



IRRIGATION WATER



TUCSON COUNTRY CLUB

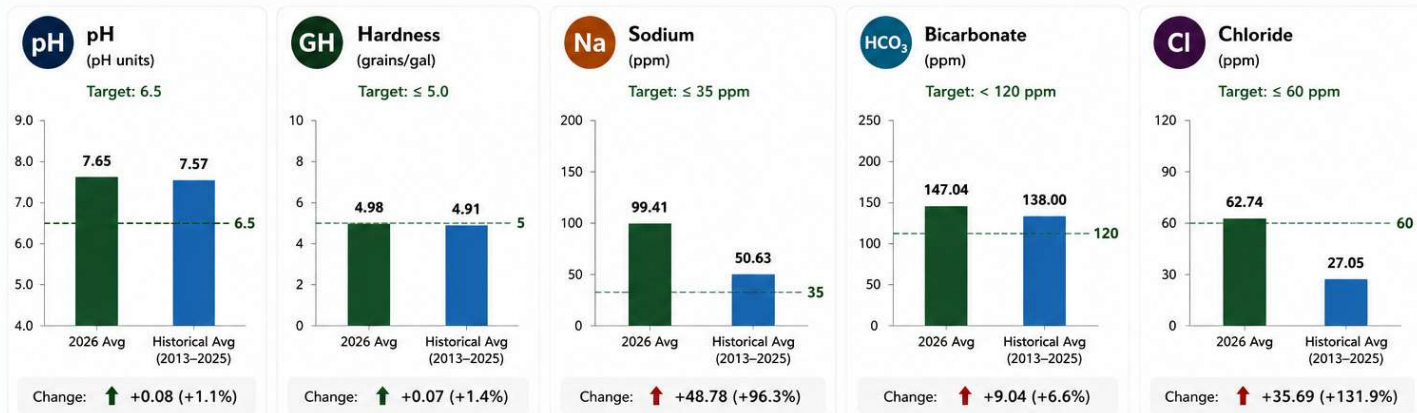
TUCSON COUNTRY CLUB IRRIGATION WATER QUALITY COMPARISON

2026 Average vs. Historical Average (2013–2025)



DATE OF VISIT:
June 10, 2026

2026 Average Historical Average (2013–2025)



SUMMARY INSIGHTS Parameter	Target / Benchmark	2026 Average	Historical Average (2013–2025)	Change	Change (%)	Comparison
pH	6.5	7.65	7.57	+0.08	+1.1%	↑ Slightly Higher
Hardness (grains/gal)	≤ 5.0	4.98	4.91	+0.07	+1.4%	↑ Similar
Sodium (ppm)	≤ 35 ppm	99.41	50.63	+48.78	+96.3%	↑ Higher (Above Target)
Bicarbonate (ppm)	< 120 ppm	147.04	138.00	+9.04	+6.6%	↑ Higher (Above Target)
Chloride (ppm)	≤ 60 ppm	62.74	27.05	+35.69	+131.9%	↑ Higher (Above Target)

IRRIGATION WATER QUALITY BENCHMARKS

pH 6.5 |
 GH ≤ 5.0 grains/gal |
 Na ≤ 35 ppm |
 HCO₃ < 120 ppm |
 Cl ≤ 60 ppm

All results are averages of irrigation water samples for each respective period.

- The irrigation water has been very stable with occasional fluctuations.
- The historical average set of samples were all collected in June or July. We are only comparing season to season, in this case.
- The most recent sample shows double the average sodium and nearly triple the average chloride. Those two factors certainly affect your ryegrass, especially at transition.



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TEES

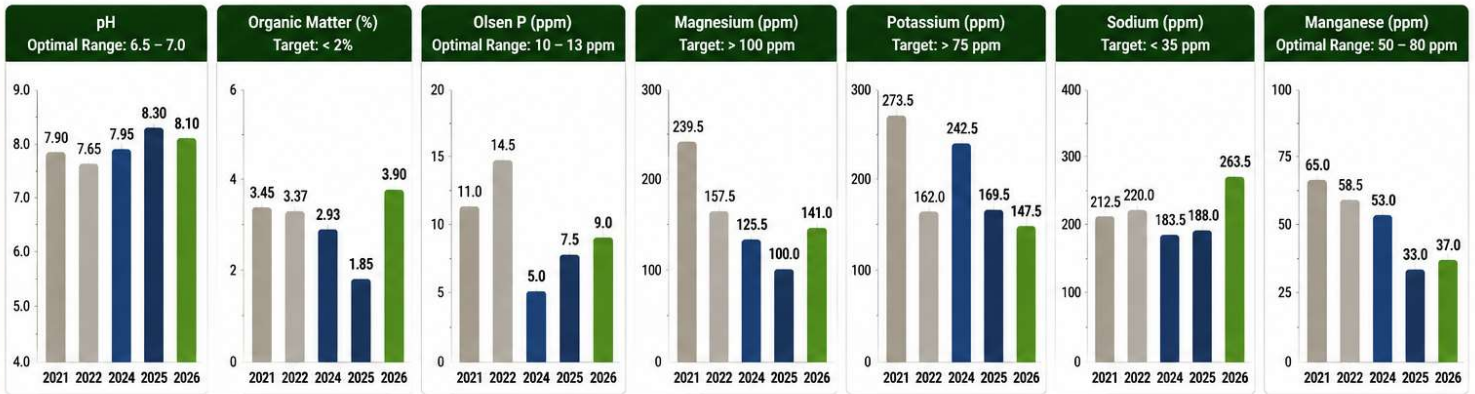


TEE SOIL ANALYSIS SUMMARY

Averages



Visit Date:
June 10, 2026



ppm = parts per million

Parameter	Optimal Range / Target	2021 Average	2022 Average	2024 Average	2025 Average	2026 Average	Change 2025 – 2026	
							Numeric	Direction
pH	6.5 – 7.0	7.90	7.65	7.95	8.30	8.10	-0.20	↓
Organic Matter (%)	< 2%	3.45	3.37	2.93	1.85	3.90	+2.05	↑
Olsen P (ppm)	10 – 13 ppm	11.0	14.5	5.0	7.5	9.0	+1.5	↑
Magnesium (ppm)	> 100 ppm	239.5	157.5	125.5	100.0	141.0	+41.0	↑
Potassium (ppm)	> 75 ppm	273.5	162.0	242.5	169.5	147.5	-22.0	↓
Sodium (ppm)	< 35 ppm	212.5	220.0	183.5	188.0	263.5	+75.5	↑
Manganese (ppm)	50 – 80 ppm	65.0	58.5	53.0	33.0	37.0	+4.0	↑

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

- According to the testing, the limiting factor is sodium. As you can see, historically, you have leveled out around 180 ppm in the soil. This year there is a spike in the sodium. Although your potassium levels are sufficient by “the book”, an application of 0-0-50 would help try and compensate for the excessive sodium levels.



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FAIRWAYS



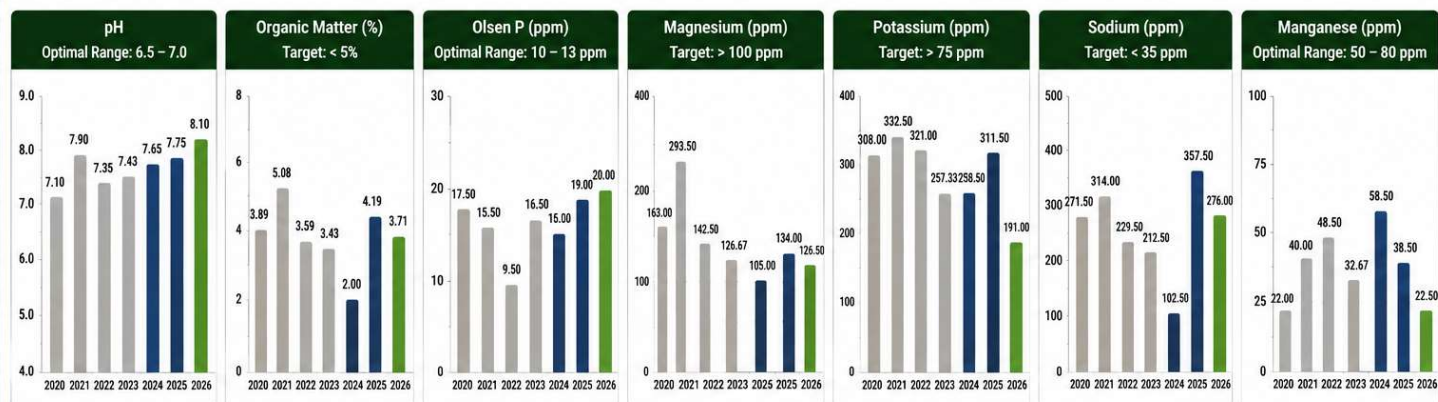
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FAIRWAY SOIL ANALYSIS SUMMARY

Averages



Visit Date:
June 10, 2026



ppm = parts per million

Parameter	Optimal Range / Target	2020 Average	2021 Average	2022 Average	2023 Average	2024 Average	2025 Average	2026 Average	Change 2025 – 2026	
									Numeric	Direction
pH	6.5 – 7.0	7.10	7.90	7.35	7.43	7.65	7.75	8.10	+0.35	↑
Organic Matter (%)	< 5%	3.89	5.08	3.59	3.43	2.00	4.19	3.71	-0.48	↓
Olsen P (ppm)	10 – 13 ppm	17.50	15.50	9.50	16.50	15.00	19.00	20.00	+1.00	↑
Magnesium (ppm)	> 100 ppm	163.00	293.50	142.50	126.67	105.00	134.00	126.50	-7.50	↓
Potassium (ppm)	> 75 ppm	308.00	332.50	321.00	257.33	258.50	311.50	191.00	-120.50	↓
Sodium (ppm)	< 35 ppm	271.50	314.00	229.50	212.50	102.50	357.50	276.00	-81.50	↓
Manganese (ppm)	50 – 80 ppm	22.00	40.00	48.50	32.67	58.50	38.50	22.50	-16.00	↓

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

- On this chart, if you look at the 2020 data and compare that to the 2026 data, you will be looking at holes 4 and 13. We sampled them six years ago.
- In six years, the pH has gone up significantly. You can see a steady climb from 2022 until now. Although, I think you can manage things the way you have been, just remember the higher pH does make the nutrients in the soil much less available to the plant.
- An application of potash is my recommendation for the fairways- for the same reasons as the tees.



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GREENS



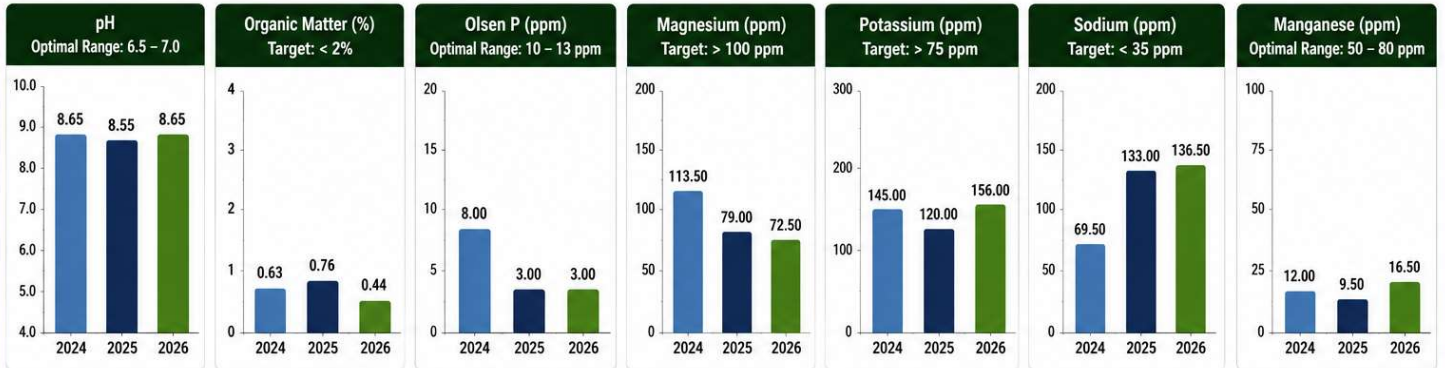
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GREEN SOIL ANALYSIS SUMMARY

Averages



Visit Date:
June 10, 2026



ppm = parts per million

Parameter	Optimal Range / Target	2024 Average	2025 Average	2026 Average	Change 2025 – 2026	
					Numeric	Direction
pH	6.5 – 7.0	8.65	8.55	8.65	+0.10	↑
Organic Matter (%)	< 2%	0.63	0.76	0.44	-0.32	↓
Olsen P (ppm)	10 – 13 ppm	8.00	3.00	3.00	0.00	—
Magnesium (ppm)	> 100 ppm	113.50	79.00	72.50	-6.50	↓
Potassium (ppm)	> 75 ppm	145.00	120.00	156.00	+36.00	↑
Sodium (ppm)	< 35 ppm	69.50	133.00	136.50	+3.50	↑
Manganese (ppm)	50 – 80 ppm	12.00	9.50	16.50	+7.00	↑



AGRONOMIC NOTE: The ideal soil potassium-to-sodium (K:Na) ratio is approximately 2:1. Current average values indicate a ratio closer to 1:1 (2024: 1.08:1, 2025: 0.90:1, 2026: 1.14:1), suggesting relatively elevated sodium compared with potassium. This imbalance can contribute to additional stress on creeping bentgrass greens and may reduce overall turf resilience.

- In the case of the greens, this chart shows the data we've collected in summer since they were renovated.
- In the testing we do this time of year, we often see a dip in nutrient levels compared to the springtime. Earlier in the year you may have aerified and made several applications. Compared to now, that you are further away from the fertilizer apps, some nutrient levels need to be increased.
- Apply a product like NatureSafe or Earthworks for the phosphorus. Continue to apply high manganese-based products and one application of O-O-22 (K-Mag) to all greens.



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SUMMARY

- ❑ Air temperature exceeded soil temperature by 23°F, creating a significant atmospheric heat load; however, the 82°F soil temperature remains favorable for warm-season root activity and supports continued turf function under current conditions.
- ❑ Green #13 (Dominator bentgrass) exhibited an approximate 3-inch root mass with generally uniform rooting. A distinct layer 0.5–1.0 inch below the surface appears to be the primary limitation, potentially restricting deeper root development, slowing vertical water movement, and increasing the likelihood of perched moisture during summer stress periods.
- ❑ Shear strength on Green #13 measured 14, slightly below the desired range and likely influenced by the upper-profile sod/interface layer. Surface stability remains acceptable but continued monitoring of profile development is warranted.
- ❑ Green #4 (Pure Distinction bentgrass) showed a 3–4 inch root mass with shear strength readings ranging from 12–15. The residual sod layer above the sand rootzone continues to limit rooting depth and contributes to variability in surface stability, although overall turf performance remains satisfactory.
- ❑ Comparison of both greens suggests profile layering remains a greater long-term concern than current root mass depth. The interface is driven by the sod layer.
- ❑ Fairways were in excellent condition and are progressing well through seasonal transition. Reduced irrigation associated with Arizona Amateur tournament preparation improved firmness, encouraged surface drying, and created favorable conditions for transition.





Corey Angelo | Owner
Soil & Water Consulting

[848-225-5115](tel:848-225-5115)

www.soilandwaterconsulting.com