

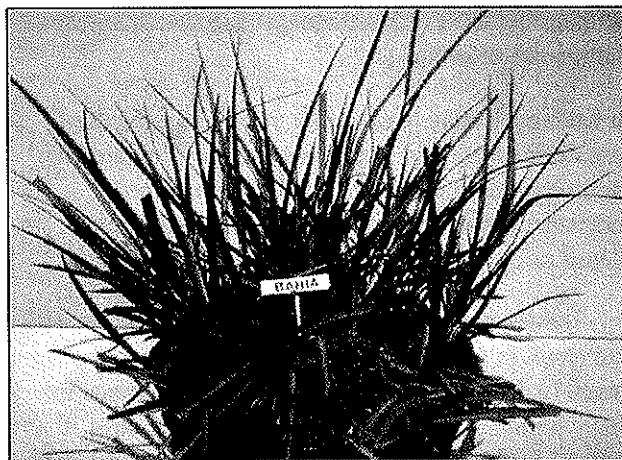
Bahiagrass for Florida Lawns¹

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

Bahiagrass (*Paspalum notatum* Flugge) was introduced from Brazil in 1914. It was originally used as a pasture grass on the sandy soils of the southeastern United States. Additional varieties have been introduced since that time for use as lawngrasses. Bahiagrass is a popular low-maintenance lawngrass for infertile soils. Although bahiagrass does not produce a high-quality, dense, dark green lawn like some other warm-season lawngrasses, it does provide a good low-maintenance lawn where slightly reduced visual quality is acceptable.

Advantages

Bahiagrass forms an extensive root system, which makes it one of our most drought-tolerant grasses. It performs well in infertile, sandy soils and does not require high inputs of fertilizers. It does not form excessive thatch. It may be grown from seed, which is abundant and relatively cheap, or it may be established from sod, sprigs, or plugs. It has relatively few disease problems, and mole crickets are the only primary insect problem.



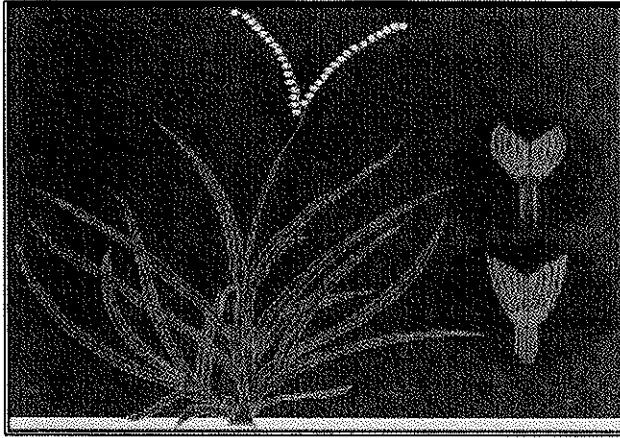
Bahiagrass.

Disadvantages

Bahiagrass forms tall, unsightly seedheads throughout the spring, summer, and fall months. This necessitates mowing on a regular schedule. Because the seed stems are tough, it also makes it more difficult to mow than some other grass species. Bahiagrass does not perform well in high-pH soils and is susceptible to mole crickets. It does not have good tolerance to shade, traffic, or saltwater. With the exception of Pensacola bahiagrass, there is little tolerance for cold temperatures in this species. Leaves

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Bahia grass drawing.

of bahia grass may tend to turn yellow as a result of iron deficiency. This deficiency can be alleviated by modification of soil pH or application of iron fertilizer. For more information on iron deficiency, please refer to "Fertilization" in this publication.

Bahia grass displays an open growth habit, which can result in encroachment of weeds into sparse areas. In addition, bahia grass has a low tolerance for many herbicides, making chemical weed control difficult. It has a coarse leaf texture and provides less cushioning for recreational activities than some other species.

Varieties

There are four cultivars of bahia grass available for home lawn or utility use. These may all be established by seed or sod.

Common

Common Bahia grass is a coarse-textured, light-colored bahia grass. It has an open and sparse growth habit and is very susceptible to cold temperatures. It is not normally recommended for use as a lawn grass.

Argentine

Argentine forms a relatively dense sod and has a dark green color, making it acceptable for lawn use in many situations. It has wider leaf blades than Pensacola bahia grass. It has good insect and disease resistance and tolerates cold temperatures well.

Pensacola

Pensacola bahia grass was selected in Pensacola, Florida in 1935 and is the most widely grown bahia grass today. It has an extensive root system, which imparts excellent drought tolerance. It also tolerates either hot or cold temperatures well. It produces an abundance of seed heads, which reduces its desirability for use as a lawn grass, but makes it suitable for roadside plantings. It has longer and narrower leaf blades than Argentine.

Paraguay

This cultivar is also known as Texas bahia grass. It has short, tough, hairy leaves that have a grayish tint to them. It does not have good cold tolerance and is susceptible to dollar spot disease. It does not perform as well in the lawn as Argentine or Pensacola.

Maintenance of Bahia grass

Establishment

Bahia grass can be established as sod or seed. Advantages of planting a bahia grass lawn from sod are rapid establishment of the lawn and less opportunity for weed pressure or other stresses to cause problems. The primary disadvantages of this method are the expense and the labor required to lay the sod. In contrast, Bahia grass seed is not expensive and seeding requires less labor than sodding. Scarified seed, which has been chemically treated to enable faster germination, should be used when available.

Plugging or sprigging bahia grass is not typically recommended. Because of the slow growth habit of bahia grass, the plugging method will leave open areas of soil that can be taken over by fast-growing weed species. Diligent weed control measures are needed if this method of planting is used.

The best time to establish bahia grass is during the spring or early summer months. This enables the grass to grow in before cooler weather begins, when growth is 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 irrigate more frequently than usual. Until

a viable root system is established, turf demands for irrigation are greater. It is also important not to mow a newly established lawn until the roots have had a chance to work down into the soil and establish themselves.

Proper site preparation before planting is critical to ensure successful establishment. Refer to the Edis publication "Preparing to Plant a Florida Lawn" LH012 for complete information.

Fertilization

Proper fertilization of any lawngrass is an important component of the best management practices for your home lawn. Fertilization and other cultural practices influence the overall health and quality of your lawn and will 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 instructions and supplies for taking soil samples and submitting them to the Extension Soil Testing Laboratory 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 after establishment.

Established bahiagrass lawns have relatively low fertility requirements. As with any lawngrass, 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 on the fertilizer bag refer to the percentages of nitrogen, phosphorus, and potassium, respectively. 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 microclimatic effects can have a tremendous effect on turfgrass growth, and a range of rates allows 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 the table below. All rates are in pounds of nitrogen per 1000 square feet. For questions on how and when to apply these amounts, refer to the Edis publication EP055, "Fertilizer Recommendations for Your Florida Lawn."

Table 2. Recommended Fertility Rates for Bahiagrass throughout Florida

Location*	N fertility guideline
North Florida	2-3
Central Florida	2-4
South Florida	2-4
*North Florida in this example is considered the area north of Ocala. Central Florida is defined as the area south of Ocala to a line extending from Vero Beach to Tampa. South Florida includes the remaining southern portion of the state.	

Fertilizer should be applied to bahiagrass in two to four applications from spring green-up 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 you apply 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 you apply a slow-release fertilizer form.

One of the disadvantages of bahiagrass is its tendency to yellow because of iron deficiency. This problem can be overcome by using a complete

Table 1. Calendar Guide to Annual Bahiagrass Fertilization ** ***

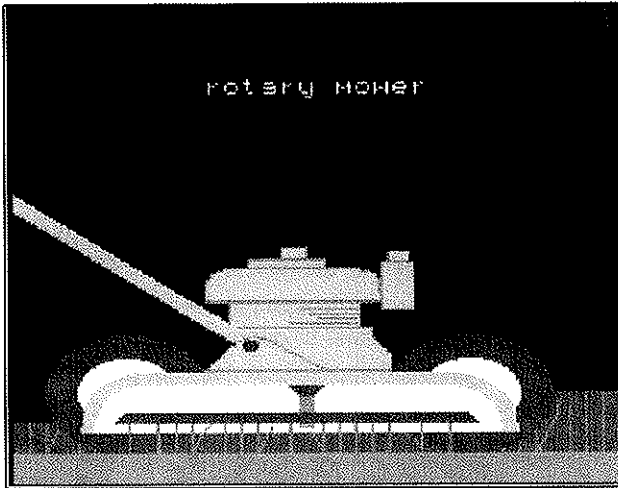
Maintenance Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
North Florida												
Basic			C					C				
Moderate			C		SRN			C				
High			C		SRN		Fe	C				Dec
Central Florida												
Basic			C		Fe			C				
Moderate			C			N	Fe		C			
High			C	N		SRN	Fe		C			
South Florida												
Basic		C				Fe				C		
Moderate		C		N		Fe				C		
High		C		N		SRN				C		
For initial spring application, particularly in north Florida, the recommended time to fertilize is after the last frost rather than on a specific calendar date. *C = complete fertilizer application (NPK); N= nitrogen application only; SRN= nitrogen only in a slow-release form; Fe= iron application only.												

fertilizer, which contains iron, or by addition of a separate iron material. Soluble iron sources that can be used include ferrous ammonium sulfate, ferrous sulfate, and various iron chelates. Avoid oxide forms of iron, as they will be much less effective than sulfates or chelated forms in alleviating iron deficiency. Apply ferrous sulfate at the rate of 2 ounces in 3 to 5 gallons of water per 1000 square feet. This can be applied evenly and easily with a hose-end applicator. Follow chelated iron label directions if using one of these materials. Iron applications every 6 weeks will help maintain green color and, unlike nitrogen, will not promote excessive top growth. Many cases of iron deficiency occur in soils with pH greater than 7.0. An alternative method of alleviating iron deficiency is to lower the soil pH to 6.0. This can be done by use of ammonium nitrogen fertilizer sources (e.g., ammonium nitrate or ammonium sulfate) or by application of elemental sulfur *before* bahiagrass establishment. Elemental sulfur applied at 10 pounds per 1000 square feet will provide a short-term pH reduction. Once the grass is established, up to 5 pounds of elemental sulfur may be added per 1000 square feet if it is immediately irrigated in to prevent burn.

Mowing

Proper mowing practices are necessary to keep any lawn healthy and attractive. During times of active growth, bahiagrass should be mowed every 7 to 14 days at 3 to 4 inches of height. Higher mowing heights promote a deeper, more extensive root system that enables the grass to better withstand drought 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 3 inches in height, mow when the turf reaches 4 to 4 1/2 inches). It is important not to mow bahiagrass at lower heights, as that will reduce the tolerance of the grass to heat, drought, and other stresses. It will also suppress root growth. As bahiagrass does not grow extremely tall, mowing cycles are often dictated by seedhead production. Clippings should be left on the ground after mowing. They do not contribute to thatch buildup, 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 regularly left on the lawn.

A sharp, heavy-duty *rotary mower* blade is needed to cut bahiagrass. Because bahiagrass leaves are very tough, the mower blade will have to be sharpened frequently to ensure a good, clean cut. If this is not done, the leaves may be torn by the mower



Rotary mower.

blades, which can compromise both the health and the appearance of the lawn.

Watering

Irrigating as needed is the best way to water any established, mature grass, as long as the proper amount of water is applied when needed. Irrigation is needed when leaf blades begin to fold up, wilt, or turn blue-gray in color, or when footprints remain visible after walking on the grass. Apply $\frac{3}{4}$ to 1 inch of water per application. This will apply water to roughly the top 8 inches of soil, where the majority of the roots are. To determine the amount of irrigation supplied by a sprinkler system, place several coffee cans throughout the irrigation zones to find out how long it takes to apply the recommended amount of water. During prolonged droughts, irrigation may be needed more often. Bahagrass has the best drought tolerance of all lawngrasses grown in Florida and will usually recover from severe drought injury soon after rain or irrigation. It is very important not to overwater Bahagrass lawns as this weakens the turf and encourages weeds. During extended periods of drought, bahagrass may go dormant if left without irrigation. The grass will turn brown and stop growing during this dormant period, but will revive and resume growth upon regular application of water. Refer to the Edis publication LH025, "Watering Your Florida Lawn," for additional information.

Pest Problems

Although bahagrass is generally less troubled by insects, diseases, and nematodes than other Florida lawngrasses, it is still not completely pest-free. Following are some of the major problems encountered in a bahagrass lawn. For more information on turfgrass pests and their control, refer to Edis publication LH080, "Integrated Pest Management Strategies," or purchase a copy of the Florida Lawn Handbook, SP-45, at your county extension office.

Weed Control

The best method of weed control is to maintain a healthy, vigorous turf. Following UF/IFAS recommendations for fertility, irrigation, and mowing will ensure a healthy lawn that is able to out-compete most weeds. Nevertheless, the following chemical treatments may be used on bahagrass for weed control when needed.

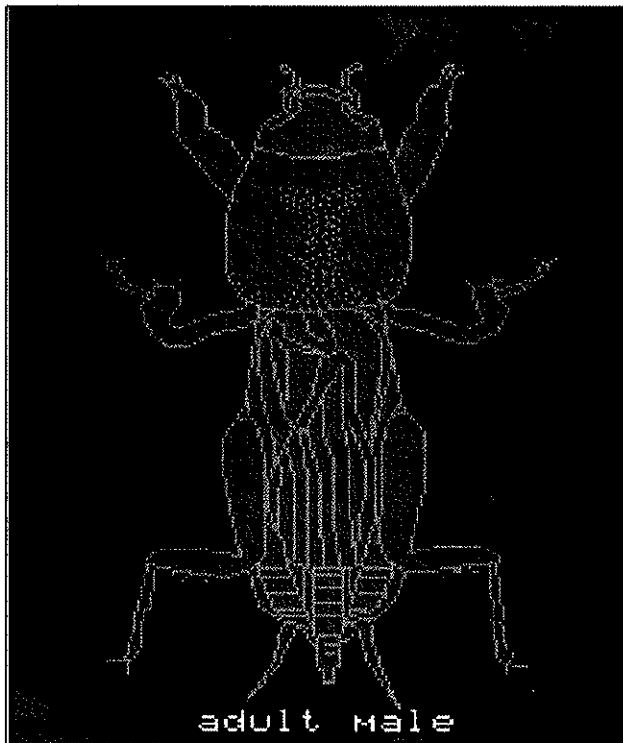
Preemergence herbicides are used before a weed germinates and grows. Preemergence chemicals inhibit germination or form a barrier at the soil line to inhibit weed growth after germination. To effectively use preemergence chemicals, knowledge of weed problems from the previous year is needed. To control areas where crabgrass, sandbur, annual bluegrass, goosegrass, or crowfootgrass have been problems in previous years, apply benefin, bensulide, prodiamine, dithiopyr, pendimethalin, oryzalin, or dacthal prior to their germination. Timing of application is important for successful control. As a general rule of thumb, apply February 1 in South Florida, February 15 in Central Florida, and March 1 in North Florida.

Apply postemergence herbicides (e.g., 2,4-D, dicamba, and/or MCPP) in May as needed for control of annual and perennial broadleaf weeds such as knotweed, spurge, and lespedeza. Selective control of emerged grass weeds such as goosegrass, crabgrass, or alexandergrass is only by hand pulling. Bahagrass is severely damaged by postemergence grass herbicides such as DSMA or MSMA. Check with your county Cooperative Extension Service office for positive identification of weeds and exact herbicide recommendations. Apply herbicides only when

adequate soil moisture is present, air temperatures are between 60°F and 85°F, and the turf is not suffering from water or mowing stress. Failure to follow these precautionary statements will result in damaged turf.

Note: Many popular "weed-n-feed" type fertilizers for home lawns contain the herbicide atrazine. Atrazine will result in some damage to bahia grass; therefore, it is not recommended for use on this grass.

Insects



Mole cricket.

The most serious insect threat to bahia grass is the mole cricket. These insects burrow through the soil and damage roots, causing rapid wilting of the grass. Check for mole crickets by: (1) looking for their tunneling and mounds; or (2) applying 2 gallons of water with 1 to 2 ounces of detergent soap per 2 square feet of turf in suspected damaged areas. If present, the mole crickets will surface in a few minutes.

Recently, several bait-type insecticides have been introduced and show real promise as a control measure. However, insecticides available for mole

crickets are constantly changing. Check with your county Cooperative Extension Service office for the latest control recommendations.

Diseases

The only serious disease of bahia grass is dollar spot. This is expressed as spots several inches in diameter scattered across the turf. A light application of nitrogen (1/2 pound nitrogen per 1000 square feet) should encourage the grass to outgrow these symptoms. If nitrogen application does not provide satisfactory results, refer to the Edis publication LH045, "Dollar Spot," for more information.

Nematodes

Nematodes are not typically as damaging to bahia grass as to other species. Because of bahia grass's deep, extensive root system, nematode damage seldom becomes noticeable. However, if grass becomes thin, grows less vigorously, and develops a weak root system, nematode presence should be suspected. Take a representative soil sample to your county Cooperative Extension Service office to be analyzed, and if nematodes are found, ask for control recommendations. Proper cultural factors to encourage bahia grass root growth will lessen nematode stress. These include applying less nitrogen, providing less frequent but deep watering, and ensuring ample soil potassium and phosphorus. Please refer to the Edis publication NG039, "Nematode Management in Florida Lawns," for additional information.



Yearly Calendar for Bahiagrass Care and Culture¹

L. B. McCarty and John L. Cisar²

Bahiagrass forms a coarse-textured, open turf with an upright growth habit which gives a lawn a sparse, open appearance. It is light green in color and grows best in full sun. Establishment is by sod or by seed. Bahiagrass avoids drought damage by dropping its leaves, forming extensive rooting depth and undergoing dormancy (browning). When water is applied, new leaves appear quickly. Major pest problems in bahiagrasses include mole crickets, weeds and occasionally dollar spot disease. If the homeowner does not have an irrigation system or prefers a low-maintenance utility turf area, bahiagrass is a good choice for a lawn. Under most conditions, bahiagrass will not produce a turf comparable in quality to St. Augustinegrass. Those who desire a high quality lawn appearance should choose another lawngrass.

Bahiagrass should be fertilized annually with a total of 2 to 3 pounds nitrogen per 1000 square feet for low-maintenance lawns or 4 to 5 pounds nitrogen per 1000 square feet for high-maintenance lawns. Due to its tough leaves and stems, only a heavy duty rotary mower with sharp blades should be used. The following is a suggested guideline for those managing bahiagrass lawns (refer to Table 1). Local growing conditions and resources available may require growers to slightly deviate from these guidelines.

FEBRUARY - MAY

Mowing

If bahiagrass is green and growing, mow it at 3 inches or as high as most home-type rotary mowers will allow. High mowing promotes a deeper, more extensive root system which enables the grass to better withstand drought and nematode stress. Remove no more than 1/3 the height of the leaf blades with any mowing (e.g., for a lawn to be maintained at 3 inches in height, mow when the turf reaches 4 to 4 1/2 inches). In many cases, mowing may be required more than once a week. Use only a sharpened, balanced mower blade; otherwise the cut will be ragged and the lawn will have a poor appearance. Resharpen and balance blades monthly. Leave clippings unless amounts are excessive (clumping occurs). If excessive clippings remain, allow them to dry in the sun and then scatter by removing, blowing, or raking.

Fertilization

Two weeks following spring regrowth, apply a complete fertilizer such as 16-4-8 at the rate of 1 pound nitrogen per 1000 square feet (6.25 pounds 16-4-8 = 1 pound nitrogen, 0.25 pound P₂O₅, 0.5 pound K₂O per 1000 square feet). The 16-4-8 refers to percent nitrogen, phosphorus, and potassium,

1. This document is Fact Sheet ENH-77(b), a series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. This information is included in the Florida Lawn Handbook, SP-45. For a copy of this handbook, request information on its purchase at your county extension office. First published: May 1991. Revised: January 1995.
2. L. B. McCarty, associate professor, Commercial Turf Specialist, Environmental Horticulture Department, Gainesville; John L. Cisar, associate professor, Turf Specialist, Ft. Lauderdale Research and Education Center, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.

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respectively, in the bag. For example, a 50-pound 16-4-8 bag contains 16% nitrogen or 8 pounds total nitrogen. For a 1 pound nitrogen rate per 1000 square feet, this bag will cover 8000 square feet. For *highly* maintained lawns, apply 1 pound nitrogen per 1000 square feet (e.g., 3 pounds 33-0-0 = 1 pound nitrogen per 1000 square feet) again in late April or early May. Yellow appearance may be an indication of iron deficiency due to low soil temperatures, restricted rooting, and excessive soil phosphorus and/or pH (>7.0). Correct iron deficiency by spraying ferrous sulfate (2 ounces in 3 to 5 gallons of water per 1000 square feet) or a chelated iron source to enhance color as needed. Iron applications every 6 weeks will help maintain green color and, unlike nitrogen, will not promote excessive topgrowth. Lowering the soil pH to 6.0 would help reduce iron deficiency. Use ammonium nitrogen fertilizer sources (e.g., ammonium nitrate or sulfate) to help reduce pH. Elemental sulfur may be added to the soil *prior* to bahiagrass establishment at 15 pounds per 1000 square feet for short-term pH reduction. Once the grass is established, up to 5 pounds of elemental sulfur may be added per 1000 square feet if it is immediately irrigated in to prevent burn.

Irrigation

Irrigate on an as-needed basis to prevent drought symptoms. Determine this when the turf begins to wilt, turn blue-gray in color, or recovery from foot or tire tracks is slow. Apply water to rewet the entire root zone and then wait until the turf shows signs of wilting again before watering. For most Florida soils, this is usually no more than $\frac{3}{4}$ inch of water based on an eight-inch rootzone. A higher mowing height will help the grass stay greener during drought. Place several coffee cans throughout your irrigation system zone to determine when an average of $\frac{3}{4}$ -inch of water has been applied to each zone.

Note: During extended drought periods, instead of the homeowner trying to maintain green, growing grass, bahiagrass may be allowed to go dormant (turn brown). Afterwards, once water is available, the grass will green back up without major damage to the grass. Refer to the sections on "Watering Your Florida Lawn" and "How to Calibrate your Sprinkler System" in this publication for further details on water requirements and irrigation system calibration.

Weed Control

The best method of weed control is a healthy, vigorous turf. Apply preemergence herbicide (e.g., benefin, bensulide, prodiamine, dithiopyr, pendimethalin, oryzalin, dacthal) if crabgrass or sandbur was present in previous years.

Timing of application is important for successful control. A general rule of thumb for application is Feb. 1 in south Florida, Feb. 15 in central Florida, and March 1 in north Florida. For season-long control, repeat application should be made 3 months after the initial application. *Note:* Preemergence herbicides do not control visible weeds.

Apply postemergence herbicides (e.g., 2,4-D, dicamba, and/or MCPP) in May as needed for control of annual and perennial broadleaf weeds such as knotweed, spurge, lespedeza, etc. Several formulations of these herbicides are available; therefore, check with your local county Cooperative Extension Service office for the latest recommendations.

Note: Many popular "weed-n-feed" type fertilizers for home lawns contain the herbicide atrazine. Atrazine will result in some damage to bahiagrass; therefore, it is not recommended for use on this grass.

Insect Control

Check for mole crickets by: 1) looking for their tunneling and mounds; or 2) applying 2 gallons of water with 1 to 2 ounces of detergent soap per 2 square feet turf in suspected damaged areas. If present, the mole crickets will surface in several minutes.

Recently, several bait-type insecticides have been introduced and show real promise as a control measure. However, insecticides available for mole crickets constantly change. Check with your county Cooperative Extension Service office for the latest control recommendations.

Renovation

Replant large bare areas in April through July, using scarified seed (7 pounds per 1000 square feet) or sod. Prepare a proper seedbed by rototilling or hand raking. Keep these areas moistened with daily irrigations until roots develop and peg down. Plan to fertilize with 0.5 pound nitrogen per 1000 square feet

4 to 5 weeks following planting. For further information, refer to the section "Establishing Your Florida Lawn" in this publication.

JUNE - AUGUST

Mowing

Mow as previously described. Frequent mowings may be required to remove the tall, V-shaped seedheads which continuously emerge from late May through early fall. Use only a sharp-bladed, balanced mower.

Fertilization

Fertilize with 1 pound of nitrogen per 1000 square feet (e.g., 6.5 pounds 15-0-14 = 1 pound nitrogen per 1000 square feet) in July for *more highly* maintained areas. Due to naturally high levels of phosphorus in many Florida soils, fertilizers without phosphorus (i.e., 15-0-14, 8-0-24) may be used during all times, unless soil test results indicate low levels. For lower maintenance lawns, iron in the form of ferrous sulfate or as a chelated source may be applied as previously described for green color without excessive growth.

Irrigation

Irrigate to prevent drought stress on an as-needed basis. Normally, summer is a period of increased precipitation. Do not overwater, as this encourages shallow roots, disease, and weed invasion. Apply water at $\frac{3}{4}$ inch per application and then wait until the turf shows signs of wilting (blue-gray color, or footprinting occurs) before watering again. Watering may be discontinued during extended dry periods, if temporary brown dormant turf is not objectionable.

Weed Control

Selective control of emerged grass weeds such as goosegrass, crabgrass, or alexandergrass is only by hand pulling. Bahiagrass is severely damaged by postemergence grass herbicides such as DSMA, MSMA, or asulox. Following suggested management practices, such as proper mowing, fertilizing, irrigation, etc., will encourage bahiagrass to outcompete weeds. Control of broadleaf weeds such as pusley, matchweed, knotweed, spurge, and lespedeza is available with herbicides such as 2,4-D, dicamba, and/or MCPP. Check with the county Cooperative Extension Service office for positive

identification of weeds and exact herbicide recommendations. Apply herbicides only when adequate soil moisture is present, air temperatures are between 60° and 85°F, and the turf is not suffering from water or mowing stress. Failure to follow these precautionary statements will result in damaged turf.

Insect Control

Check for mole crickets by methods previously described. Refer to your county Cooperative Extension Service office for control recommendations if insects are present.

Nematode Control

Due to bahiagrass's deep, extensive rooting, nematode damage seldom becomes noticeable. However, if grass becomes thin in density, less vigorous in growth, and develops a weak root system, nematode presence should be suspected. Take a representative soil sample to your county Cooperative Extension Service office to be assayed, and if nematodes are found, ask for control recommendations. Proper cultural factors to encourage bahiagrass root growth will lessen nematode stress. This includes applying less nitrogen, providing less frequent but deep watering, and ensuring ample soil potassium and phosphorus.

Disease Control

Bahiagrass damage by diseases is normally minimum. Dollar spot disease, if present, is expressed as brown color spots several inches in diameter, which appear scattered across the turf and on its seedhead stalks. A light application of nitrogen ($\frac{1}{2}$ pound nitrogen per 1000 square feet, which equals 3.3 pounds 15-0-14) should encourage the grass to outgrow these symptoms.

SEPTEMBER - NOVEMBER

Mowing

Continue mowing at the specific height and frequency as previously described. Prolific seedhead production may require increased mowing frequency.

Fertilization

Apply 1 pound of nitrogen per 1000 square feet (e.g., 6.5 pounds 15-0-14 or 6.25 pounds 16-4-8 per 1000 square feet) in September and then discontinue nitrogen application for north and central Florida lawns. For south Florida lawns, apply this 1 pound of nitrogen in October. In order to promote rooting prior to winter, more highly maintained bahiagrass areas may have 1 pound of potash (K_2O) per 1000 square feet using 1.6 pounds muriate of potash (0-0-60) or 2 pounds of potassium sulfate (0-0-50) applied 1 month before first expected frost. Do not apply potash during hot periods or if the lawn is under moisture stress. Water in the fertilizer to prevent burn.

Yellow appearance may be an indication of iron deficiency. Spray ferrous sulfate (2 ounces in 3 to 5 gallons of water per 1000 square feet) or a chelated iron source to enhance color as needed.

Irrigation

Continue irrigating as needed to prevent drought stress. Apply $\frac{3}{4}$ inch of water when turf turns blue-gray in color and/or footprinting occurs. Irrigation may be discontinued during extended dry periods, if temporary brown dormant turf is not objectionable. Irrigate during cold, windy periods to prevent winter soil dehydration.

Insect Control

Check for mole crickets and follow control recommendations as previously described.

Disease Control

Check for dollar spot and follow control recommendations as previously described.

DECEMBER - JANUARY

Mowing

Remove lawn debris (rocks, sticks, and leaves) or any unsightly tall weeds or plants. In south Florida, mow if growth warrants it.

Fertilization

Do not fertilize at this time in north or central Florida. A light fertilization in December may be desired in south Florida. If so, apply $\frac{1}{2}$ pound nitrogen per 1000 square feet (e.g., $\frac{1}{2}$ pound nitrogen = 3.3 pounds 15-0-14 or 6.2 pounds 16-4-8 per 1000 square feet).

Submit soil samples for analysis every 3 years to determine pH and nutrient requirements. Contact your county Cooperative Extension Service office for details. Apply lime or sulfur, if suggested based on soil tests, to raise or reduce soil pH, respectively.

Irrigation

Normally, this is the driest period of the year; however, due to cooler weather, grass growth is not vigorous. Apply water in south Florida to avoid drought if brown, dormant turf is objectionable. Turf dormant due to frost will require warm spring weather to resume growth, thus do not irrigate except for overseeded grass.

Weed Control

Apply broadleaf herbicides (i.e., 2,4-D) as necessary for control of winter broadleaf weeds such as betony, beggarstick, chickweed, henbit, clover, dandelion, or wild garlic/onion. Follow label directions for rates and use with caution.

Miscellaneous

Make plans and arrangements for any lawn renovations to be made in spring. Purchase preemergence herbicides, seeds, and other supplies. Service your lawn mower and sharpen the blade. Check irrigation system for leaky lines, joints, or damaged heads.

Table 1. Suggested maintenance schedule for bahiagrass lawns.

		Month											
		J	F	M	A	M	J	J	A	S	O	N	D
Fertilization													
North Florida*	low maintenance	--	--	C ¹	Fe ²	--	--	--	--	C	Fe	--	--
	high maintenance	--	--	C	Fe	N ³	--	N	--	C	Fe	--	--
South Florida	low maintenance	--	C	Fe	--	--	--	--	C	--	N	--	--
	high maintenance	--	C	Fe	--	N	--	--	--	C	N	--	N
Weed Control	North Florida	--	--	PE ⁴	--	PO ⁵	--	--	PO	--	--	PO	--
	South Florida	--	PE	--	--	PO	--	--	PO	--	--	PO	--
Insect Control		--	--	mole crickets						--	--	--	--
Disease Control		--	dollar spot disease									--	--
Mowing (3- to 4-inch height)	Frequency changes with the season. Typically, bahiagrass must be mowed every 7 to 14 days except during rapid seedhead formation periods. This may require more frequent mowing. Do not scalp bahiagrass, and only mow with a sharpened, balanced blade.												
Seeding/Renovation (7 lbs per 1000 sq ft)	Use brown top millet (20 lb/A) as a cover crop to prevent soil erosion, help retain soil moisture, and reduce weed invasion. Seeding during cool, winter months will reduce bahiagrass seed germination and establishment. Best seeding time is April through August.												
Irrigation (¾ inch water per irrigation)	Irrigate when leaves show signs of stress: blue-gray color, slow recovery from footprinting or folded leaf blades. Avoid light, frequent waterings (<¼ inch) and overwatering (puddling). Best time to irrigate is in the early morning.												
* The arbitrary dividing line between north and south Florida is a straight east-west line from coast to coast through Orlando.													
¹ Apply a complete (C) fertilizer at a rate of 1 lb of nitrogen per 1000 sq ft (e.g., 6.2 lb 16-4-8 per 1000 sq ft).													
² Apply iron (Fe) to provide dark green color without stimulating excessive grass growth. Ferrous sulfate (2 oz in 3-5 gal water per 1000 sq ft) or a chelated iron source may be used.													
³ A straight nitrogen source (N) may be used at a rate of 1 lb nitrogen per 1000 sq ft (e.g., 3 lb 33-0-0 or 4.8 lb 21-0-0 per 1000 sq ft). A slow release source of nitrogen is preferred (e.g., IBDU, milorganite, urea formaldehyde, sulfur coated urea).													
⁴ Use a preemergence herbicide (PE) for control of summer annual grasses such as crabgrass or goosegrass. Repeat 8 to 12 weeks later for summer long control. Herbicides include benefin, bensulide, dithiopyr, oxadiazon, DPCA, pendimethalin, prodiamine and oryzalin. Do not use atrazine or simazine. Note: Currently, no postemergence grass herbicides are labeled for use on bahiagrass lawns.													
⁵ Use postemergence broadleaf herbicides (PO) for control of broadleaf weeds such as dichondra, pennywort, Florida betony, clover, oxalis, matchweed, plus others. Herbicides include 2,4-D + dicamba and/or mecoprop. Do not use when air temperatures exceed 85°F or when the grass is under moisture stress. Repeat application two weeks apart may be necessary for complete control.													
Refer to the text for more details.													

