



IRRIGATION WATER



VALLEYBROOK

COUNTRY CLUB

IRRIGATION WATER QUALITY SUMMARY



VISIT DATE:

May 14, 2026

SOURCE DATA – INDIVIDUAL SAMPLES

Report Date	Location	pH	Hardness (grains/gal)	Sodium (ppm)	Bicarbonate (ppm)	Chloride (ppm)
5/26/2026	Pond	7.02	3.43	13.82	2.02	35.68
6/13/2024	Pond	6.10	3.01	8.46	6.73	25.36
5/30/2023	Pond	5.05	2.94	7.09	20.52	10.89
5/18/2021	Pond	5.94	2.95	24.98	32.84	32.00
5/14/2019	Pond	6.38	1.95	11.57	40.60	10.21
5/15/2018	Pond	4.49	3.48	10.15	0.00	17.87
5/2/2017	Pond	6.16	2.18	27.69	33.12	34.89
4/26/2016	Pond	5.39	3.23	19.66	26.64	29.62
5/5/2015	Pond	5.29	2.86	28.29	26.86	46.64
5/1/2014	Pond	5.90	2.74	22.37	30.24	26.72
4/10/2012	Pond	6.84	3.12	36.24	30.43	47.15
4/7/2011	Pond	6.35	2.62	27.59	35.69	45.96



NOTE: All samples from 2011–2026 are included in the averages above. These are springtime samples.

IRRIGATION WATER QUALITY – AVERAGE OF ALL SAMPLES (n = 12)



SUMMARY

- Average pH of 5.91 is below the ideal target of 6.5.
- Average hardness of 2.88 grains/gal is within the acceptable limit (< 5 grains/gal).
- Average sodium of 19.83 ppm is within the recommended maximum of 35 ppm.
- Average bicarbonate of 23.81 ppm is within the recommended maximum of 120 ppm.
- Average chloride of 30.25 ppm is within the recommended maximum of 60 ppm.

BENCHMARKS USED:

pH = 6.5 (target)

Bicarbonate < 120 ppm

Hardness < 5 grains/gal

Sodium < 35 ppm

Chloride < 60 ppm

- The irrigation water there has never really been a concern. It's actually close to rainwater.
- We only have one water sample from a different season of the year from the Fall of 2013. There is no significant changes from season to season.





TEES

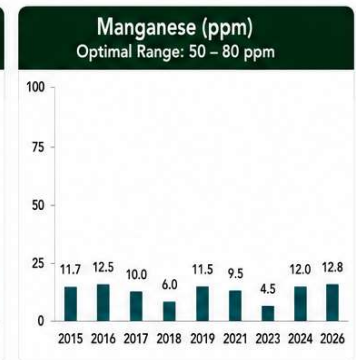
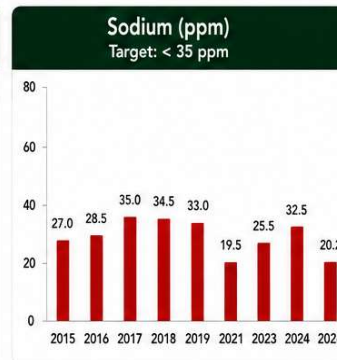
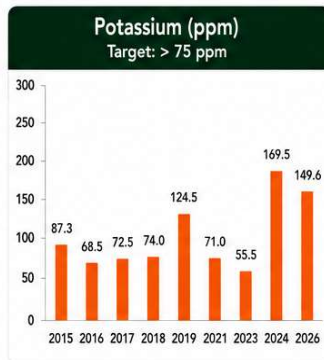
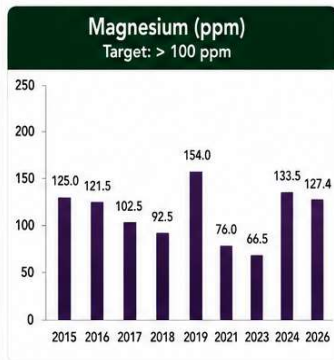
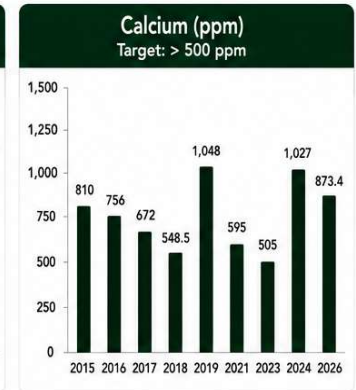
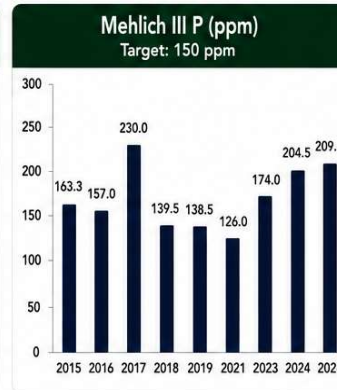
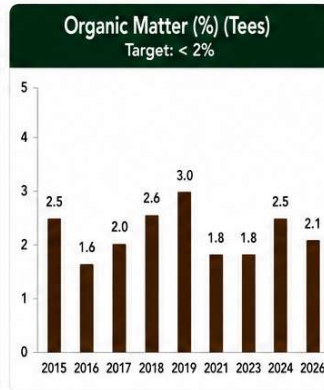
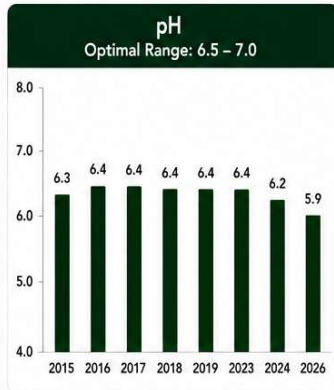


TEE SOIL ANALYSIS SUMMARY

Year-by-Year Average Comparison



Visit Date:
May 14, 2026



Note: Soil test results are from samples collected on the dates shown. Results represent laboratory analysis of the tees sampled.

ppm = parts per million

- The pH has been declining over the last three years. It may be time to lime one time on the tees at your next aerification.
- The OM% has satyed in a good range and has decreased since 2015.
- There are no nutrient deficiencies at this time except Manganese. Although it is important for disease resistance, it may not be worth the expense for tees and fairways.



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FAIRWAYS



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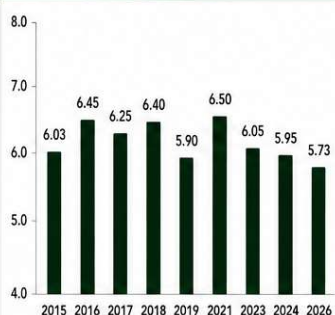
FAIRWAY SOIL ANALYSIS SUMMARY



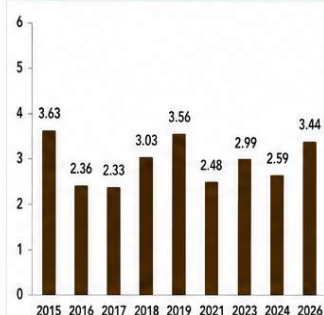
Visit Date:
May 14, 2026

Year-by-Year Average Comparison

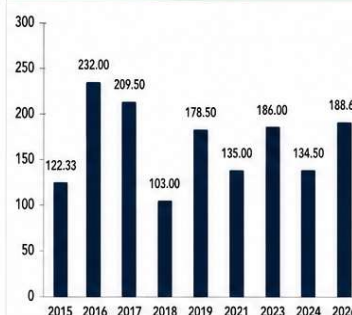
pH Optimal Range: 6.5 – 7.0



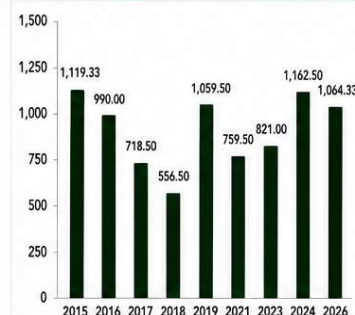
Organic Matter (%) Target: < 5%



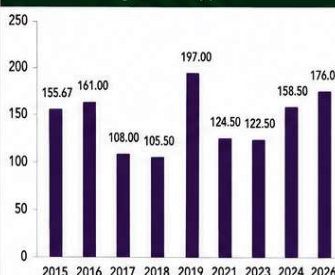
Mehlich III P (ppm) Target: 150 ppm



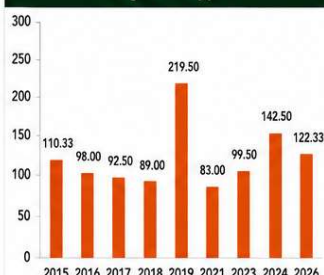
Calcium (ppm) Target: > 500 ppm



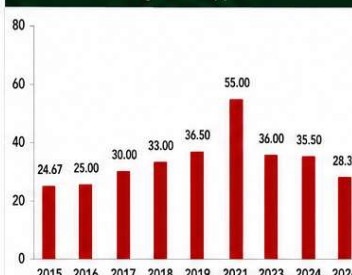
Magnesium (ppm) Target: > 100 ppm



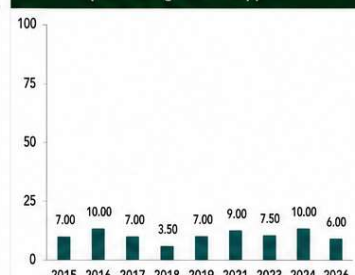
Potassium (ppm) Target: > 75 ppm



Sodium (ppm) Target: < 35 ppm



Manganese (ppm) Optimal Range: 50 – 80 ppm



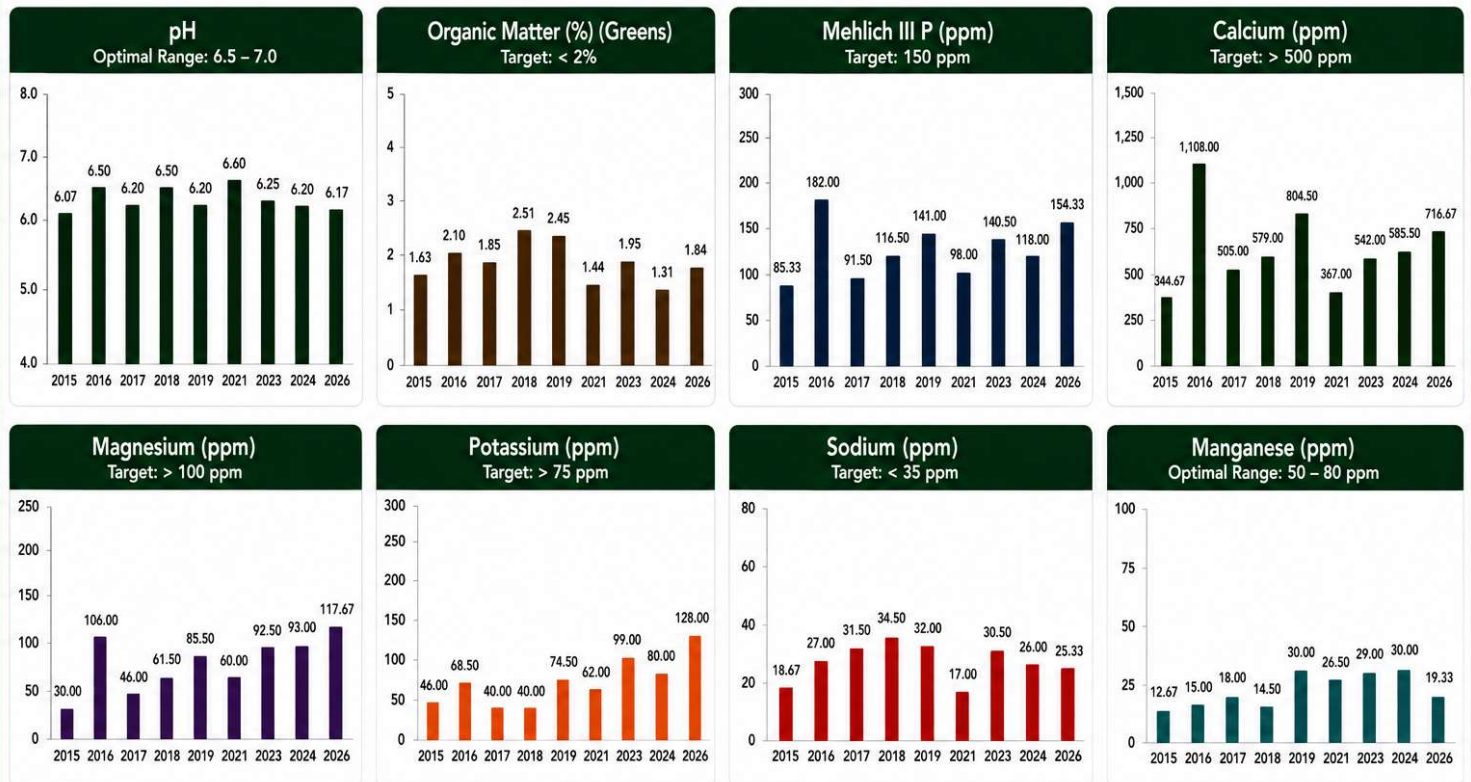
Note: Soil test results are from samples collected on the dates shown. Results represent laboratory analysis of the fairway samples.

ppm = parts per million

- Like the tees, the pH is decreasing significantly enough to consider a lime application. Other than that, the nutrient levels are sufficient, and no other applications are needed at this time.



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Note: Soil test results are from samples collected on the dates shown. Results represent laboratory analysis of the greens sampled.

ppm = parts per million

- The greens have stayed stable in things like pH and OM%. The OM% can be attributed to your program of routinely top dressing lightly. Something you don't see in many of your profiles in the greens are micro layers. There is a layer of sand on top of the push-up greens, but you don't seem to have a lot of thin layers. That's a sign of consistent sand applications.
- Magnesium and potassium are in line and have shown more stability over the last three years and I've had big increases in each mineral since 2015.
- Manganese has not improved much. It would probably take 2 seasons of a more aggressive program of manganese applications to get it within range.



SUMMARY

- ❑ Bermudagrass tees continue to face predictable winter survival challenges for this region. Tees #8 and #15 were recently re-sodded following winter injury, reinforcing the need for realistic expectations with Bermudagrass persistence in northern climates.
- ❑ Success with Bermudagrass tees in this market depends on maximizing summer growth and carbohydrate storage. Maintaining aggressive cultural programs through peak growing conditions will improve density, recovery, and winter resilience. Lower mowing heights during active summer growth should be paired with routine light topdressing to encourage tighter surface detail, improve playability, and reduce excess organic accumulation heading into dormancy.
- ❑ Greens were aerified on 5/4 followed by gypsum and 0-0-50 applications to support soil structure, recovery, and potassium availability heading into the summer stress period. The timing was appropriate to aid post-aerification rooting and overall plant health.
- ❑ Potassium applications leading into Halloween remain advisable for Bermudagrass winter preparation. Nitrogen applications should cease after Labor Day to avoid promoting late-season succulent growth vulnerable to cold injury and desiccation.
- ❑ Establishing a dedicated Bermudagrass nursery is strongly recommended to support ongoing tee recovery and future winter injury repairs. The area between Holes 1 and 2 appears to be a practical location for nursery development and could provide a reliable in-house source of matching material.
- ❑ Soil profile observations on Green #1 showed rooting extending to approximately three inches with a generally clean upper profile.



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