

A complete philosophy of turfgrass nutrition

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Asian Turfgrass Center

www.asianturfgrass.com

PACE Turf

www.paceturf.org

“Fertilizer is the number one management tool. It is worth all the attention you can give it.”

John Madison, *Principles of Turfgrass Culture* (1971), p. 270

Everything you need to know about turfgrass nutrition in 1 lecture

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seminar.asianturfgrass.com/2014_osu.html

10 October 2014

HORT 314: Principles of Turfgrass Maintenance

Oregon State University

The 1 minute version

- Apply the right amount of nitrogen
- Ensure soil pH is more than 5.5 and less than 8.3
- Ensure soil potassium is above 37 ppm (Mehlich 3)
- Ensure soil phosphorus is above 21 ppm (Mehlich 3)

1. Slow-growing grass



Old Course, St. Andrews



Augusta National GC

“The fundamental principle of successful greenkeeping is the recognition of the fact that the finest golfing grasses flourish on poor soil and that more harm is done by over-, rather than underfertilizing.”

Alister MacKenzie, Spirit of St. Andrews

2. 100% of nutrients supplied as
fertilizer

Below you will find the best handbooks written by researchers and experts for all who are responsible for a golf clubs maintenance, playing quality, biodiversity, multifunctionality and much more.



Precision Fertilisation Handbook

The first (2011) edition of this handbook summarised the knowledge and experiences gained in three research projects on fertilisation funded by STERF in the period 2003-2011.

The current (2021) handbook has been updated with the results from the STERF projects *Optimal application of nitrogen and sulphur in autumn for better winter survival of turfgrasses* and *SUSPHOS: Sustainable phosphorus (P) fertilization on golf courses*. While former STERF projects mostly

focused on nitrogen (N), the aim of SUSPHOS was to investigate if P fertilization can be reduced on golf course putting greens without negative implications on turf quality.

[Precision Fertilisation Handbook 2021](#)

[Behovsanpassad gödsling 2021 \(S\)](#)

[Behovstilpasset gødsning – Fra teori til praksis \(D\)](#)

[Täsmälannoitus 2021 \(F\)](#)

[MARKVISS NÆRINGSGÆRINGER 2021 \(I\)](#)



Sustainable water management

Water is essential to secure the future of the golf and turfgrass industry and the livelihoods of many rural communities that depend upon it.

This manual will provide you with a sound understanding and basis for improving your irrigation management practices in order to produce high quality turf with reduced environmental and economic cost.

[Irrigation of turf on golf courses](#)

[Termine in areas of golfers \(N\)](#)

[Vandring af græs og golfbaner \(D\)](#)

[Revolution in golf of golfers \(S\)](#)

[Golfbaner i naturen \(I\)](#)



Winter Stress Management

This Golf course managers' handbook summarize results and experiences from research projects related to turf grass. Producing this text was included in the Federation's innovation project "Autofertilization", which was concluded in 2019. Figures show data from these experiments to keep the text short the experiment is in appendix 1.

[Turfgrass Winter stress Mgmt.](#)

[Skiløb og golfbaner i vinterhalvåret \(D\)](#)



Velvet bentgrass

Why is the use of velvet bentgrass so limited?

There are several reasons for that, the most important probably being little experience and



Red Fescue Management

A Handbook based on results from the research project "FESCUE-GREEN: Best management of red fescue (Festuca rubra) golf greens for high sustainability and playability".



The Grass Guide & Seed Handbook

The "Grass Guide 2017" presents results of amenity turf for the Nordic countries over the past 30 years. It focuses on amenity grass-covered slopes, lawns, etc.

Supply in this proportion:

N 100

K 65

P 14

S 9

Ca 7

Mg 6

What if the soil already has plenty of nutrients?





3. 100% of nutrients supplied by
soil + fertilizer

MLSN er en forkortelse for **MINIMUM LEVELS FOR SUSTAINABLE NUTRITION** på dansk: Minimumsniveau for bæredygtig gødsning.

MLSN er en moderne metode til at beregne anbefalet gødningsmængde ud fra jordprøver.

Potassium (K)

mg/kg

150

100

50

0

2012-12-12

2014-01-28

2015-02-11

2016-01-28

2017-01-25

2018-01-29

2019-02-07

2020-02-14

2021-02-10

2022-01-29

68

40

40

38

60

47

39

55

43

47



Phosphorus (P)

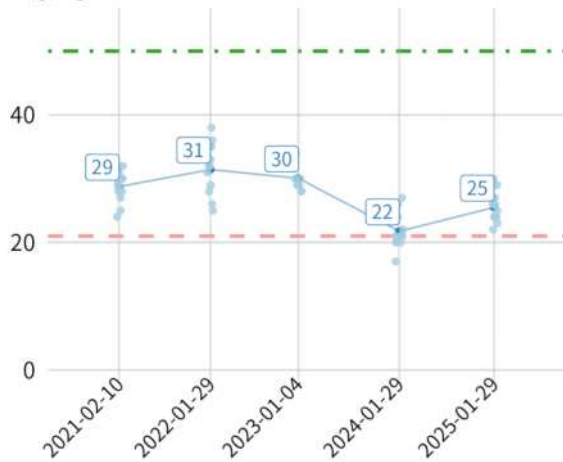
mg/kg



4. All that really needs adjusted
is nitrogen (N)

リン (P)

mg/kg



カリウム (K)

mg/kg



1. Slow-growing grass
2. 100% of nutrients supplied as fertilizer
3. 100% of nutrients supplied by soil + fertilizer
4. All that really needs adjusted is nitrogen (N)



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