Client: Tucson Country Club

Spring 2024 Report

	3/15/22	3/23/23	3/12/24
Humidity/Air Temperature	5%/85°	30%/65°	30%/77°
Greens Temperature	(avg)55.6°	(avg)62.4°	(avg)60°
Fairway Temperature	(avg)52.7°	(avg)58.75°	(avg)58°

WATER	**Acceptable Range For Water Sample**	**Hole #14 3/15/22**	**Hole #1 3/23/23**	**Hole #9 3/12/24**
EC	<2.25 mmhos/cm	0.28	0.30	0.33
Sodium		26.80	28.98	61.18
Calcium	20 - 60 ppm	28.55	30.89	20.63
Magnesium	10 - 25 ppm	2.48	1.98	1.03
Potassium	5 - 20 ppm	1.80	2.06	1.55
Sulfur	30 - 90 ppm	24.43	16.89	19.38
Bicarbonate	<120 ppm	125.99	129.83	169.89
Boron	<0.67 ppm	0.06	<0.05	0.10
Chloride	<177 ppm	17.02	20.25	21.11

TEE	**Acceptable Range For Tissue Sample**	**9 3/12/24**
Nitrogen	2.49%-4.56%	2.31
Phosphorus	0.26%-0.38%	0.24
Potassium	0.95% - 1.97%	0.55
Calcium	0.50%-0.90%	0.86
Magnesium	0.13%-0.16%	0.07
Sodium	622-1709 ppm	988.30

FAIRWAY	**Acceptable Range For Tissue Sample**	**9 3/12/24**
Nitrogen	2.49%-4.56%	3.10
Phosphorus	0.26%-0.38%	0.33
Potassium	0.95% - 1.97%	1.00
Calcium	0.50%-0.90%	0.99
Magnesium	0.13%-0.16%	0.09
Sodium	622-1709 ppm	811.90

GREENS	**Acceptable Range For Tissue Sample**	**9,18(avg) 3/12/24**
Nitrogen	3.0%-6.5%	2.92
Phosphorus	0.2%-0.55%	0.40
Potassium	0.86%-2.55%	2.01
Calcium	0.21%-0.50%	0.46
Magnesium	0.09%-0.22%	0.11
Sodium	506- 2264 ppm	1,054.85

TEES	Acceptable Range For Alkaline Soils Sample	9,18(avg) 3/21/21	18 3/12/24
Organic Matter (Humus)	2 - 3%	3.46	3.15
Sulfur	12 - 16 ppm	20.50	11.00
Olsen - Phosphorus	13 - 20 ppm	13.00	4.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,786.00	3,720.00
Magnesium	>7% base saturation or at least 200 lbs/acre	7.50%/214	7.3%/204
Potassium - TEC of 0 - 35	100 ppm	179.50	189.00
Manganese	>50 ppm	35.00	54.00

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	9,18(avg) 3/21/21	9,18(avg) 3/12/24
Organic Matter (Humus)	2 - 3%	3.44	2.66
Sulfur	12 - 16 ppm	24.50	10.00
Olsen - Phosphorus	13 - 20 ppm	27.50	24.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,072.00	2,723.00
Magnesium	>7% base saturation or at least 200 lbs/acre	8.9%/223	9.03%/201
Potassium - TEC of 0 - 35	100 ppm	258.00	263.00
Manganese	>50 ppm	30.00	39.50

GREENS	Acceptable Range For Alkaline Soils Sample	9,18(avg) 3/21/21	9,18(avg) 3/12/24
Organic Matter (Humus)	2 - 3%	0.86	0.60
Sulfur	12 - 16 ppm	13.50	6.50
Olsen - Phosphorus	13 - 20 ppm	14.00	6.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,939.00	1,753.00
Magnesium	>7% base saturation or at least 200 lbs/acre	10.07%/166	13.78%/194
Potassium - TEC of 0 - 35	150 ppm	245.50	88.00
Manganese	>50 ppm	65.00	15.00

TEE	Acceptable Range For Saturated Paste Sample	9 3/21/21	9 3/12/24
Nitrate -Bermudagrass	5 - 10 ppm	7.60	<0.5
Phosphorus	2 - 10 ppm	1.26	1.55
Potassium	40 - 100 ppm	9.80	20.63
Calcium	60 - 200 ppm	22.10	46.55
Magnesium	20 - 70 ppm	4.29	13.40
Sodium	0 - 30 ppm	2.83	39.27
Soluble Salts	<1,920 ppm	267.00	300.00
Bicarbonate	<60 ppm	89.09	184.94
Chloride	<1,000 ppm	33.00	23.00
SAR	<4%	3.20	1.30

FAIRWAY	Acceptable Range For Saturated Paste Sample	9 3/21/21	9 3/12/24
Nitrate - Bermudagrass	5 - 10 ppm	15.60	3.70
Phosphorus	2 - 10 ppm	1.23	4.15
Potassium	40 - 100 ppm	18.05	21.62
Calcium	60 - 200 ppm	22.16	37.87
Magnesium	20 - 70 ppm	4.14	5.35
Sodium	0 - 30 ppm	89.66	105.55
Soluble Salts	<1,920 ppm	406.00	326.00
Bicarbonate	<60 ppm	79.60	181.58
Chloride	<1,000 ppm	46.00	20.00
SAR	<4%	4.58	4.25

GREENS	Acceptable Range For Saturated Paste Sample	9,18(avg) 3/21/21	9,18(avg) 3/12/24
Nitrate - Bentgrass/Poa	1-3 ppm	1.50	<0.5
Phosphorus	2 - 7 ppm	3.11	2.40
Potassium	25-40 ppm	13.03	11.68
Calcium	50- 75 ppm	13.92	40.40
Magnesium	15-30 ppm	2.91	10.98
Sodium	0 - 30 ppm	55.46	48.10
Soluble Salts	<1,000 ppm	234.00	269.50
Bicarbonate	<60 ppm	47.36	145.15
Chloride	<200 ppm	42.00	18.00
SAR	<4%	3.53	1.73

Nutrient Deficiencies

		P	Mn
TEE	9	7	19
TEE	18	4	54
GREEN	9	6	14
GREEN	18	6	16

Phosphorus can be added in the form of 11-55-00 at a rate of 3 pounds of product per 1,000 sq ft in April and May

Manganese can be added in the form of Manganese Sulfate or Manganese Oxide at a rate of 3 pounds per 1,000 sq ft at aerification, again at the May aerification and June

Comments and Next Level Cultural Practices

- Sodium and Bicarbonate levels in the water sample have increased from the normal levels. I will keep track of it throughout the year.
- The bermudagrass was further ahead, for this time of year, than I expected. The recent application of Calcium Nitrate was helpful to get some additional green up. I think you were able to keep the Magnesium levels at a good level in the native soil because you didn't overseed. So, your usual deficiencies aren't evident.
- The greens were doing well, and the nutrient levels were good. I showed the data in the report against what the greens USED to be.