

SUMMER 2016
Data Collection Report
Soil & Water Consulting



Chimera Golf Club at Tuscany



SOIL and WATER CONSULTING

Course Name: Chimera Golf Club at Tuscany

Date & Time of Visit: June 6, 2016

	<u>6/16/15</u>	<u>6/6/16</u>
Air Temperature	20%/110°	10%/105°
Greens Temperature	74°	68.8°
Fairway Temperature	78°	72.3°

WATER	Acceptable Range For Water Sample	Pond #18 <u>6/16/15</u>	Pond #8 <u>6/16/15</u>	Pond #1 <u>6/6/16</u>	Pond #8 <u>6/6/16</u>
pH		7.23	7.76	6.74	
EC	<2.25 mmhos/cm	2.00	1.07	1.90	
Sodium		231.30	94.40	229.20	
Calcium	20 - 60 ppm	104.40	79.45	101.60	
Magnesium	10 - 25 ppm	33.81	24.65	32.72	
Potassium	5 - 20 ppm	18.87	5.53	18.69	
Phosphorus	0.1 - 0.4 ppm	1.28	<0.20	0.31	
Nitrate	5 - 50 ppm	12.11	0.33	14.24	
Sulfur	30 - 90 ppm	355.50	236.67	364.50	
Bicarbonate	<120 ppm	150.29	180.05	148.11	
Boron	<0.67 ppm	0.37	0.14	0.38	
Chloride	<177 ppm	294.12	96.00	289.35	



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TEE	Acceptable Range For Alkaline Soils Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16
Organic Matter (Humus)	2 - 3%	4.88	2.70
Sulfur	12 - 16 ppm	136.00	104.25
Olsen - Phosphorus	13 - 20 ppm	35.00	32.75
Calcium - TEC of 6 - 12	1,000 lbs/acre	5,522.00	4,567.00
Magnesium	>7% base saturation or at least 200 lbs/acre	11.84%/595	11.13%/468.5
Potassium - TEC of 0 - 35	100 ppm	837.00	578.00
Copper	>0.8 ppm	1.44	0.99
Manganese	>1 ppm	3.25	1.25
Zinc	>1 - 2 ppm	7.09	6.48
FAIRWAY	Acceptable Range For Alkaline Soils Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16
Organic Matter (Humus)	2 - 3%	4.29	1.89
Sulfur	12 - 16 ppm	4,500.25	3,245.75
Olsen - Phosphorus	13 - 20 ppm	44.75	26.25
Calcium - TEC of 6 - 12	1,000 lbs/acre	16,667.50	9,296.00
Magnesium	>7% base saturation or at least 200 lbs/acre	5.42%/679	6.28%/447.50
Potassium - TEC of 0 - 35	100 ppm	1,767.75	1,115.50
Copper	>0.8 ppm	1.82	1.20
Manganese	>1 ppm	4.00	1.75
Zinc	>1 - 2 ppm	4.00	3.39
GREENS	Acceptable Range For Alkaline Soils Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16
Organic Matter (Humus)	2 - 3%	2.42	1.85
Sulfur	12 - 16 ppm	151.50	183.00
Olsen - Phosphorus	13 - 20 ppm	24.50	19.75
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,620.50	2,053.50
Magnesium	>7% base saturation or at least 200 lbs/acre	9.65%/304.5	10.20%/253.50
Potassium - TEC of 0 - 35	150 ppm	1,117.25	708.75
Copper	>0.8 ppm	0.70	0.64
Manganese	4 ppm or more	<1	1.75
Zinc	>1 - 2 ppm	7.39	7.59



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TEE	Acceptable Range For Saturated Paste Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16
Nitrate - Ryegrass	5 - 10 ppm	101.58	<0.5
Nitrate - Bermudagrass	10 - 15 ppm		
Phosphorus	2 - 10 ppm	1.34	2.33
Potassium	40 - 100 ppm	38.20	26.65
Calcium	60 - 200 ppm	257.48	124.49
Magnesium	20 - 70 ppm	71.57	34.66
Sodium	0 - 30 ppm	266.18	216.45
Soluble Salts	<1,920 ppm	1,691.25	1,114.75
Bicarbonate	<60 ppm	147.64	235.50
Chloride	<1,000 ppm	212.00	194.75
SAR	<4%	3.79	4.45
FAIRWAY	Acceptable Range For Saturated Paste Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16
Nitrate - Ryegrass	5 - 10 ppm	87.55	<0.5
Nitrate - Bermudagrass	10 - 15 ppm		
Phosphorus	2 - 10 ppm	1.01	1.32
Potassium	40 - 100 ppm	133.08	73.88
Calcium	60 - 200 ppm	542.03	470.70
Magnesium	20 - 70 ppm	149.80	107.44
Sodium	0 - 30 ppm	811.90	515.56
Soluble Salts	<1,920 ppm	3,485.00	2,865.75
Bicarbonate	<60 ppm	149.47	230.01
Chloride	<1,000 ppm	668.00	348.50
SAR	<4%	7.58	5.56

GREENS	Acceptable Range For Saturated Paste Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16
Nitrate - Bermudagrass	10-15 ppm	12.10	<0.5
Phosphorus	2 - 7 ppm	1.88	1.82
Potassium	25-40 ppm	38.21	32.02
Calcium	50- 75 ppm	228.65	217.05
Magnesium	15-30 ppm	60.17	55.20
Sodium	0 - 30 ppm	242.50	222.78
Soluble Salts	<1,000 ppm	1,360.75	1,492.00
Bicarbonate	<60 ppm	46.37	99.45
Chloride	<200 ppm	225.50	261.25
SAR	<4%	3.81	3.49



RECOMMENDATIONS



Thoughts on the course visit

We talked quite a while on the topic of the sulfur burner usage and how it is effecting the soil profile. One point that seemed important for being only one year into the project at Chimera GC, is the depth of the sample. I collect at the standard 6" depth. It takes a lot to change a soil test in one year at this depth. We discussed taking some at shallower depths but then this set of data becomes the "new" baseline because we don't have any samples from that depth last year. Also, if you decide to collect some samples at 4", then we should use the Saturated Paste analysis. This way we can look at Bicarbonate and sulfur levels at the shallower depth.

The data from last year to this are similar. However, one major change is the nitrate level on the tees, fairways and greens. This year there was nothing measurable and last year the numbers were through the roof. What that may say is that last year the data could have been "exaggerated" due to a recent nitrogen application. This year the data may have been similarly "exaggerated" due to higher sulfur levels from the sulfur treated water. I believe that over the next several years we will see less "exaggerated" data as long as the sulfur burner usage is your main input to the soil.(as opposed to added fertility and other amendments)

Notes from the visit

- No more Potable water usage.
- Some Fairy Ring on the Fairways.
- Beginning seeding using Bermudagrass on fairways.
- The greens were good with roots and plenty of bermudagrass already.
- There is more bermudagrass in the fairways compared to June 2015.
- Available Calcium and Potassium throughout the "grow-in" of the seed is important!

