Example Golf Club soil report

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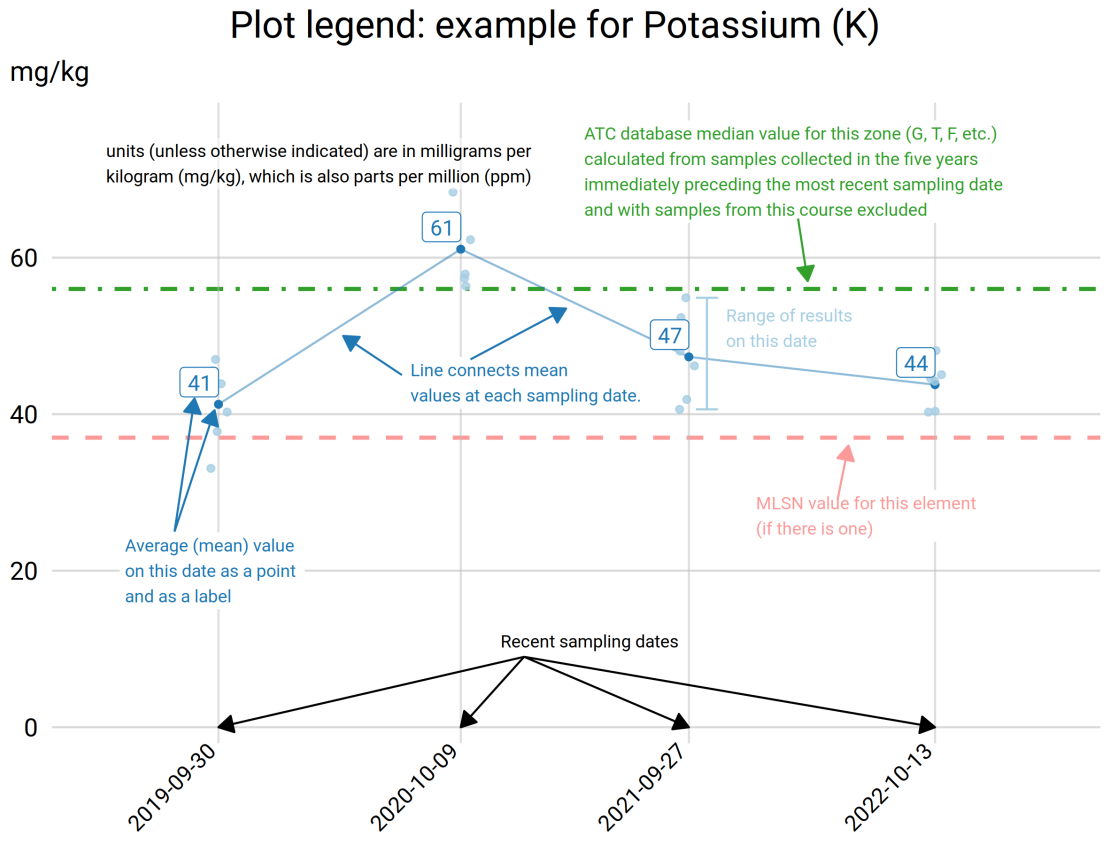


Figure 1: The annotations on this example chart show the information that you'll see on the new summary soil test result charts.

1 Notes on these results

1.1 Recommendation summary

The soil pH has been trending down and I recommend adding $CaCO_3$ at 50 g/m^2 to keep the pH from dropping much lower.

Soil P is high and there are multiple years worth of P in the soil. Fertilizer applications of P can be avoided until the soil P is much lower.

Adding N and K in a 3:1 ratio this year will ensure the grass is supplied with all the K it can use.

Please let me know any questions about this report and about my recommendations.

1.2 Summary chart design

A legend for what you see on each frame of the charts is shown in Figure 1.

2 Green samples

These recommendations are based on a summary of the samples submitted from greens.

pH The median is 5.4. I'd generally try to keep soil pH at 5.5 or higher to minimize soluble aluminum.[1] I recommend adding calcitic limestone, $CaCO_3$, at a rate of 50 g/m^2.

Organic matter The average is 1.4%. This is normal. You can expect about 1.5 g of plant-available N to be mineralized at your location over the next year from this amount of OM. Note that the peak months for N mineralization are predicted to be July and August. See Appendix A for the reference on the method used to estimate site-specific mineralization.

Potassium The average is 61 ppm. This is normal for a sand-based rootzone. I suggest adding N and K in a 3:1 ratio for the next year. For every 3 g of N, add 1 g of K.

Phosphorus The average is 194 ppm. This is high. No P should be applied.

Phosphorus saturation ratio The average is 0.23. At this level of PSR, there is increased risk of P leaching and runoff. Applications of P fertilizer should be avoided for the next year.

Calcium The average is 632 ppm. This is more than enough to meet plant requirements. None is needed as fertilizer.

Magnesium The average is 64 ppm. This is more than enough to meet plant requirements. None is needed as fertilizer.

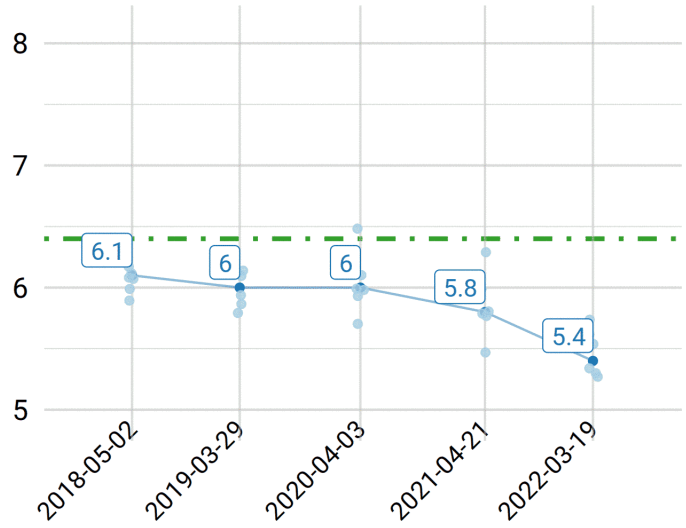
Sulfur The average is 13 ppm. This is an ample amount. None is required as fertilizer.

Micronutrients All are present at normal to high amounts. Copper and Zn in particular are higher than average. I'd avoid application of fertilizers containing Cu and Zn.

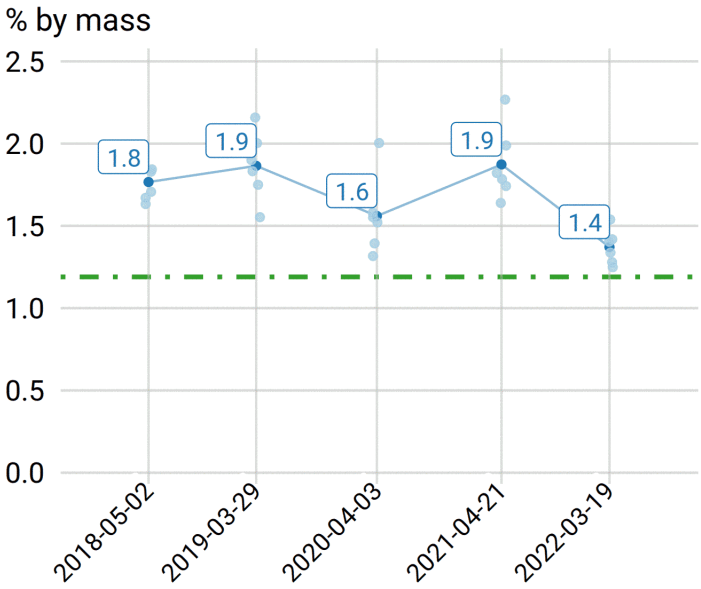
Soil salinity I'm using sodium as an index for soil salinity, and it is low. At this level of salt in the soil there is no risk of salinity damage to the turf.

[1] If you are trying to favor bentgrass over *Poa annua* with low pH, then you might make an exception, but be aware that soil microbial activity—like the breakdown of thatch—will be inhibited at low soil pH.

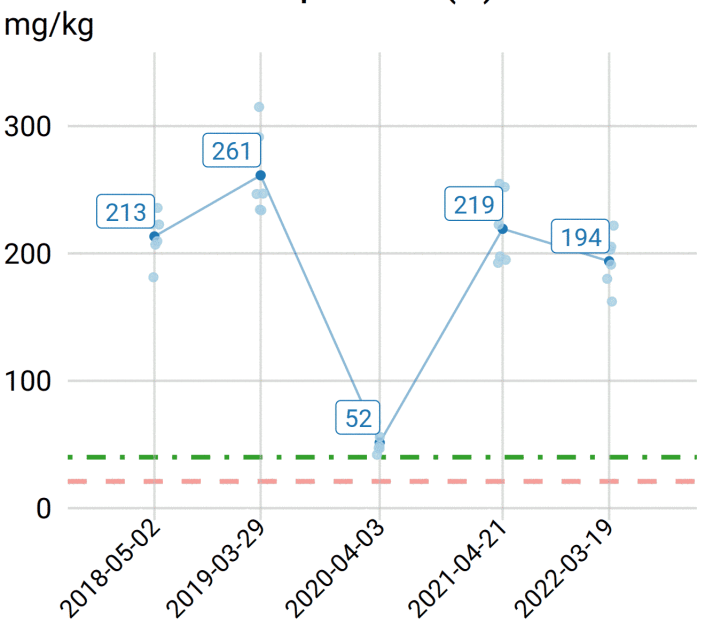
Soil pH in 1:1 H_2O



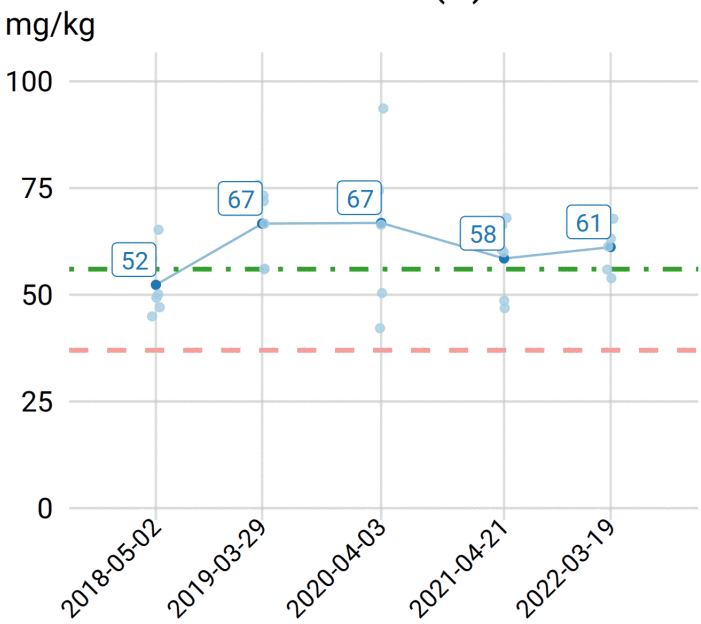
Soil organic matter (OM)



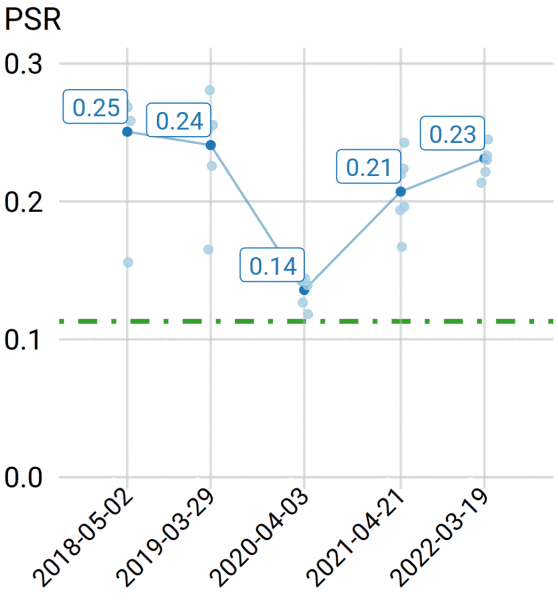
Phosphorus (P)



Potassium (K)

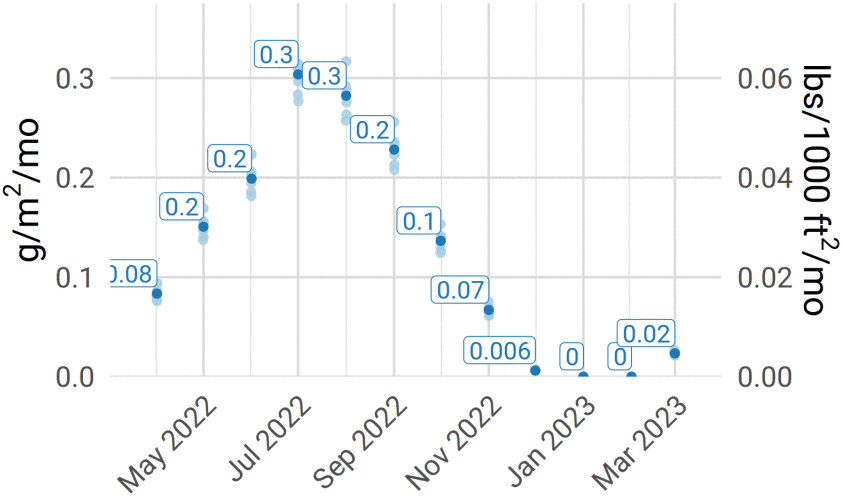


P saturation ratio



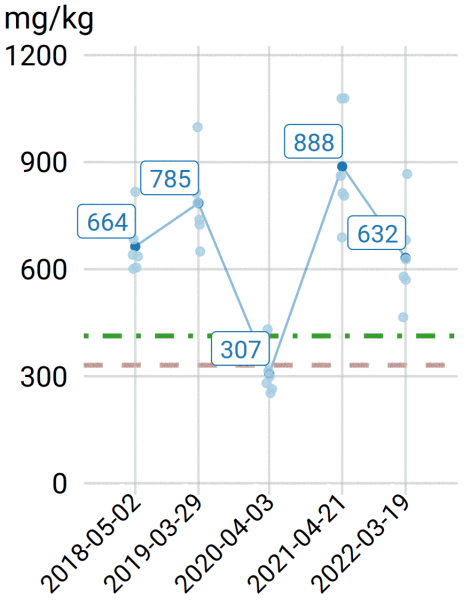
Estimated nitrogen (N) mineralization

1.5 g annual total based on site-specific temperatures & a starting OM of 1.4%.

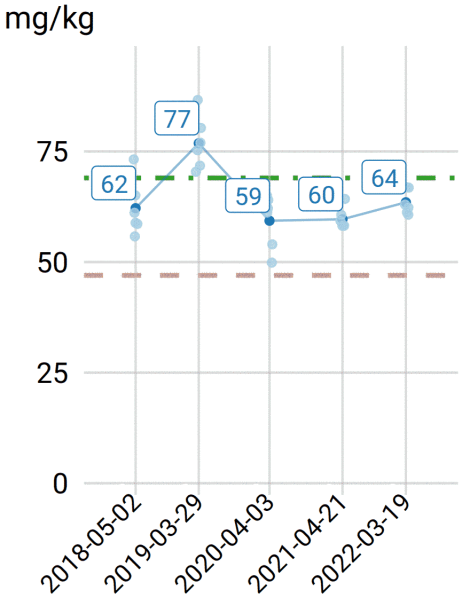


Example GC G charts 2/2

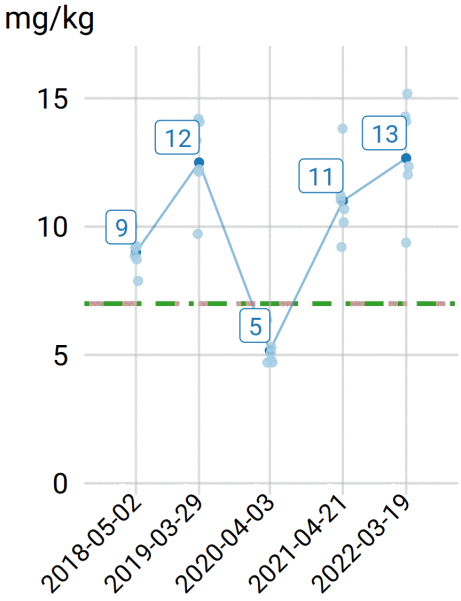
Calcium (Ca)



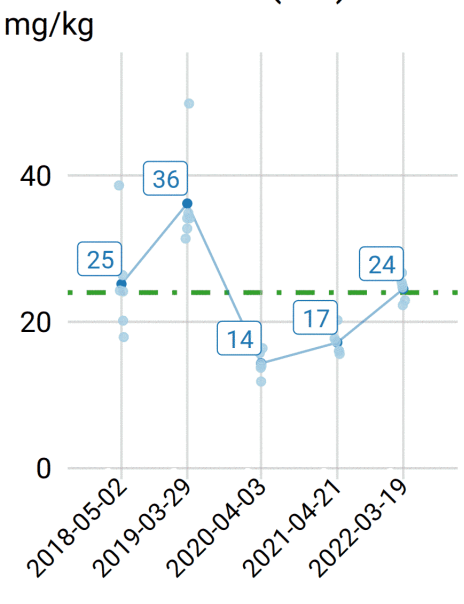
Magnesium (Mg)



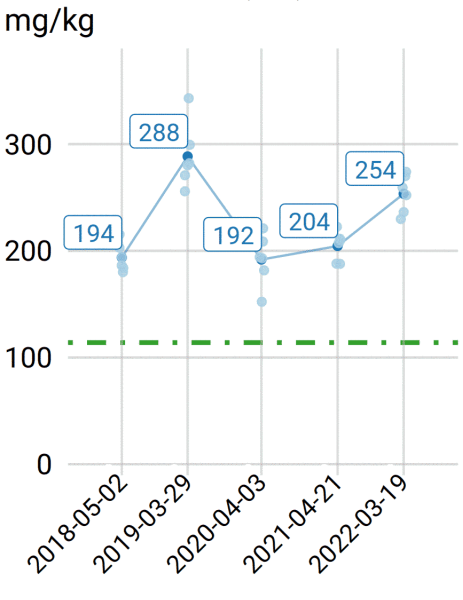
Sulfur (S)



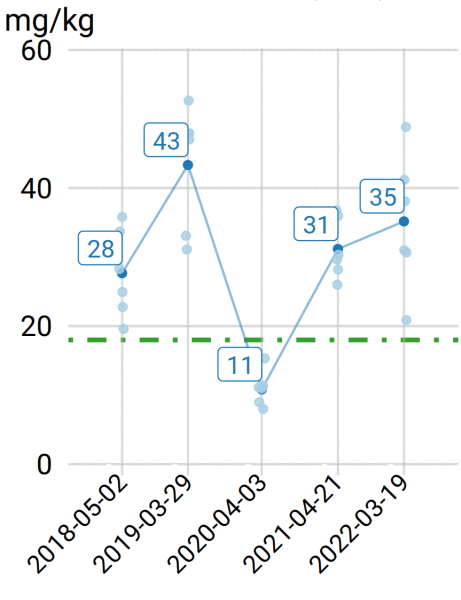
Sodium (Na)



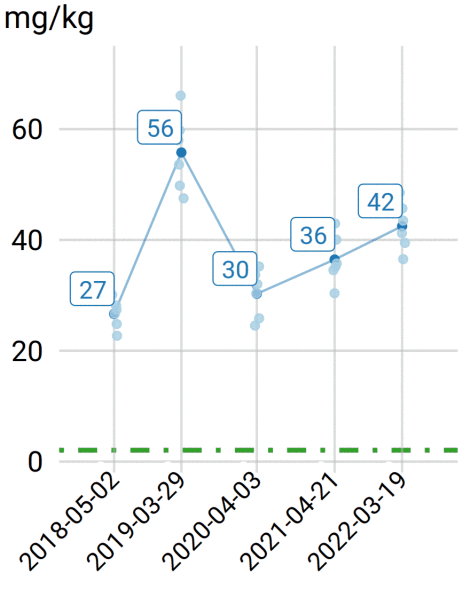
Iron (Fe)



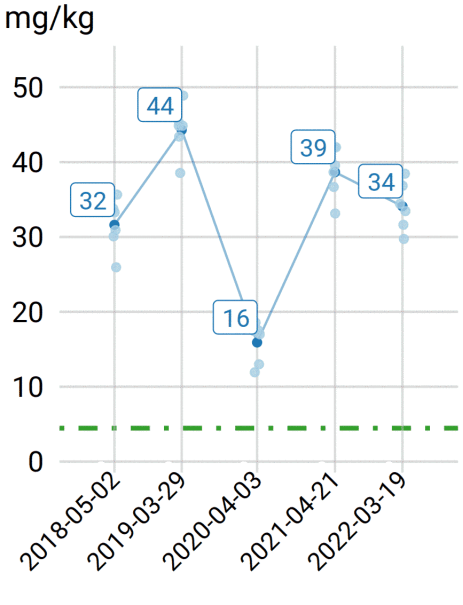
Manganese (Mn)



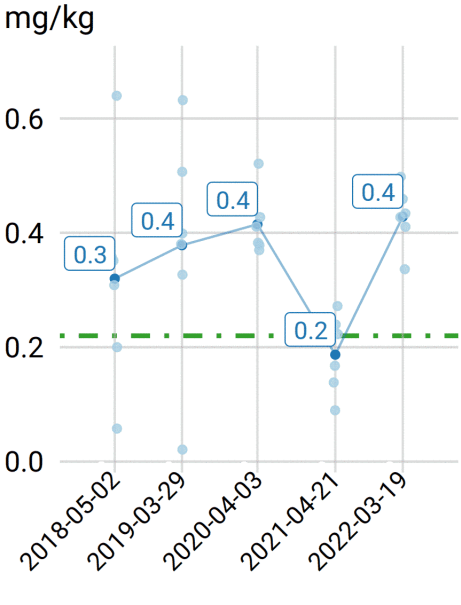
Copper (Cu)



Zinc (Zn)



Boron (B)



A About this report

1. 1 ppm is 1 part per million. This means 1 mg of the element per 1 kg of soil.

2. All soil test results and fertilizer recommendations are elemental amounts unless otherwise stated. This is particularly relevant to phosphorus and potassium, in which this report refers to elemental amounts, but fertilizer labels usually report phosphate (P_2O_5, 44% P) and potassium oxide (K_2O, 83% K). Please make adjustments as necessary for fertilizer application.

3. The soil organic matter is measured by mass loss on ignition at 360 °C. The soil pH is measured in a 1:1 volume ratio in distilled water. The test results shown in this report for macroelements, secondary elements, and micronutrients are from the Mehlich 3 extraction method unless otherwise mentioned.

4. The phosphorus saturation ratio (PSR) is a calculated index for the risk of P leaching. The formula is PSR= $\frac{P_{M3}}{Al_{M3}+Fe_{M3}}$ with the P_{M3}, Fe_{M3}, and Al_{M3} expressed as the Mehlich 3 (M3) extractable amounts in units of mmol kg^{-1}. This is based on "Soil Testing to Predict Phosphorus Leaching."[2] If the PSR is above 0.2, you can consider that P has a high probability of leaching from that soil. If the PSR is higher than 0.2, you really want to be careful—I mean *don't add any*—about the application of P.

5. Sodium is included on the charts as an indicator of soil salinity. For cool-season grass, I recommend keeping the sodium below 120 ppm. If you have Na less than 120, no problem. If the Na is above 120, you'll want to consider leaching the salt from the soil, especially if you are growing cool-season grasses.

6. The predicted N mineralization by month for the next year is based on Gilmour & Mauromoustakos (2011).[3]

[2] Maguire, R.O. and J.T. Sims. 2002. Soil testing to predict phosphorus leaching. J. Environ. Qual. 31:1601–1609.

[3] Gilmour, J.T. and A. Mauromoustakos. 2011. Nitrogen mineralization from soil organic matter: a sequential model. Soil Sci. Soc. Am. J. 75:317–323.