

Four ways to determine turf nutrient requirements

Let's say we would like a systematic way to find nutrient requirements. And we'd like to do better than guessing. Here are four options.¹

1 Arthur's *Practical Greenkeeping*

I don't have the book in front of me, so from memory I'll recall this as basically a little N, almost never P or K, no lime. And this works great until it doesn't. Where it works great is places with a climate like the UK and northern Europe. And within that climate, his approach works with turf that is grown on soil, or with turf grown on sandy soils with relatively high nutrient content. Where it doesn't work is places outside of that climate zone, or places within that climate zone growing in a particular type of sand rootzone. Of course Arthur wrote that such sands should not be used. But some places have used them. I like Arthur's approach, but let's recognize that it doesn't work in Hong Kong, nor would it work on a USGA green with a silica sand in London.

2 STERF's Precision Fertilisation

This is superb. Demand-driven fertilisation of Ericsson, also called precision fertilisation, supplies 100% of the nutrients the grass uses, throughout the year.² It is based on how much the grass is growing. The problem with this is some possible inefficiency. If you happen to be growing in a soil with plenty of K and plenty of Ca, for example, why would you add more? And if you want to minimise *Poa annua* invasion, then it wouldn't make any sense to apply P when the soil contains plenty.

3 MLSN

Arthur's approach, and the precision fertilisation approach, both ignore the soil. The MLSN approach says let's see what is in the soil, let's see how much the grass is going to use going forward, and from that we will get a site-specific fertiliser recommendation. It works for any grass, anywhere. In fact, MLSN recommendations simplify to the precision fertilisation recommendation when the soil has nutrient levels right at the MLSN guideline. But when the soil has more than that? The MLSN approach accounts for those nutrients in the soil, and the fertiliser recommendation goes down accordingly.

4 Something else

Is there another approach? Maybe guessing? Or experience? Both guessing and experience can work great. But they don't transfer very well to another site, to another grass type, or to another part of the world. I like precision fertilisation and MLSN because they should work everywhere.

¹Prepared by Micah Woods on 25 March 2020. See www.asianturfgrass.com for more information.

²See <http://www.sterf.org/sv/library/handbooks/fertilisation>

Here's a simple exercise. Look at your annual fertiliser supply. And calculate what it would be under precision fertilisation. The maximum amount of fertiliser one should apply is 100% of grass use, right? Does it make sense to apply more than that? Precision fertilisation is 100% of grass use. But most turfgrass managers are already using more than that.

I'll add here a couple quotes:

How many more times do I have to say that applying nutrients to turfgrass growing on soil already well supplied with the nutrients is a waste of time and money?

Wayne Kussow in "Manipulating Creeping Bentgrass Nutrition," 1995, *The Grass Roots*³

Why use and pay for nutrients that the grass does not need or the soil does not require?

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Clearly, extra fertilizer nutrients only increase the cost of your fertilizer program with little benefit to the turf.

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Remember, extra nutrients in the soil will not make turf extra healthy.

Stanley Zontek et al. in "Does the Grass Know the Cost?" 2010 in the USGA *Green Section Record*⁴

³Find the article at <http://tic.lib.msu.edu/tgif/flink?recno=55302>

⁴Find the article at <http://gsrpdf.lib.msu.edu/ticpdf.py?file=/2010s/2010/100532.pdf>