks. Soil washing due to heavy rain or excessive irrigations should be minimized by lightly mulching the planted area. Seed quality should be considered when purchasing seed for planting. Insist on seed with a purity of 90% or better and a minimum of 85% germination.

Plugging or sprigging centipedegrass will leave open areas of soil, which are subject to invasion by fast growing, opportunistic weed species. Due to the slow growth habit of centipedegrass, diligent weed control measures will have to be used if this method of planting is used.

The best time to establish centipedegrass is during the spring or early summer months. This will enable the grass to grow in before cooler weather begins, when growth will be reduced. Seed may safely be sown until later in the year, but growth will again be greatly reduced in the fall. When establishing any grass, it is important to provide irrigation more frequently than is normally recommended. Until a viable root system is established, turf demands for irrigation are greater. It is also important not to mow until the roots have had a chance to work down into the soil and establish themselves there.

Proper site preparation before planting is critical to ensure successful establishment. Refer to the chapter on "Preparing to Plant a Florida Lawn" for complete information. Centipedegrass is best adapted to a soil pH of 5.0 to 5.5. Severe iron chlorosis may occur if pH is above 6.5 to 7.0. *Preplant* application of wettable sulfur at the rate of 430 pounds per acre (10 pounds per 1000 square feet) can be used to lower the pH of some Florida soils 1 pH unit. Do not apply more than 10 pounds per 1000 square feet of wettable sulfur per application. Where more is required, allow 60 days between applications. Irrigate with 1 inch after each application to activate the sulfur. Lime is seldom required for centipedegrass.

Fertilizing

Proper fertilization of any lawngrass is an important component of the best management practices of your home lawn. Fertilization and other cultural practices can influence the overall health of your lawn, and can reduce its vulnerability to numerous stresses, including weeds, insects, and disease.

It is advisable for homeowners to have soil tests done annually. Your local Cooperative Extension Service office has recommendations and bags for taking soil samples and submitting to the Extension Soil Testing Lab for analysis. In particular, phosphorous levels are best determined by soil testing. Since many Florida soils are high in phosphorous, little or no phosphorous may be needed for satisfactory lawn growth.

Established centipedegrass lawns have very low fertility requirements. Centipedegrass is a low-maintenance turfgrass and does not respond well to excessive use of fertilizer, especially nitrogen. *Do not overfertilize centipedegrass with nitrogen to equal the color of St. Augustinegrass.* Overfertilization of centipedegrass can result in centipedegrass decline, insect pressure, and thatch accumulation. As with any lawn grass, do not apply more than 1/2 lb. of water soluble nitrogen per 1000 square feet at any one time. Up to 1 lb. of nitrogen per 1000 square feet may be applied at one time, but at least 50% of that nitrogen should be in a slow-release form.

In general, two weeks following spring regrowth, apply a complete fertilizer such as 16-4-8 at the rate of 1/2 (water-soluble) to 1 (slow-release) pound of nitrogen per 1000 square feet. The three numbers refer to percent nitrogen, phosphorus, and potassium, respectively, in the bag. For example a 50-pound bag of 16-4-8 contains 16% nitrogen or 8 pounds total nitrogen. This bag will fertilize 8000 square feet at the rate of 1 pound of nitrogen per 1000 square feet. University of Florida guidelines for lawngrass fertility show a range of fertilizer rates over which a particular species may be successfully grown for various areas of the state. These ranges are included to account for individual homeowner preferences for low-, medium-, or high-input grass. Additionally, localized microclimate effects can have a tremendous effect on turfgrass growth, and a range of rates provides more opportunity to allow for these environmental variations. An example of this would be a typical home lawn that is partially shaded and partially sunny. The grass growing in the shade should receive lower rates of fertilizer than that growing in full sun. The guidelines are also separated into three geographical locations statewide as indicated in Table 1 and Table 2. All rates are in pounds of nitrogen per 1000 square feet. For questions on how to apply these amounts, refer to the section in this book entitled Florida Fertilization.

Fertilizer should be applied to centipedegrass in 1 to 3 applications from spring greenup through fall. Do not apply nitrogen too early in the growing season, particularly in north Florida, or subsequent frosts may damage the grass. Likewise, don't fertilize too late in the year, as this can slow regrowth the following spring. If applying water-soluble forms at the lower application rate, it will take more applications to apply the total amount of fertilizer needed for the year than if applying a slow-release fertilizer form.

As mentioned previously, one of the common problems of centipedegrass is a yellowing called chlorosis, which is usually caused by iron deficiency. This condition is most severe where soil pH is high (above 6.5) or where the soil contains large quantities of calcium or phosphorus. This yellowing is generally most severe in early spring, when daytime temperatures are warm but nighttime temperatures

are still cool. Warm daytime air temperatures promote leaf and stolon growth, but cool nighttime temperatures limit root growth. The roots then cannot assimilate enough nutrients to supply the growing leaves, and the leaves turn yellow. As soils become warmer, this temporary nutrient deficiency disappears. Avoid using excessive phosphorus fertilizers unless soil test results indicate to do so. Iron chlorosis can be controlled by several methods. Soil pH can be lowered by regular use of acid-forming fertilizers such as ammonium nitrate or ammonium sulfate. These will render the iron more available to the grass. If the soil is naturally iron deficient, iron fertilization is necessary. Centipedegrass usually responds well to supplemental applications of iron. Chelated or ferrous sulfate iron can be applied evenly and easily with a hose-end applicator. Apply the ferrous sulfate at the rate of 2 ounces in 3 to 5 gallons of water per 1000 square feet. Consult the label for chelated iron rates. Fertilizers containing iron and a combination material of ammonium sulfate and ferrous sulfate are also available.

Do not apply nitrogen too late in the growing season, as this can slow regrowth the following spring. A general guideline for the last fertilizer application is mid-September for north Florida, early October for central Florida, and late October for south Florida. It is possible to apply potassium at a rate of 1 pound of potassium per 1000 square feet. This will help the grass to overwinter, tolerate cold temperatures, and green-up quickly in the spring.

Mowing

Proper mowing practices are necessary to keep any lawn healthy and attractive. Centipedegrass that is actively growing should be mowed every 7 to 14 days at 1.5 to 2 inches in height. Mowing at this height promotes a deeper, more extensive root system that enables the grass to better withstand drought and nematode stress. Remove no more than 1/3 of the height of the leaf blades with any mowing (e.g., for a lawn to be maintained at 2 inches in height, mow when the turf reaches 3 inches). It is important not to mow centipedegrass at lower heights, as that will reduce the tolerance of the grass to heat, drought, nematodes, and many other stresses. It will also suppress root growth.

Clippings should be left on the ground after mowing. They do not contribute to thatch build-up, as is often assumed, but are actually readily degraded by microorganisms. They also provide a source of nutrients to the lawn, and can reduce fertility requirements if left on the lawn on a regular basis. A sharp and well-adjusted rotary or reel mower should be used.

Watering

Irrigation on an as-needed basis is an excellent way to water any grass, provided the amount of water is applied when needed. Irrigation is needed when leaf blades begin to fold up, to actually wilt, to turn blue-gray in color, or when footprints remain visible after walking on the grass. Apply 3/4 inch of water per application, which will apply water to the top 8 inches of soil, where the majority of the roots are. To determine rates from a sprinkler system, place several coffee cans throughout the irrigation zones to find out how long it takes to apply 3/4 inch of water. During prolonged drought, irrigation may be needed more often. Centipedegrass has good drought tolerance and will usually recover from severe drought injury soon after rain or irrigation. Do not over-water centipedegrass lawns as this weakens the turf and encourages weeds. Refer to the chapter "Watering Your Florida Lawn" in the Florida Lawn Handbook for additional information.

During extended periods of drought, centipedegrass may go dormant if left unirrigated. The grass will turn brown and stop growing during this dormant period, but will revive and resume growth upon irrigation with sufficient amounts of water.

Pest Problems

Centipedegrass is damaged by nematodes, insects, and diseases. You can obtain help in identification of pest problems and current control recommendations from your county Cooperative Extension Service office.

Weeds

Weeds easily invade newly established or poorly maintained lawns. Grass weeds include crabgrass

goosegrass, dallisgrass, annual bluegrass and torpedograss. Broadleaf weeds include dandelions, clover, pennywort, betony, oxalis, henbit and others. Refer to the section entitled "Weed Management" in your Florida Lawn Handbook for more information.

Insects

Several insects may damage centipedegrass, but hardest to control are scale insects called ground pearls. At the present time, there are no effective chemicals to control these pests. Lawn caterpillars, grubs, mole crickets, spittlebugs and sod webworms also damage centipedegrass. For more information, refer to the section on "Management of Insects in Lawns" in the Florida Lawn Handbook.

Diseases

The principle disease affecting centipedegrass is brown patch, but dollar spot can be a problem. Both can be controlled with fungicides. Refer to the section on "Disease Problems" for additional information.

Nematodes

Nematodes can be a very serious problem on centipedegrass. These are microscopic worms that attack grass roots and cause the lawn to thin and eventually die. Areas of heavy infestation will show symptoms of severe wilt, even when well watered. The Extension Service nematode lab in Gainesville can diagnose whether nematodes are a problem by looking at a soil sample taken from the margin of the affected area. Proper cultural factors to encourage centipedegrass root growth will lessen nematode stress. This includes applying less nitrogen, providing less frequent but deep watering, and ensuring ample soil potassium and phosphorus. Refer to the section in the book on nematodes and their management for additional information.

Centipedegrass Decline

After a few years, established centipedegrass may develop yellowing (chlorosis) and/or dead spots as spring growth resumes. Numerous conditions may contribute to the problem and include:

- High pH (>6.5)
- Excessive nitrogen fertilization the previous year
- Uneven soil surface from stolons being suspended above the soil and over a mat of thatch. (Such stolons never sufficiently develop roots and are killed by freezing weather. Alternating freezing or cool temperatures and thawing conditions exacerbate the problem.)
- Root dieback or any environmental conditions which may stress roots, such as soil compaction, very low mowing heights, overirrigation, etc.
- Nematodes and/or other disease organisms such as Gaeumannomyces, Rhizoctonia or Pythium species weaken the grass, making it susceptible to injury from otherwise normal conditions.

Some remedies for this condition are:

- Check soil pH and adjust it if it's too high.
- **Do not overfertilize with nitrogen or phosphorus.**
- Follow recommended mowing heights and frequencies to avoid scalping or excessive thatch buildup.

Table 1. Recommended Fertility Rates for Centipedegrass throughout Florida

Location ¹	N Fertility Guideline
North Florida	1-2
Central Florida	2-3
South Florida	2-3

¹North Florida in this example is considered to be anything north of Ocala. Central Florida is defined as anything south of Ocala to a line extending from Vero Beach to Tampa. South Florida includes the remaining southern portion of the state.

Table 2. Calendar Guide to Annual Centipedegrass Fertilization^{2,3}

Maintenance Level	January	February	March	April	May	June	July	August	September	October	November
North Florida											
Basic				C							
Moderate				C		Fe					
High				C		SRN	Fe				
Central Florida											
Basic			C			SRN					
Moderate			C			SRN	Fe				
High			C			SRN		C			
South Florida											
Basic			C	SRN		Fe				C	
Moderate		C		SRN						C	
High		C		SRN		Fe				C	

²For initial spring application, particularly in North Florida, the recommended time to fertilize is after the last frost rather than on a specific calendar date.
³C=complete fertilizer application (NPK); N=nitrogen application only; SRN=nitrogen only in a slow release form; Fe=iron application only.