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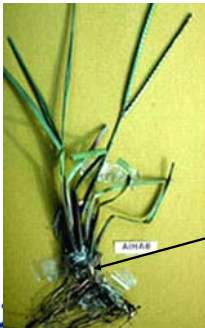
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### Bahiagrass



- Grows by rhizomes
- Grows in bunches
- Likes acidic soil

rhizome

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### Bahiagrass

(*Paspalum notatum* Flugge)

- Advantages
  - Good drought tolerance
  - Low fertility requirements
  - Low maintenance
  - Tolerant of sandy, acidic, infertile soils
  - Establishes from seed



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## Bahiagrass

(*Paspalum notatum*)

- Disadvantages
  - Produces abundance of seedheads (especially cv. Pensacola)
  - Open growth habit encourages weed competition
  - Susceptible to mole crickets
  - Coarse stems are difficult to mow
  - Not wear tolerant



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## Centipedegrass

(*Eremochloa ophioroides* [Munro] Hack

- “Poor man’s grass”
- Very low maintenance
- Used primarily in north FL and other southern states
- Prefers clay soils, low pH
- Susceptible to “Centipedegrass Decline” if overfertilized
- Grows only by stolons

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## Centipedegrass

- Few insect and disease problems
- Light green color
- Slow growing and prostrate
- Reduced mowing needs
- Reduced fertilization and irrigation

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**St. Augustinegrass**  
(*Stenotaphrum secundatum* Walt Kunze)






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**St. Augustinegrass**

**Advantages**

- Best shade tolerance of warm-season grasses, but varies within species
- Good salt tolerance
- Tolerant to wide range of soil pH
- Establishes quickly from sod
- The “standard” - we know how to manage it!

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**St. Augustinegrass**

**Disadvantages**

- Only grows by stolons (aboveground)- no underground protection
- Requires water during drought
- Poor wear tolerance
- No chinch bug tolerance currently
- Loss of herbicides for grassy weed control
- Takes work!






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## Sugarcane Mosaic Virus



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## Floratam

- Used in majority of home lawns in FL
- Released in early 1970s
- Initially had chinch bug resistance – currently does not
- Has large, wide leaf blades and wide stolons
- Mow at 3.5-4"



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## Palmetto

- Lighter green and shorter growth
- Claims that it has "excellent drought, shade, cold etc. tolerance not backed by research
- Not as widely grown as 10 years ago



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## Delmar and Seville

- "Dwarf" cultivars – mow at 2-2.5"
- Best shade tolerance – 4-6 hours of sun daily
- Better cold tolerance in Delmar



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## Older Zoysias

- Slow growing, lengthy establishment
- Nematode issues
- Disease more prevalent than some other species
- Coarse leaf texture
- Prone to thatch

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## Newer Zoysias

- Slow growing, but much faster than older varieties
- Nematode issues – generally not as damaging as on older varieties
- Disease more prevalent than some other species
- Coarse leaf texture (not as coarse as St. Aug)
- Prone to thatch

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## Empire Zoysiagrass (japonica)



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## 'Empire'

- Sod Solutions (1999)
- Poor turf quality in the north, good in the transition zone, and very good in the south
- Blue-green leaf color
- Slower vertical growth and establishment than some other species
- Fair winter hardiness, slow spring green-up (nitrogen dependent)
- Reduced maintenance zoysiagrass
- Salinity tolerance largely unknown
- Adapted to Florida's sandy soils
  - Consistently good performance in Florida

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## Empire Zoysiagrass



- Low-growing, dense
- Very responsive to nitrogen – needs less than St. Aug
- Shade tolerance similar to Floratam
- Hunting billbug pests
- Susceptible to large patch disease Tends to get thatchy
- Nematode tolerance?

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## Fertilization of Lawngrasses



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## Turfgrass Fertilizer BMPs

- Keep fertilizer off impervious surfaces
- Maintain a buffer zone (10') around water bodies
- Apply only the correct amount
- Soil test – know your pH and nutrient concentration
- Low phosphorus!
- Only fertilize during the growing season
- Irrigate fertilizer in with about 1/4" of water

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## Sweep Up Fertilizer Spills



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## Centipedegrass

- “Poor man’s grass” – very low input
- Watch fertilizer- very low rates needed and too much leads to centipede decline
- Few insect and disease problems
- Light green color
- Slow growing and prostrate
- New cultivar ‘Hammock’ developed primarily for use in south FL

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## Why Fertilize?

- Lawns need nutrients to grow in a healthy condition
- Grasses grow and turn green in response to fertilizer
- A properly fertilized lawn is your best defense against weeds
- A properly fertilized lawn is your best protection against storm water runoff
- This does not mean overfertilization!

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## When to Fertilize?

- 1-4 times a year:
  - Spring when growth begins and after danger of frost
  - Summer – apply iron or low amounts of nitrogen fertilizer
    - fertilizer important during times of growth, but may not be needed depending on soil characteristics and grass species
  - Fall – potassium beneficial, imparts cold tolerance to grass
  - Winter- depends on location in state – DO NOT fertilize dormant grass with nitrogen (no fertilizer mid Oct-April in North Fl and Nov- end of March in central Fl)
- South Florida may fertilize year-round

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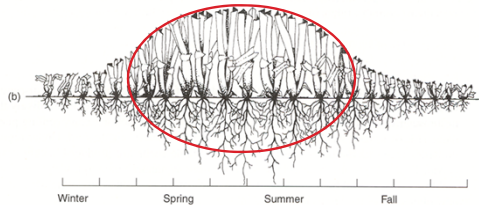
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## Warm Season Grass Growth

Seasonal shoot and root growth of warm-season turfgrasses. (Turgeon, 2002)



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## Soluble vs. Slow-release N

- Soluble nitrogen sources
  - Often used by professional lawn care services and on athletic turf
  - Provides quick green-up and growth surge
  - Effects generally not seen for more than 30 days or so
  - Can leach if over-applied or followed by excess irrigation or rainfall
  - When applied at *IFAS recommended rates* to healthy turf, leaching rates very low

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## Soluble vs. Slow-release N

- Slow release nitrogen sources
  - Release some nitrogen right away and some slowly over time
  - Release rate tied to technology
  - Response may range from 60-90 days
  - Less growth surge and green-up after application
  - Newer technology provides dual coatings that can provide N to turf for 4 months or longer
    - Expensive, but high quality
    - Should not be applied in fall, since they may continue to release N during winter dormancy

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## Soluble vs. Slow-release N

- Our multi-year research shows no difference in nitrate-N leached due to N source when applied to healthy turf
- Recommendation still for application of a product with some slow-release N for homeowners

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**Current UF/IFAS Fertility Recommendations (lbs. N 1000 ft<sup>-2</sup> yr<sup>-1</sup>)**

**St. Augustinegrass:**

- North FL: 2-4
- Central FL: 2-5
- South FL: 4-6

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**Current UF/IFAS Fertility Recommendations (lbs. N 1000 ft<sup>-2</sup> yr<sup>-1</sup>)**

**Zoysiagrass\*:**

- North FL: 2-3
- Central FL: 2-4
- South FL: 2.5-4.5

*\*New recommendations based on latest nutrient leaching/turf quality research*

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**Current UF/IFAS Fertility Recommendations (lbs. N 1000 ft<sup>-2</sup> yr<sup>-1</sup>)**

**Bahiagrass:**

- North FL: 1-3
- Central FL: 1-3
- South FL: 1-4

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**Current UF/IFAS Fertility Recommendations (lbs. N 1000 ft<sup>-2</sup> yr<sup>-1</sup>)**

**Centipedegrass:**

- North FL: 0.4-2
- Central FL: 0.4-3
- South FL: 0.4-3

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**How Frequently to Water**



**Varies due to:**

- Season
- Soil type
- Shade
- Rooting depth
- Insect or other pests
- Other stresses

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**Irrigation Frequency**

- Watch grass for signs of stress
- Follow watering restrictions!
- You may water “hot spots” with hose if needed and if not prohibited by local restrictions

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## How Much to Water

Do not water past point of runoff – this only wastes water



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## How Much to Water

- Apply 1/2" to 3/4" when turf shows symptoms of wilt
- This should not vary seasonally - only frequency of irrigation varies!

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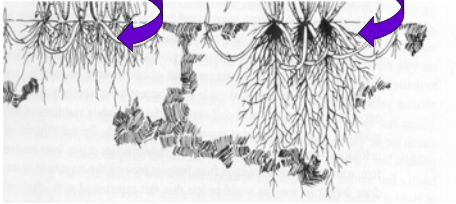
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Short, frequent irrigations      Longer, less frequent irrigations



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## Irrigation System Efficiency

- Calibrate systems to ensure uniform coverage
- Check for broken heads, etc
- Check for landscape plants that may block sprinkler from reaching grass



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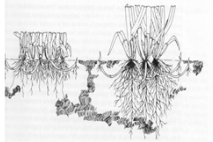
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## Mowing BMPs

- Mow at the correct height for the species
  - Mowing too low stresses the grass and forces it to use up all saved reserves for shoot growth
  - Mowing high increased root depth



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## Mowing Heights

- St. Augustinegrass Standard Height Cultivars:
  - Floratam, Bitter Blue, Classic, etc.
  - 3.5 – 4”
- St. Augustinegrass Dwarf Cultivars:
  - Captiva, Delmar Seville
  - 2-2.5”
- Bahiagrass: 3-4”
- Centipedegrass:
- Zoysiagrass: ~2”

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## Mowing

- Only remove 1/3 of the leaf blade at any one time
  - Grass at 6" should have no more than 2" removed
- Keep mower blades sharpened
- Do not mow wet grass
- Commercial mowers should be washed off between properties (*do you ever see this?*)

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## Questions About Turfgrass?

- [letr@ufl.edu](mailto:letr@ufl.edu)
- <http://hort.ufl.edu/yourfloridalawn/>
- <http://turf.ufl.edu>
- <http://gardeningsolutions.ifas.ufl.edu/cice/faculty/trenholm.html>

We would like to thank the Florida Department of Environmental Protection for funding the nutrient leaching research

Thank you for your interest!



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## Questions

1. What grass (species/cultivar) is the best choice for a shady site?
2. What is the maximum amount of nitrogen fertilizer to apply at any one time?
3. How much irrigation water should be applied at each irrigation event?
4. What is the correct mowing height for Floratam St. Augustinegrass?

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