Modern methods for real world data collection to improve input efficiencies and turf playability

Micah Woods December 6, 2023

Asian Turfgrass Center www.asianturfgrass.com

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Today's outline

4 main topics

- Surface performance
- Growth rate
- Nutrients
- Organic matter management

Surface performance





HNGC stimpmeter measurements 2023

Average bobble test



Assess playing conditions at least once per week

- green speed
- quality of roll (bobble test)
- surface firmness¹

¹Measure soil water content at the same time, if you have a meter.

Then, compare conditions to the desired level Objective: to maximize the number of days in the year with conditions at the desired level.

Growth rate

What's affected by the growth rate?

- divot recovery
- ball mark recovery
- water use
- nutrient use
- some diseases
- traffic damage
- green speed
- mowing requirement
- thatch (and everything associated with its management)









Nice day for harvest. #MLSN







Example uses for the data

- Fine tune nutrient supply based on harvest
- When to mow again based on growth
- Growth regulator effect
- Topdressing requirement



Penn A-4 creeping bentgrass greens at Hazeltine National GC



Cumulative clipping volume green by green

2023 in black, 2022 in pink, and the 2023 average across all holes in green.



Cumulative clipping volume green by green

2023 in black, 2022 in pink, and the 2023 average across all holes in green.



Daily temperature summary in 2023

East Lake





Growth potential at East Lake in 2023

Predicted daily N by GP at East Lake in 2023



Daily temperature summary in 2023

High Hampton





Growth potential at High Hampton in 2023

Expected clipping volume for High Hampton in 2023



Predicted daily N by GP at High Hampton in 2023



Nutrients



- 1. Expected plant use for the recommendation time period
- 2. The minimum to keep untouched in the soil
- 3. The soil test result right now



a is a site-specific estimate of plant use *b* is the MLSN guideline *c* is the soil test result









Total applied in 10 years Potassium 51 g/m² Phosphorus 1.1 g/m²

Phosphorus (P)



Organic matter management





soil organic matter: The organic fraction of the soil exclusive of undecayed plant and animal residues. See also humus.

humus: the well decomposed, more or less stable part of the organic matter in mineral soils.

total organic material: organic material in a soil sample that has not passed through a sieve. This test is conducted on the sample as it is received at the laboratory, with no removal of living or dead plant material prior to testing.



Tifeagle putting greens

samples from Bangsai CC



All soil tests conducted at Brookside Labs



Creeping bentgrass putting greens

samples from Hazeltine National GC







At the laboratory







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