

By Joel Simmons



Photos courtesy of Jim Doyle



► **THE WELLESLEY FIELDS**

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# The soil profile: WELLESLEY COLLEGE

*The Soil Profile is a quarterly interview series that will be accompanied by soil test audits of a selected field from all corners of the sports turf world. Our goal is to evaluate the soil and water tests from a selected sports field and build a fertility program based on the soil profile. We would like to encourage all sports field managers who would like to be interviewed for this piece to contact the magazine. Agronomist Joel Simmons has been building soil-based programs for more than 20 years. Along with Logan Labs he will provide free soil test work and consulting to the selected site.*

**W**ELLESLEY COLLEGE was established back in 1870 in Wellesley MA and to this day is one of the premier women’s colleges in the country. The college is situated on a pristine 500-acre campus that includes the majestic Lake Waban and a host of stately evergreen and deciduous trees. Wellesley enrolls approximately 2300 students and participates in 13 varsity sports in the NCAA Division III’s New England

Woman’s and Men’s Athletic Conference. In April 2006 John Ponti took over as the Sports Turf Specialist; “Ponti” manages the three sand-based fields, one native soil field and the synthetic field. The three sand-based sites, a softball, multipurpose and what John calls his premier field, were all built by his predecessor, Chris Kneale, in 2003. (Chris has since moved onto a position as an Athletic Turf and Grounds Consultant for the Tom Irwin Company, a

New England based sales and consulting firm.) The fields were constructed using a 70:20:10 mix of sand, peat moss and soil which may explain the stronger than normal cation exchange capacities (CEC) on these fields. Typically a sand-based field of this age will have CEC readings anywhere in a range from 2-6 depending on its construction.

Between the construction and the amendment programs that John has implemented these fields are ranging from a 7 to 12 CEC which is exceptional and allows John to push the fields a little more and recover a bit better. “We are very proud of our recovery ability on all of our fields and it gets noticed by the coaches and players and has allowed us to move beyond the varsity sports,” reported Ponti.

The Wellesley fields are used for a host of sporting events including club teams, high schools, senior soccer teams, summer camps and some higher profile events. One major event that Wellesley supported was a soccer match between the Celtic United Team and Lisbon who both used the fields for practice before an event in nearby Fenway Park this past spring. According to Ponti “both the Celtic

United and the Lisbon teams loved our fields and that makes all of our hard work well worth the time.” He also hosted the USC and Stanford women soccer teams and “they too had a great time and were very complementary of our fields and you can’t get much better than that,” Ponti said.

John has been testing the soils on all of his fields for as long as he has been at Wellesley using Logan Labs in Ohio. John comments, “It is amazing how well you can grow grass on well balanced soils. I have learned so much since I have been here on how to read a good soil tests and I have to say I know of the base saturation controversy but I don’t understand it. There is no controversy of the results we get.”

As can be seen on his soil tests the balance of the basic cations are pretty good; the desired values are pretty close to the values found with only some slight potassium deficiencies. “Our native field was pretty tight and as you can see in this soil test taken a year ago, we needed some limestone which we were able to apply along with some flowable gypsum and we use a good humic acid based calcium liquid product in our spray tank every 2 weeks and this field has responded incredibly well. The rooting is better, recovery is great and the soil has opened up physically which has created better drainage. This field is great!” Ponti said.

One of the agronomic concerns that the soil tests do indicate is a buildup of sodium especially on the sand-based fields. Ideally sodium levels are lower than 25 pounds per acre on the colloidal test and lower in percentage than potassium on the water soluble paste extract. If sodium is higher than these ideals it will typically mobilize quickly into the plant cell and create a wilting of the plant. John is well aware of this situation on his property and is aggressively managing the situation with a quality liquid organic program rich in humic acids combined with flowable gypsum and liquid calcium products as part of a monthly flushing program. “Our flushing program works and we can see the difference almost immediately, the grass stands up and it just doesn’t have the stress that we use to fight before we initiated this program,” Ponti said.

The aeration program on the fields includes two core aerifications in spring and fall and on deep tine aeration in the middle of the summer when they can get on the field.

Soil Report						
Sample Location		Softball	Recreation	Varsity	Upper	
Sample ID					Fld	
Lab Number		11	12	13	14	
Sample Depth in inches		6	6	6	6	
Total Exchange Capacity (M. E.)		9.47	7.89	10.27	12.61	
pH of Soil Sample		6.70	6.70	6.40	5.90	
Organic Matter, Percent		3.35	3.06	3.47	7.46	
ANIONS	SULFUR	p.p.m.	30	26	30	79
	Mehlich III Phosphorous:	as (P <sub>2</sub> O <sub>5</sub> ) lbs / acre	1113	1081	1191	1122
EXCHANGEABLE CATIONS	CALCIUM:	Desired Value	2576	2146	2793	3430
	lbs / acre	Value Found	2766	2280	2846	2758
		Deficit				-672
	MAGNESIUM:	Desired Value	272	227	295	363
lbs / acre	Value Found	301	253	304	495	
	Deficit					
POTASSIUM:	Desired Value	295	246	320	393	
lbs / acre	Value Found	200	179	227	401	
	Deficit	-95	-67	-93		
SODIUM:	lbs / acre	80	83	73	75	
BASE SATURATION	Calcium (60 to 70%)		73.00	72.22	69.28	54.67
	Magnesium (10 to 20%)		13.24	13.36	12.33	16.35
	Potassium (2 to 5%)		2.71	2.91	2.83	4.08
	Sodium (.5 to 3%)		1.84	2.30	1.54	1.29
	Other Bases (Variable)		4.70	4.70	5.00	5.60
	Exchangable Hydrogen (10 to 15%)		4.50	4.50	9.00	18.00
TRACE ELEMENTS	Boron (p.p.m.)		0.52	0.49	0.62	0.43
	Iron (p.p.m.)		281	312	324	157
	Manganese (p.p.m.)		31	21	26	6
	Copper (p.p.m.)		5.98	4.82	6.06	3.21
	Zinc (p.p.m.)		8.61	6.96	8.62	7.26
	Aluminum (p.p.m.)		881	735	794	1276
OTHER	NH4-N (p.p.m.)		0.8	1	0.8	1
	N03-N (p.p.m.)		12.9	6.5	13.1	28.4
	Silicon		75.13	32.09	53.57	48.24

Figure 1

**“The goal mouth is everything in sports turf and keeping grass there is something we work very hard at and we get a lot of compliments,” Ponti said.**

John noted, “Summer is a very busy time of year here and finding the room for anything let alone an aerification is tough but we really see the difference when we get this summer deep tine done.” They also run a SEEDAvator in August and topdress straight sand behind all the aerifications. This also allows them to constantly introduce newer seed varieties which he typically chooses for color and density. “I like a lot of the PickSeed varieties such as Moon Shadow, Blue Velvet and American Kentucky Blue,” said Ponti.

“The fertility program at Wellesley does include a lot of organics, we start the season with a 10-2-5 ammonium sulfate spiked organic in April which helps us to jump start into the spring. Then we use a 5-4-5 organic in small shots every month starting in May and going through the fall. That really helps us with recovery and water holding capacity and really helped in what was probably the worst year we have seen in years,” according to Ponti.

The organics are supplemented with a strong liquid program that includes an 18-3-6 liquid and a couple of good trace packages in the spray tank on a bimonthly basis. He supplements that program with wetting agents, growth regulators, liquid organic fertilizers and fungicides as needed. One program that John spoke very proudly of was the one he uses for his goal mouths. “The goal mouth is everything in sports turf and keeping grass there is something we work very hard at and we get a lot of compliments,” Ponti said. “We pitchfork and Multi-Pro the area and topdress with an organic amendment called Renovate Plus, an organic 5-4-5 fertilizer, a granular calcium silica and seed. I’m excited to see how well they do especially in a year like this one.” ■

*Joel Simmons is the President of EarthWorks Natural Organic Products and Soil First consulting and teaches the Soil First Academy all across North America. He holds a Masters Degree from Penn State University and is a former Penn State County Extension Agent and Instructor of Soils at Rutgers University. He may be reached in front of his computer at joel@soilfirst.com most likely working on yet another client’s soil test.*

Saturated Paste Report						
Sample Location		Softball	Recreation	Varsity	Upper	
Sample ID					Fld	
Lab Number		22279	22280	22281	22282	
Water Used		DI	DI	DI	DI	
pH		6.7	6.7	6.4	5.9	
Soluble Salts		p.p.m. 76	97	132	123	
Chloride (Cl)		p.p.m. 5	10	8	15	
Bicarbonate (HC03)		p.p.m. 93	85	127	66	
ANIONS	SULFUR	p.p.m. 2.76	5.51	10.8	16.81	
	Phosphorous:	p.p.m. 0.23	0.32	0.45	0.1	
SOLUBLE CATIONS	CALCIUM:	p.p.m. 9.64	12.36	22.4	12.13	
		meg/l 0.48	0.62	1.12	0.61	
	MAGNESIUM:	p.p.m. 2.12	2.74	5.01	4.81	
		meg/l 0.18	0.23	0.42	0.40	
POTASSIUM:	p.p.m. 9.46	12.35	21.94	20.22		
	meg/l 0.25	0.32	0.57	0.53		
SODIUM:	p.p.m. 9.7	16.28	23.14	11.98		
	meg/l 0.42	0.71	1.01	0.52		
PERCENT	Calcium	36.35	32.96	35.97	29.54	
	Magnesium	13.31	12.17	13.41	19.52	
	Potassium	18.53	17.11	18.30	25.58	
	Sodium	31.81	37.76	32.32	25.37	
TRACE ELEMENTS	Boron (p.p.m.)	0.12	0.13	0.12	0.12	
	Iron (p.p.m.)	0.46	0.83	1.26	0.81	
	Manganese (p.p.m.)	0.02	0.04	0.09	0.03	
	Copper (p.p.m.)	0.04	0.07	0.1	0.03	
	Zinc (p.p.m.)	0.02	0.02	0.02	0.02	
	Aluminum (p.p.m.)	0.66	1.16	1.75	1.57	

Figure 2