

Turf Talk for the GM

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Objectives

1. Introduce turfgrass species and describe their use on golf courses
2. Describe basic turfgrass management practices
3. Describe factors that influence turfgrass quality/performance

Grasses

- **“Of all the plants of the earth the grasses are of the greatest use to the human race” (Hitchcock, 1971)**

1. Examples of Grasses

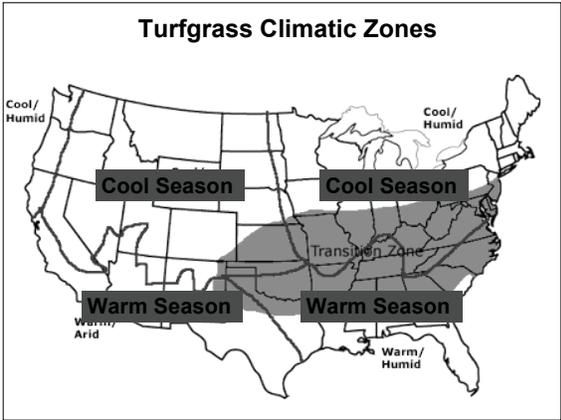
- Wheat
- Corn
- Rice
- Barley
- Bamboo
- Kentucky bluegrass

Three criteria separate turf from other grasses

- Tolerate frequent, close mowing (<1/8 inch)
- Form contiguous community
- Withstand traffic

Grasses are divided into two categories

- Cool season (65-75 F)
- Warm season (80-95 F)
 - Classification based on photosynthetic pathway
 - i.e. how the plant makes food



Cool Season Grasses

- Grow rapidly in spring
- Somewhat intolerant of summer stress – often enter dormancy
- Growth increases again in fall, may stay green throughout winter

Common Turfgrasses

<ul style="list-style-type: none"> • Cool Season – Kentucky bluegrass – Creeping bentgrass – <i>Poa annua</i> (annual bluegrass) – Tall fescue – Fine fescue – Perennial ryegrass 	<ul style="list-style-type: none"> • Warm Season – Bermudagrass – Zoysiagrass – Centipedegrass – St. Augustinegrass – Seashore paspalum – Kikuyugrass
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Kentucky bluegrass

- **Low mowing tolerant/dwarf varieties**
 - Mowing height 0.5 to 1.0 inch
- **Fairways**
- **Roughs**

Creeping bentgrass

- **Considered superior playing surface**
 - Greens
 - Tees
 - Fairways
 - **Mowing height:**
 - 1/8 inch on greens
 - 1/4 inch on fairways

***Poa annua* (annual bluegrass)**

- **Dominates older golf courses in northern regions, pacific northwest**
- **Produces seedheads**
- **Requires frequent irrigation?**
- **Requires more inputs/pesticides?**

Warm Season Grass Differences

- Deeper rooted
- More drought, heat and wear tolerant
- Most cool season grasses are seeded, while warm season grasses are established vegetatively.
- Less low temp. hardy and discolor at low temp.

Bermudagrass

- Growth stops when temperatures drop below 60 F.
- Discoloration occurs when temperatures drop below 50 F.

Overseeding Benefits

- Provides winter color
- Improves winter & spring play conditions
- Attracts golfers
- Spring tournaments

Overseeding Concerns

- Costs - \$500 to \$2000/A (\$30,000 to \$50,000 total for 40 to 80 acres)
- Establishment problems
- Broadleaf weeds & renegade ryegrass
- Poa annua*
- Spring transition problems
- Fall establishment disrupts play
- Good irrigation system required

Seashore Paspalum

- High salt tolerance
- Effluent water

Transition Zone

200 mile wide belt at 37°N latitude
AKA "Zone from Hell"

Every grass will grow, but none will survive indefinitely due to extremes in climate.

2. Cultivation

Compaction is the compression of soil particles resulting in loss of pore space in the soil profile, resulting in a decrease in soil aeration.

Core aeration

- ✓ Correct soil layering problems
- ✓ The removal of cores of turf and soil
- ✓ Size of cores: 0.25 to 1.0 in.
2-8 in. long.

Dry Ject

- Positives
 - Quick turn around time for golf!
 - Minimal disruption of surface
- Negatives?
 - Not removing organic matter from green
 - Not a replacement for core aeration

3. Topdressing

A prepared root zone mix (usu. sand) added to a turf surface and worked-in by brushing and/or irrigating (Beard, 2002)

Benefits of Topdressing

- Thatch Control
- Improved Putting Quality
- Soil Modification

Drawbacks

- Disruption
- Cost
- Leaf Abrasion
- Finding/Selecting the Right Material

4. Green Speed

- Golfers tend to have strong opinions about green speed

Why is Green Speed an Issue?

1. TV announcers love to discuss green speed
2. Member has just played in a tournament at another golf course where the greens were sped up for the two-day event, and he wonders why your greens aren't like that every day.

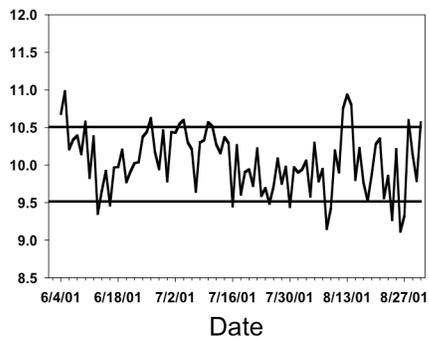
History of Stimping

- Stimpmeter introduced in 1937 by Eddie Stimpson
- "As for it's use in actual play...it's out"
- "However there may be something to the device as an instrument for greenkeepers who might want to answer arguments about the speed and uniformity of their greens"

Factors that Affect Speed

- **Cultural practices**
 - Mowing height
 - Rolling
 - Fertilization
 - Irrigation
- **Weather**

2001 Green Speed Consistency



5. Irrigation & Drainage

Syringing - applying small amounts of water to help the turf avoid heat stress

USGA Greens

They're manageable, they breed healthier turf and nothing better has come along. (Shackelford, 2002)

They're expensive, difficult to construct and not as reliable as billed. (Shackelford, 2002)

Moisture Problems on Greens

- **Excess water can lead to Black Layer**
- **Dry areas often occur on elevated areas of greens – sometimes called 'hot spots'**

Solutions to Hot Spots

- **Syringing**
- **Wetting Agents – help water penetrate soil and help soils retain moisture**
- **Alternative greens construction method**

6. Bunkers

- Bunkers are defined as hazards
- Golfers complain: too hard, too soft, too inconsistent
- Selecting bunker sands is challenging

Bunker Maintenance Costs

- Threetops in Gaylord, MI
- Mark Wildeman, CGCS
 - 50% of hourly labor budget
 - Maintaining 37 bunkers
 - 61,000 sq. ft. of bunkered area
 - Double the amount spent on greens!
- Source: "Buried Lies" by Peter Blais, Golf Business, Nov., 2006

Treetops Rick Smith Signature

- 18 hole regulation course
- 137 bunkers, 196,000 sq. ft.
- 40% of labor budget
- Greens are 25% of labor budget

Renovation Projects

- Choosing the correct sand is not easy
- “Probably ½ dozen sands in U.S. that meet criteria for an excellent bunker sand”
- “Of all the sands we test, we probably approve only about 5% and some of those are marginal” (Norm Hummel)

7. Trees and Turf

- Trees ‘harm’ turf
 - Shade
 - Limit air movement
 - Root systems compete

Tree Revolution?

- Mission: Unpopular. Golf Digest, Oct. 2002



8. Winter Kill

- Many kinds of winter kill
 - Low temperature
 - Desiccation
 - Crown hydration
- Occurs in north and south

Environmental Programs

1. Audubon International
 - www.auduboninternational.org
 - The Audubon Cooperative Sanctuary Program is an award winning education and certification program that helps golf courses protect our environment and preserve the natural heritage of the game of golf.

- Cooperative Sanctuary Program – for golf courses that are already open for play
- Signature Program – for golf courses that are under development

- **Golf Courses can obtain certification**
 - **Assess the golf course property**
 - Environmental resources, any liabilities?
 - **Develop an environmental plan that fits the course's unique setting, goals, staff, budget, and time.**
 - **Audubon Int'l provides support, you make the decisions for your golf course**

How much?

- **Annual fee of \$150 (USA), \$200 (international)**

The Environmental Institute for Golf





Mission Statement

***The Environmental Institute for Golf
is committed to strengthening the
compatibility of the game of golf with
our natural environment***



Overview

- ▶ Collaborative effort
- ▶ Outreach to a broader audience
- ▶ Engage all GCSAA departments
- ▶ Information Collection, Research, Education and Outreach
- ▶ Initial guidance from Strategic Planning Session (July 2003)



Areas of Focus

- ▶ Water Management
- ▶ Integrated Plant Management
- ▶ Wildlife and Habitat Management
- ▶ Golf Course Siting, Design and Construction
- ▶ Energy and Waste Management
