

Turfgrass & Water Conservation

2017 SFWMD Water Conservation Expo

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Sod Solutions**

- *Florida Turfgrass Association – Board of Directors & Executive Committee (2011- current)*
- *Turfgrass Producers International Membership Working Group (2013-current)*
- *FNGLA Allied Division Leaders (2016 – current)*
- *STMA Chapter Relations Committee (2016-current)*
- *North Florida STMA Commercial Board Director (2016-current)*
- *Wedgworth Leadership Institute for Ag & Natural Resources – Class of 2009*
- *Florida Home Builders Association - Alternate Associate Director (2004-2006)*
- *Tallahassee Builders Association – Board of Directors (2004-2006)*
- *Turfgrass Producers of Florida – Board of Directors (2005-2006)*
- *Florida Sod Best Management Practices – Steering Committee and Editorial & Writing Subcommittee (2005-2006)*
- *Florida Department of Agriculture & Consumer Sciences - License & Bond Review Committee (2004-2005)*



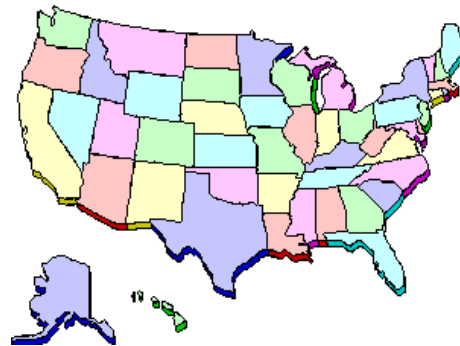
15 Patented Grasses – Cool and Warm Season



Founded 1994



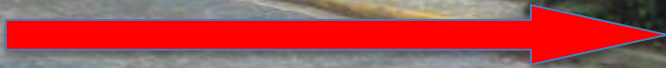
- Over 250 Farms
- Over 15 Countries





BASF

**Reduces storm water runoff
and controls soil erosion**





Turfgrass doesn't overwater, people do!

A vibrant green field of crops stretches to the horizon under a bright blue sky with scattered white clouds. A sunburst effect emanates from the horizon, creating a lens flare across the scene. The word "Drought" is overlaid in the center in a bold, orange, sans-serif font.

Drought

Homeowner Expectations



Augusta Syndrome



No. 2: 'It's brown, and it's fabulous'



pinehurstresort

Instagram



Pinehurst U.S. Open

- Made a change for a more “natural” approach
- Streamlined irrigation down the middle of the fairways. Brown (not dead) where it was out of reach.
- Went from 55 mil. gallons of water per year to 15 mil.

Dormancy

- Natural defense mechanism of the grass to protect from cold and drought
- Most of Florida can and will experience some dormancy, either partial or full due to cold
- Northerners visit in the winter months and expect to see green grass
- How do we change expectations

The Basics

*“Does it really matter
what grass I use?”*

Drought Tolerance

- Bahia
 - Bermuda
 - Buffalo Grass
 - Zoysia
 - St. Augustine
 - Centipede
 - Seashore Paspalum



Drought

Appropriate Watering

- To encourage deeper root growth, water fewer times a week for longer periods of time.
- Daily watering doesn't encourage the roots to go down deeper because the grass "learns" water will come every day.
- Water in the early morning hours.
- Most grasses need about the same –
 - 1" of water per week in the active growing season from rain or irrigation to look good...less to survive.

Holding Color without Water – Drought Resistance

- St. Augustine
 - Bahia
 - Bermuda
 - Centipede
 - Zoysia
 - Seashore Paspalum
 - Tall Fescue
 - Buffalo Grass



Drought Differences

- St. Augustine and Centipede – Will hold green color longer and then begin to brown and die.
- Zoysia, Bermuda, Bahia – Will begin to go off color typically faster than St. Augustine and Centipede. However, they aren't dying but going dormant where they will begin to live off stored carbohydrates.

Soils

A vibrant landscape featuring a lush green field in the foreground, a clear blue sky with scattered white clouds, and a bright sunburst effect emanating from the horizon. The word "Soils" is prominently displayed in the center of the image in a bold, orange, sans-serif font.

Soils

The background image shows a residential lawn being prepared. A white trailer is parked on a driveway, and a person is using a tool to work the soil in a large rectangular area. Another person is visible in the background near the trailer. The scene is outdoors with trees and a house in the background.

- **Proper prep is often skipped due to availability of material and immediate costs of time and money**
- **Failing to improve the soil prior to planting results in a higher and continual investment of time and money**
- **Grass needs four essentials to grow, three of which come from the soil**
 - **Air**
 - **Water**
 - **Nutrients**
 - **Sunlight**

Soils

A person in a light blue shirt and jeans is digging a hole in a lawn next to a house with a white railing. The background shows trees and a house. The word 'Soils' is written in large orange letters in the top right corner.

- **Where do I start?**

- Pull soil sample and make appropriate amendments

- Most soils need some sort of amendment
- Best soils for sod are loam, sandy loam and loamy sands with a pH of 6.0-6.5

- Assure soil is tilled prior to installation

- Blend original soil and additions for a homogenous mixture
- to reduce compaction
- allow for turf vigor

Soils

- Poor soil base



The background image shows a residential lawn with a palm tree in the center, a concrete driveway on the left, and a dark-colored car parked on the right. The word "Soils" is overlaid in the top right corner in a large, orange, sans-serif font with a white outline.

Soils

- Proper soil moisture results in healthy rooting, improved nutrient uptake = better plant health
- Ideal soils should be made up of:
 - 50% solids
 - 25% water
 - 25% air
- Wetting Agents
 - Help control soil repellency issues while providing uniform soil moisture
- Hydretain
 - Manages root zone moisture

A green tractor is parked in a vast green field under a bright, hazy sky at sunset. A wooden pallet is stacked on the back of the tractor. The scene is illuminated by the warm, golden light of the setting sun, creating long shadows and a soft glow over the landscape.

Review:

- Drought Tolerance vs. Resistance
- Select a variety to survive an extended period of drought
- Water few times for extended periods, early in the day (1" per week – 1-2 cycles)
- Utilize soil moisture tools

Species for Florida



Zoysia

Bermuda

St. Augustine

Centipede

Bahia

St. Augustine

- Native to West Indies; naturalized along US Gulf Coast
 - Still the most widely used turfgrass in the state of Florida
- Drought tolerance: Wilt avoidance
- Shade tolerance: Good, but variable between cultivars.
 - Some cultivars have the best shade tolerance of any other Florida grass types
- Hold color longer when temperatures get colder and when water shortages occur
- Often the first to green up after winter dormancy

St. Augustine

Some Drawbacks to St. Augustine

- Not *Leeds* or *Green Building* certified
- Fewer herbicide choices
- Stoloniferous, coarse leaf texture
 - St. Augustines only have stolons (above ground runners) to spread, unlike bermudas and zoysias that spread underground with rhizomes
- Translates to reduced ability to recover from damage
- More prone to damage from insects like chinch bugs
- Some cultivars are more prone to disease and/or struggle to recover

Zoysia

- Center of origin – Eastern Asia
- Rhizomes and stolons
- Very dense, weed resistant turf
- Adapted to a variety of soil types
- Drought tough
 - Dormancy is a defense mechanism to lack of water
- Durability
 - Stands up to traffic better than St. Augustine
- Heat tolerant
- Salt tolerant
- Lower fertility requirements
- Many herbicide choices

Zoysia

Some Drawbacks to Zoysia

- Wilts quickly in drought stress
- Goes “off-color” quicker when colder weather sets in (compared with St. Augustine)
- Longer dormancy period
- Needs to be cut back once per year (“scalped”) to reduce thatch levels
- Can pop up in flower beds (less often than bermudas)
- Fine-bladed varieties are more maintenance intensive

Functionality



EMPIRE
Rep: 1
Z 1.8

Florida

Fine Roots / Rhizomes

Bermudagrass



- Center of origin: Africa & Asia
- Most widely used warm-season species
- “Toughest” grass in Florida
 - Rhizomes and stolons
- Best turfgrass for drought and low water
 - Wilt avoidance and dormancy mechanism
- Some varieties require lower fertilization
- Many herbicide choices
- Shade tolerance: Poor, two cultivars are improved
- Extreme wear tolerance and recovery
- Fine-bladed appearance

Bermudagrass

The background of the slide is a photograph of Ben Hill Griffin Stadium. The stadium's seating bowl is visible, with a dark overlay covering the middle section. At the top of the stadium, a sign reads "BEN HILL GRIFFIN STADIUM". On the right side of the stadium, the words "GATOR COUNTRY" are visible on a red structure. The sky is blue with some white clouds. The foreground of the slide is a close-up of a green lawn, likely bermudagrass.

Some Drawbacks to Bermudagrass

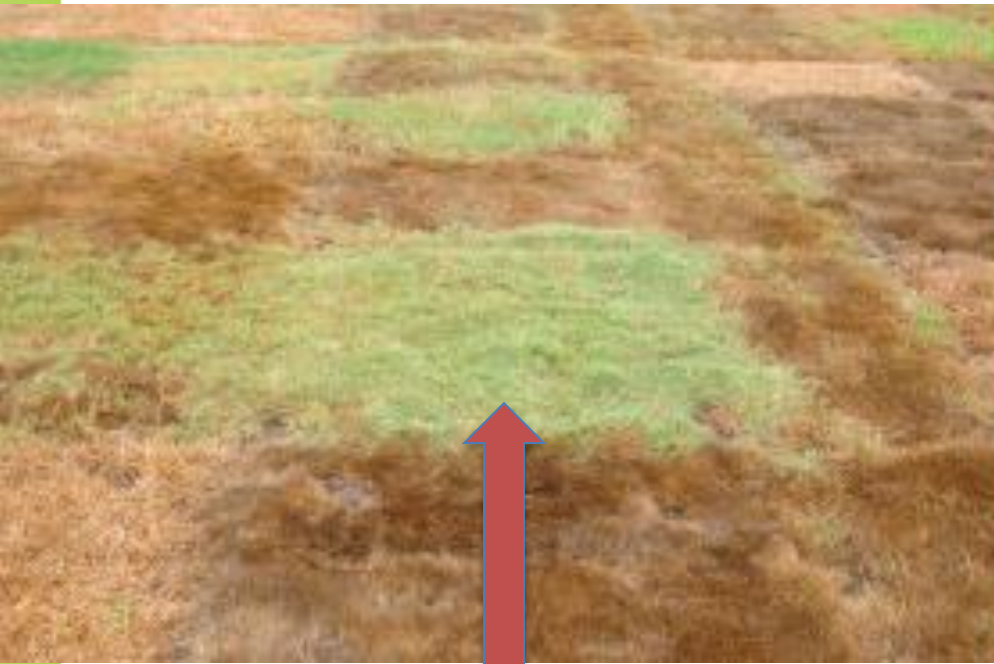
- Higher level of basic maintenance needed in Florida's climate (mowing, edging)
- Aggressive – flower bed borders will need maintaining
- Different look in St. Augustine grass neighborhoods
- Most varieties have poor shade tolerance

San Antonio Water System (SAWS) Study

- 25 different varieties tested
- No irrigation from July 23 – Sept. 20, 2006
(One of the hottest 60 days on record in San Antonio)
- 60 day recovery period with watering
- Goal - St. Augustine use in San Antonio
- Results – Celebration was green and growing after 60 days without water
- Results – Celebration was rated best after the recovery period with a recovery rate of 100%

Cultivar		11.22.06 Recovery	Stat. Grouping	11.22.06 Uniformity
Celebration	BM	100.0	a	9.00 a
Grimes EXP	BM	100.0	a	9.00 a
Common Bermuda	BM	98.8	ab	9.00 a
GN1	BM	98.8	ab	9.00 a
Tifway 419	BM	98.8	ab	9.00 a
Tex Turf	BM	97.5	ab	9.00 a
TifSport	BM	97.5	ab	9.00 a
Buffalograss	BU	95.0	abc	9.00 a
Floritam	SA	88.8	abcd	8.50 a
EMPIRE	Z	71.3	abcde	8.50 a
Palisades	Z	71.3	abcde	8.50 a
Jamur	Z	68.8	abcdef	8.25 a
El Toro	Z	62.5	abcdefg	8.25 a
Premier	BM	57.5	bcdefg	7.25 ab
SA Common	SA	55.0	cdefghi	6.00 abc
Palmetto	SA	51.3	defghi	4.75 bc
Amerishade	SA	42.5	efghij	4.50 bc

San Antonio Water System (SAWS) Study



Celebration



Celebration

Centipede

- Native to Southern China
 - Naturalized along US Gulf Coast
- Popular throughout North Florida
- Stoloniferous
- Lower Cost than St. Augustine generally
- “EZ” grass to maintain
- Acidic, low fertility soils
 - pH – 4.5 to 5.5
- Looks more like Zoysia
- Seed or Sod
- Shade Tolerance: Moderate
- Drought Tolerance: dormancy mechanisms

Centipede

Some Drawbacks to Centipede

- Poor recovery from damage with above ground “runners” only
- Purple – red seed heads at certain times of year
- Can be damaged from insects and fungus easily
- Needs netting to hold it together when it is installed as sod



Bahia

- Introduced from S. America
- Coarse texture, open growth habit
 - Rhizomes/Stolons
- Drought Tolerance:
 - Dormancy Mechanisms
 - Drought fighter like bermuda and zoysia – deep root system
- Tolerates a wide range of soils
 - Persistent in low fertility, sandy soils
- Shade Tolerance: poor
- 2.5 million acres (estimate) of bahia as pasture grass in Florida

Bahia

Some Drawbacks to Bahia

- Aesthetically inferior to the other grass types
- “Cheap” variety that is often used as a pasture grass



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