Management of K-12 Fields in the Transition Zone

Grady Miller

NC STATE UNIVERSITY

We do not want to go backwards

Characteristics of Transition Zone

1. Short season for warm-season grasses
2. Cool winters for warm-season grasses (7)
3. Hot summers for cool-season grasses
4. High humidity for cool-season grasses
5. Often use overseeded c.s. grasses on base w.s.
6. More use of colorants for green color
7. Dependence on bermudagrass, which is subject to winterkill in some situations.

“Ridden Hard and Put up Wet”

Comer Field at Elon College (1933)
But these issues really should not stop you from:

- Apply the best techniques given the facilities budget and equipment
- Doing them on schedule
- Documenting that you are doing so

Most Important Issues after Turfgrass Selection

1. Wear
2. Mowing
3. Fertilization
4. Weed control
5. Aerification

Situation Report

1. Constantly fighting results of poor construction
2. Constantly fighting results of overuse
3. Insufficient trained labor for tasks
4. Insufficient “useable” equipment for tasks
5. Insufficient money and resources
6. Overcome by environmental influences
7. Dealing with unreasonable expectations
8. Not knowing best “thing” to do
9. Accumulation of problems
10. Communicating the issues with “others”
Number of football games required to lower the turf cover to 70-75%, Knoxville, TN 2006.

- Riviera
- MS Choice
- Patriot
- Tifway

Look for Ways To Reduce Wear

Wear - Practice Areas

Linesman Damage
Establish Yearly Usage Maxims

(2 – 4 – 6 – 8 – 10 Rule)

200 hr or less — sustain good field conditions
400 - 600 — good field conditions with some thinning and localized wear areas
800 - 1000 — fair field conditions; expect thinning and wear
1000 or more — expect significant thinning, turf loss, surface damage, increased risk of athlete injury

Reduction of Traffic Damage

- Restrict use when soil is very wet. [Helps if defined]
- Restrict use when soil is very dry and turf is wilted.
- Always have coaches rotate heavy play areas during practices.
- Use portable goals when possible and move them around the field.
- If possible move soccer field sidelines of field during the year
- On game fields, restrict all practices to a minimum.
- Have a reduced game schedule when grass is dormant.
- Have regularly scheduled rest times that are used to repair minor damages.
- Do not allow unofficial play.
- Use tarps (covers) on bench areas to reduce severe wear by coaches and team members, and on sideline areas used by the cheerleaders.

Start with a General Management Plan

- Mowing (equipment, HOC, frequency, etc)
- Aerification (equipment, frequency, etc)
- Fertilization (products, rates, timing, etc)
- Weed Control (products, rates, timings, etc)
- Irrigation - if available (timing, amounts, etc)

Yearly Growth Patterns of Grasses - Mowing
Mowing - best type?

Wear: Mowing Height

Wear: Mowing Height - hybrid bermudagrass

✔ “Sweet Spot” ¾ to 1 ½ inches
  • Best wear tolerance
  • Most leaves per stem

✗ 1 ½ to 2-inches not bad but will see
  • Shoot density decline
  • Blades more prone to wear
  • Fewer plant to recover

✗ > 2 – inches should be avoided

Question - Fertilizer

• How do I know if fertilizer is needed?
• How do I know the best rate to use?
• How do I know when to apply it?
Fertility

- Test soil at least every other year and adjust for phosphorus, potassium, and pH.
- Gear nitrogen application schedule to grass, field use, and environmental conditions . . . and budget.
- May need to force growth and recovery in high traffic areas with additional nitrogen.

Fertilizer Applications – All fields are to be fertilized every four to six weeks during the growing season with a rate of 0.75 to 1 pound of N per 1000 square feet.
- Non-nitrogen nutrients, including rates should be based on yearly soil tests.
- Treat areas of extremely high wear separately.

Fertilizer Math

Fertilizer A. 10-3-5 analysis at $240 per ton
Fertilizer B. 20-6-10 analysis at $360 per ton

Which is cheapest?

A => (2000)(0.10) = 200# => $240/200 = $1.20 per #N
B => (2000)(0.20) = 400# => $360/400 = $0.90 per #N
Comparison of Fertilizer Equivalents based on 5 pounds of N per year or 215 pounds per acre per year and the “per application” rates

<table>
<thead>
<tr>
<th>Equivalent</th>
<th>Urea</th>
<th>Ammonium Sulfate</th>
<th>16-4-8</th>
<th>Milorganite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lbs fertilizer per 1000 sq ft</td>
<td>11</td>
<td>24</td>
<td>31</td>
<td>83</td>
</tr>
<tr>
<td>Pounds fertilizer per acre</td>
<td>470</td>
<td>1,050</td>
<td>1,361</td>
<td>3,630</td>
</tr>
<tr>
<td>Bags needed for one soccer field per year</td>
<td>20</td>
<td>42</td>
<td>56</td>
<td>146</td>
</tr>
<tr>
<td>Number of bags per application for field</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>29</td>
</tr>
</tbody>
</table>

Involves an Integrated Approach

- Follow Proper Cultural Practices
- Proper Weed Identification
- Prevention of Weed Introduction
- If Needed, Use Herbicides (but know what you are doing)

Pests Control

- Weeds (broadleaf, grasses, sedges)
- Diseases
- Insects
- Mammals

Consult your state’s Pest Control Guide. NC’s available on [www.turffiles.ncsu.edu](http://www.turffiles.ncsu.edu)

Practical Control Tips

- Use only labeled herbicides
  - Scepter vs Image
  - Folicur vs Torque
- Get the right equipment
- Trained applicator
- Calibrate all equipment
- Control weeds during the off-season or off-times

Weed Identification

- Proper weed identification and a basic understanding of growth habits/life cycles are important in understanding the biology and best control strategy.
- Send Extension Specialist Pictures!

Weed Management Begins With Good Turf Management
Purple Nutsedge
- Perennial with triangular stem.
- Leaves, abruptly tapering at tip, boat shaped.
- Seedhead purplish to reddish brown
- Tubers oblong, covered with hairs, and found in chains.

Athletic Fields - Preemergence Herbicides
Be careful on severely damaged fields
- Most PRE herbicides affect root development from stolon nodes
Select oxadiazon (Ronstar or Generic version)
  - Does not affect root development from stolon nodes
On non-damaged healthy fields numerous herbicides may be used

Herbicide damage – spot treatment

Aerification
- Core fields regularly
  - Low traffic – once or twice per year
  - High traffic – two to five times per year
- Use hollow tines when possible.
- Heavily compacted areas may require deep tine or shatter tine aerification

Aeration Methods
- Core
- Solid Tine
- Deep Time
- Deep Drilling
- Grooving
- Slicing
**Aerification**

Verti-drain: Used to break through subsurface layering and/or compaction

**Establish Field Categories**

- Championship
- Tournament
- Recreational or
- Game
- Practice
- Class/Recreation

**Spring Dead Spot of bermudagrass**

Fix problems before they get too big!

**Other Tips and Observations**

**Drainage Problems – off the field**
Minimum Drainage for Native Soil Soccer Field

6 to 12 inch center crown

Rye grass Overseeding

The problem is often not growing the grass, but getting rid of it. In transition zone, often best to remove rye grass for optimum bermudagrass health.

So have a plan on how you will GET RID of it.

Manage Your Surfaces

Overseed Removal Products

- Kerb (Pronamide)
- Manor [or Blade] (metsulfuron)
- TranXit GTA (rimsulfuron)
- Revolver (foramsulfuron)
- Monument 75WG (trifloxysulfuron)
- Corsair (chlorsulfuron)
- Certainty (sulfosulfuron)
- Katana (flazasulfuron)

[many of these have activity on other weeds, including broadleaf weeds]
Know your Irrigation Capabilities

Use Signs

Where do I get Help?
- Fellow “Field Managers”
- STMA members
- University Extension Service
- Other turf managers (e.g., golf course)
- Local schools (labor, knowledge, etc)
- Periodicals
- Online Help
  - University sites
  - Search engines (e.g. Google.com)

Publication Resources

Sprayers – Have One!
1/128th Acre method

- 1. Check the Nozzles for evenness
- 2. Measure nozzle spacing
- 3. Divide 340 by nozzle spacing in feet
- 4. Measure out distance from step 3
- 5. Drive that distance forward at spraying speed and time it.
- 6. Catch one nozzle for time in step 5
- 7. Ounces caught = gallons per acre

Questions:

grady_miller@ncsu.edu

Paint your fields green!