Cool Season Turf Maintenance

Michael D. Boekholder

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EQUINE SPORTS TURFGRASS ALLIANCE

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What We Will Cover...

- Where do they grow?
- Varietal Options & Selection
- Fertility
- Cultural Practices & Height of Cut
- Diagnostics for Better Decision Making

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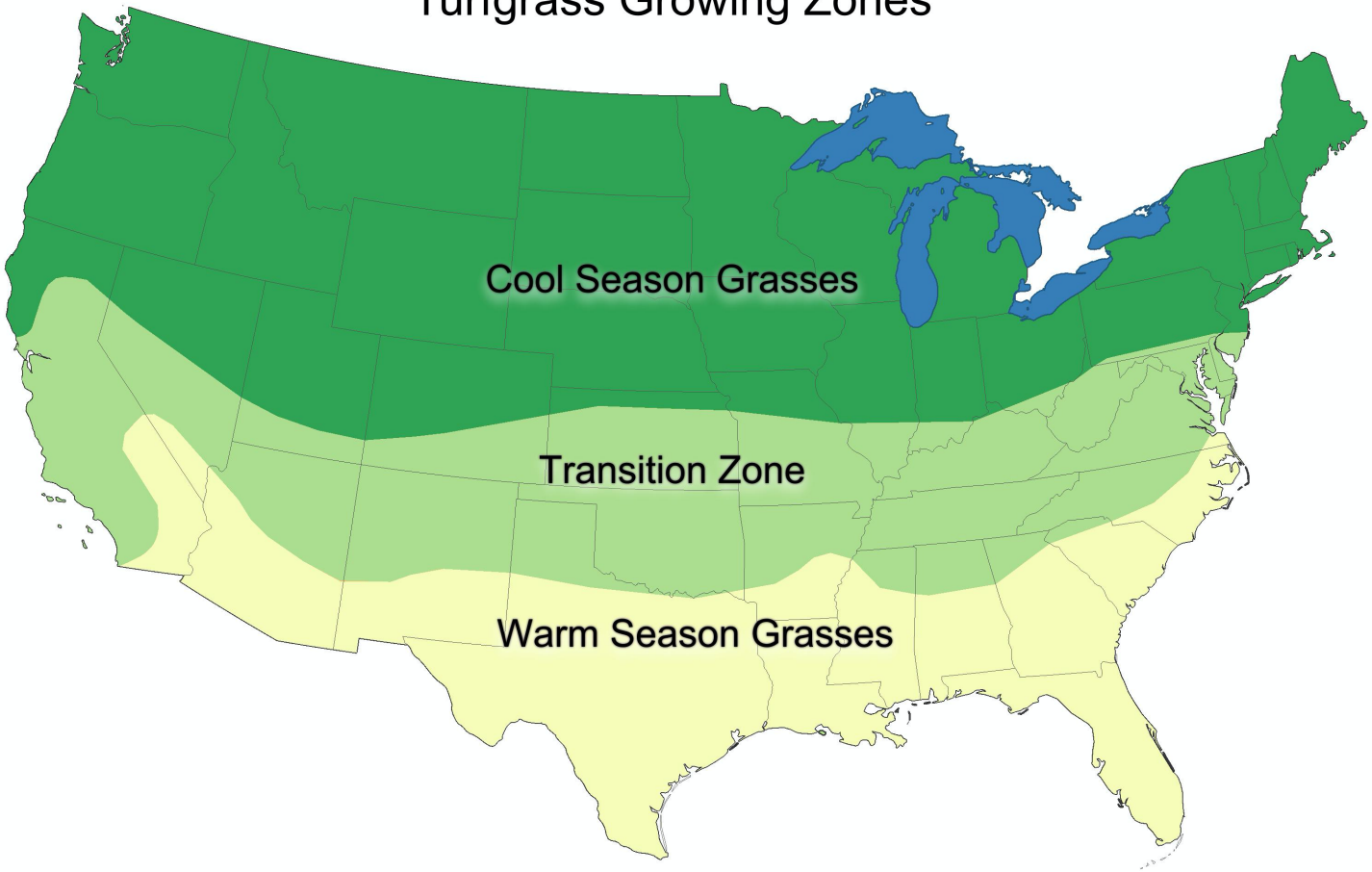
Turfgrass Growing Zones



Varietal Selection & Options

Three Main Cool Season Options

- Turf Type Tall Fescue
- Kentucky Bluegrass
- Perennial Ryegrass

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Turf Type Tall Fescue

- Bunch Grass - spreads in clumps
- Most drought tolerant of the three
- Good wear tolerance
- Recovery can be limited due to bunch growth habit
- Taller height of cut - generally 2” to 4” or higher
- Moderate establishment time (7-21 day germination generally)

Kentucky Bluegrass

- Good durability
- Moderate water requirements
- Best recovery of the three, good wear tolerance
- Rhizomal growth habit - sends out runners that spread and fill in
- Wide adaptability of cutting heights (varietal dependent) - 1/2" to 3+"
- Long establishment times (14 to 28 day germination)
- NTEP trials can be very useful in selecting varieties
- Can be more susceptible to root-born fungal pathogens (summer patch)

Perennial Ryegrass

- Bunch type grass
- High water requirement
- Poor wear recovery
- Good wear tolerance
- Wide adaptability of cutting heights - 1/4" or less to 4+"
- Quick establishment (7 +/- days germination)
- Can be more susceptible to foliar fungal pathogens (grey leaf spot)

What To Use?

- It depends
  - Blends are usually the most common approach
  - “Best of all worlds”
  - “Worst of some…?”
- Certain grass types are more prone to certain disease, fungus, etc.
- Pick what will work best for your climactic microconditions, irrigation abilities, anticipated use, time of year the facility will be utilized
- Be budget conscience - water, fertilizer, fungicides, seed are ALL EXPENSIVE and ADD UP!

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Fertility
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Fertility

- Develop a sound program tailored to your varieties, use schedule, recovery requirements and applicable state regulations
  - For instance… in MD you can only apply 3.5 lbs. of Nitrogen PER YEAR to established turfgrass (tracks fall under this classification)
- Program should be based upon the needs of the plant and soil type you are growing in
  - Soil & Tissue testing are KEY to developing and maintaining an effective nutrient program

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Account No. : 1793

Soil Analysis Report

BOEKHOLDER, MICHAEL
BOEKHOLDER & ASSOCIATES LLC
810 S PENBROOK DRIVE
MIDDLETOWN DE 19709

Invoice No. : 1126280
Date Received : 04/26/2021
Date Analyzed: 04/27/2021
Lab Number : 19382

Results For :
Location :
Sample ID :

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.1	
Buffer pH	6.9	
Soluble Salts 1:2, EC mmho/cm	0.04	
Nitrate-N, ppm N	1.6	
Nitrate-N, Lbs N/A	4.00	
Depth	0 - 8 in	
Ammonium-N ppm	4.1	
Phosphorus, ppm P	34	
P Saturation	22	
UMD P FIV	39	
Potassium, ppm K	51	
Calcium, ppm Ca	171	
Magnesium, ppm Mg	49	
Sulfur, ppm S	21	
Boron, ppm B	0.34	
Zinc, ppm Zn	0.60	
Manganese, ppm Mn pH sensitive	11.0	
Copper, ppm Cu	0.65	
Sodium, ppm Na	14	
CEC Sum of Cations, meq/100g	1.7	
H % Saturation	13	
K % Saturation	8	
Ca % Saturation	51	
Mg % Saturation	24	
Na % Saturation	4	

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Plant Analysis Report

BOEKHOLDER, MICHAEL
BOEKHOLDER & ASSOCIATES LLC
810 S PENBROOK DRIVE
MIDDLETOWN DE 19709

Invoice No. : 1121639
Date Received : 08/21/2020
Date Reported : 08/24/2020
Lab Number : 4377

Results For :
Location :
Sample ID : 82020Z1

Plant Type : Kentucky Bluegrass
Stage : New Growth

	Result Dry Basis	Sufficiency Levels: Deficient / Low / Sufficient / High
Nitrogen ,% N	2.51	
Phosphorus, % P	0.36	
Potassium, % K	2.18	
Calcium, % Ca	0.355	
Magnesium, % Mg	0.227	
Sulfur, % S	0.21	
Zinc, ppm Zn	30	
Iron, ppm Fe	285	
Manganese, ppm Mn	208	
Copper, ppm Cu	6.3	
Boron, ppm B	4	
Molybdenum, ppm Mo	2.02	
Sodium, % Na	0.01	
Aluminum, ppm Al	226	

Foliar nutrient applications should compliment adequate soil nutrients and soil pH. Consult an agronomist for nutrient sources and environmental conditions that may influence nutrient uptake.

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Key Soil Test Items

- NOT a great indicator for Nitrogen (don't use it for this!)
- Phosphorous (P) = 44 ppm (don't overdo P!)
- Potasium (K) = 250 ppm to 280 ppm
- Calcium (Ca) = 3000 ppm (can be hard to achieve/cost prohibitive in some areas of the country)
- pH = 6 to 6.5 is IDEAL (best nutrient uptake for macro & micro nutrients)
- Ca/Mg ratio = 65/15
- K% = 3 to 6
- H% = 10 to 15 (may be off somewhat if other ratios are higher/lower)

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Key Tissue Sample Items

- Very effective for determining what the plant is actually taking up from the soil
- Provides a “snapshot” to see how effective your nutrient application program is actually working
- Can help quickly identify nutrient deficiencies in the plant
- Helps “fine tune” your applications

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General Recommendations

Turf Type Tall Fescue

- Nitrogen
  - 87 to 130 lbs. N per acre per year (2 - 3 lbs./1000)
- P
  - Apply as needed
- Potassium
  - 72 to 109 lbs. K per acre per year (1.66 - 2.5 lbs./1000)

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General Recommendations

Kentucky Bluegrass & Perennial Ryegrass

- Nitrogen
  - 175 to 260 lbs. N per acre per year (4 - 6 lbs./1000)
- P
  - Apply as needed per soil/tissue tests
- Potassium
  - 145 to 217 lbs. K per acre per year (3.3 - 4.15 lbs./1000)

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Keep in mind…

- Some parts of the county, soils won't allow you to achieve certain soil nutrient levels
  - Midwest has high Ca levels, but not a lot of soluble Ca (calcareous sands)
  - pH levels in calcareous soils can be 7+ and won't most likely every drop lower
- In locations where soils won't allow "ideal" levels, supplemental applications of nutrients via a foliar application program are many times required
- Recommendations are for HIGH USE facilities that need rapid recovery from wear - reduce/adjust as your needs require
- General N to K ratio is 6 to 5 on all recommendations

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When to Use

- Native Soils
  - TTTF = 1/3 in spring, 2/3 in fall
  - KB & Rye = 2 lbs. in fall, remainder spread from spring through late summer
  - Avoid high N apps mid-summer
- Sandy Soils
  - TTTF = 1/3 spring, 1/3 summer, 1/3 fall
  - KB & Rye = Higher in spring & fall, maintenance in summer

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Cultural Practices

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Aerate!

- Increases air/gas exchange in rootzone profile
- Controls thatch
- Softens the surface (allows better hoof penetration)
- Increases water infiltration rates
- Think of it as the turfgrass manager's answer to plowing

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Topdress!

- Controls thatch
- Creates a firmer, more stable surface
- Helps with surface moisture control
- Encourages increased sward density
- Can be VERY helpful when overseeding to create seedbed
- DO NOT mix sand and soil blends back and forth... pick on and stick!

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Overseeding!

- Helps repair wear from use and environmental damage
- Introduces better varieties
- Increases overall sward density
- Turfgrasses are TEMPORARY... they need to be constantly rejuvenated

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Height of Cut

- Provides cushion for hoof impact
- Extremely important in equine applications
- Can play a big role in track safety and wear resistance
- Generally accepted heights for cool season turf is 4” +/-

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Diagnostic Tools

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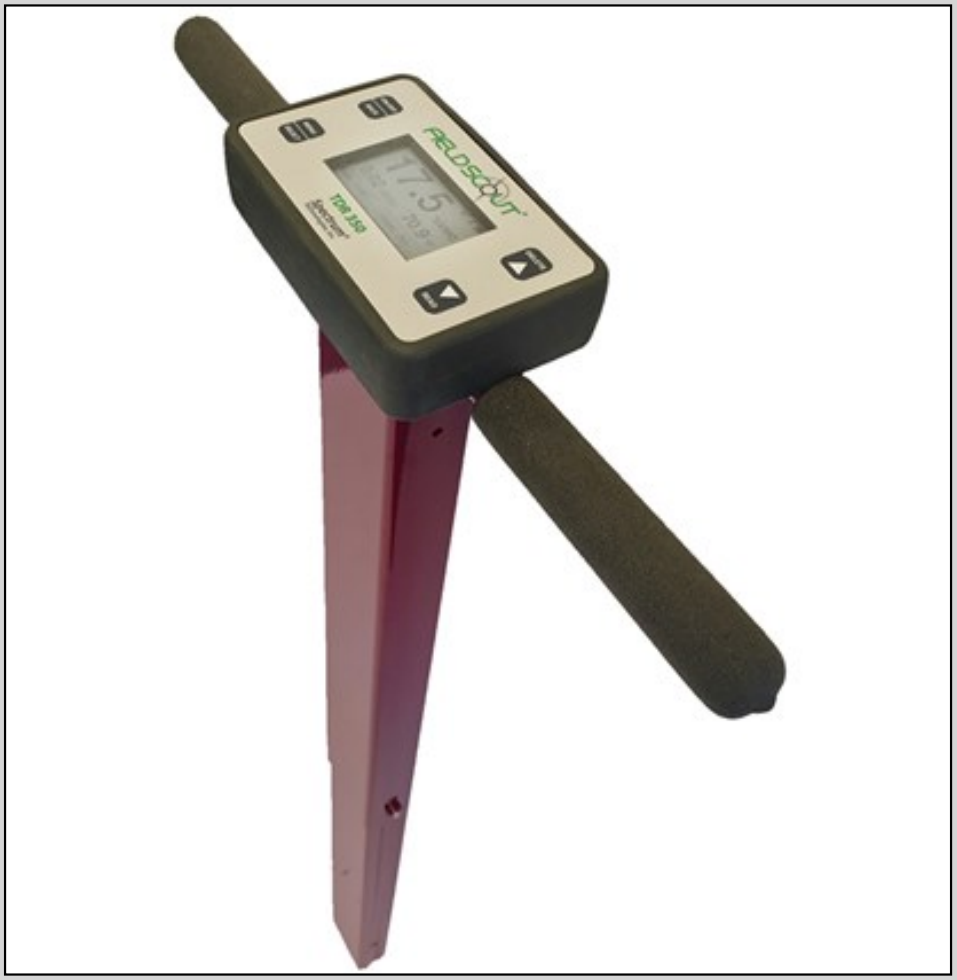
What should be in your “kit”

Must Have

- Soil Moisture Meter
  - Should measure volumetric water content (vwc)



Nice to Have

- Longchamp Penetrometer
- CLEGG Hammer
- Shear Vane

- These tools HELP you to make better management decisions
- It is a TOOL... it's not the end-all, be-all
- Every facility/track is different - tailor the data collection to your situation
- Remember... consistency is the end goal each and every day. Diagnostic tools should be used to help achieve that consistency!

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Thank You!
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