



NAPT Program
North American Proficiency Testing

2005 North American Proficiency Testing Program

1st Quarter Report June 14, 2005



Laboratory ID

Soil	Soil 2005-101	Soil 2005-102	Soil 2005-103	Soil 2005-104	Soil 2005-105							
Analysis	Units	n	Median	MAD	Lab ¹	Median	MAD	Lab	Median	MAD	Lab	
Salinity -SP												
Sat. Paste Moisture	%	33	45.9	2.6	36.0	3.3	28.8	2.1	30.0	1.7	29.7	1.7
pH - sp	Unit	43	5.40	0.13	7.60	0.10	7.59	0.09	4.20	0.11	7.51	0.09
ECE - sp	dS/m	45	0.34	0.04	6.9	0.55	1.57	0.14	0.50	0.05	1.30	0.10
HCO ₃ - sp	mmol/L	14	0.96	0.46	2.63	0.41	3.13	0.86	0.50	0.22	4.18	1.12
Ca - sp	mmol/L	38	1.29	0.19	35.2	3.4	12.6	0.92	0.60	0.18	9.51	1.21
Mg - sp	mmol/L	38	1.30	0.21	18.2	1.2	1.07	0.14	0.49	0.08	1.67	0.17
Na - sp	mmol/L	38	0.59	0.19	29.8	2.7	0.43	0.19	1.20	0.20	1.49	0.14
SAR - sp	value	31	0.49	0.21	5.7	0.4	0.16	0.06	1.60	0.20	0.61	0.04
Cl - sp	mmol/L	24	0.48	0.18	32.1	5.0	0.59	0.22	1.16	0.23	2.21	0.24
SO ₄ - sp	mmol/L	24	1.25	0.12	42.7	2.8	0.76	0.21	0.81	0.12	1.71	0.24
NO ₃ - sp	mmol/L	15	0.19	0.19	10.9	3.5	10.4	3.18	1.14	0.15	4.34	2.07
B - sp	mg/L	17	0.23	0.030	0.67	0.10	0.10	0.010	0.050	0.010	0.14	0.030
Soil EC												
Soil EC (1:1)	(dS/m)	35	0.11	0.020	2.37	0.46	0.52	0.10	0.13	0.035	0.39	0.07
Soil EC (1:2)	(dS/m)	40	0.08	0.02	1.72	0.22	0.32	0.04	0.09	0.02	0.26	0.04
Soil pH												
pH (1:1)	Unit	95	5.64	0.10	7.85	0.08	7.90	0.10	4.55	0.09	7.76	0.09
pH (1:2)	Unit	38	5.67	0.12	7.88	0.14	8.04	0.14	4.75	0.15	7.87	0.13
pH (1:1) 0.01M CaCl ₂	Unit	25	4.92	0.09	7.68	0.13	7.50	0.15	3.60	0.10	7.35	0.15
pH (1:2) 0.01M CaCl ₂	Unit	14	4.93	0.12	7.76	0.16	7.61	0.11	3.60	0.07	7.40	0.15
Buffer pH												
SMP Buffer pH	Unit	73	6.40	0.13	7.57	0.03	7.52	0.03	6.20	0.10	7.51	0.05
Adams-Evans Buf pH	Unit	12	7.49	0.06	7.84	0.03	7.81	0.03	7.53	0.03	7.87	0.02
Woodruff Buf. pH	Unit	21	6.40	0.10	7.14	0.04	7.11	0.01	6.06	0.08	7.06	0.04
Mehlich Buf. pH	Unit	5	6.08	0.22	6.81	0.10	6.73	0.06	5.66	0.13	6.67	0.05
Titrateable Acidity	cmol/kg	2	12.1	2.6	0.47	0.00	0.88	0.00	6.56	0.82	1.38	0.00

1 - Values flagged exceed Warning Limits " * " 2.5 x MAD (Median Absolute Deviation) and Control Limits " * * " 4 x MAD. " < " and " ND " values not recorded.



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Soil Analysis	Units	n	Soil 2005-101		Soil 2005-102		Soil 2005-103		Soil 2005-104		Soil 2005-105	
			Median	MAD	Lab ¹	Median	MAD	Lab	Median	MAD	Lab	Median
Nitrate (NO₃-N)												
Cd. Rd.	mg/kg	69	3.6	0.5	61.8	3.2	52.8	3.8	5.4	0.7	29.2	2.1
ISE	mg/kg	27	4.2	0.8	69.0	13.6	49.6	7.1	6.3	1.4	29.9	4.7
CTA	mg/kg	7	7.0	2.2	65.5	3.2	54.2	5.2	7.3	1.3	30.1	0.3
Ion Chromatography	mg/kg	2	4.2	1.2	64.3	0.3	51.6	1.6	7.0	2.05	29.3	0.3
Other	mg/kg	8	4.4	0.9	62.0	12.8	50.5	9.1	5.1	3.1	29.7	2.1
NH₄ - N (KCl Extr.)												
	mg/kg	61	24	3.8	10.6	1.2	8.0	1.6	19.3	2.0	3.9	0.9
Phosphorus & Sulfur												
PO ₄ -P Bray P1 (1:10)	mg/kg	62	21.0	2.2	79.3	7.3	18.0	2.5	9.0	1.3	85.0	7.1
PO ₄ -P Bray P1 (1:7)	mg/kg	7	20.0	2.0	61.5	7.5	15.0	1.5	7.2	1.6	69.5	7.3
PO ₄ -P Olsen/Bicarb	mg/kg	66	12.0	1.8	54.0	4.0	8.0	1.6	8.8	1.6	48.0	3.0
PO ₄ -P AB-DTPA	mg/kg	2	9.3	6.8	49.8	11.6	4.5	1.2	6.9	1.0	43.7	8.2
PO ₄ -P M. Morgan	mg/kg	7	2.4	1.2	91	11	15.9	1.8	5.4	0.9	66.4	6.9
PO ₄ -P M. Kewlona	mg/kg	2	16.6	1.4	72	8	19.5	3.5	8.6	2.4	55.3	9.7
PO ₄ -P Strg Bray P-2	mg/kg	15	24	3.0	182	43	52	6.0	11.0	2.0	228	58
PO ₄ -P Water Soluble	mg/kg	5	2.1	1.7	6.6	2.5	2.2	0.8	6.1	1.8	11.0	4.3
SO ₄ -S (PO ₄ Extr.)	mg/kg	46	6.6	2.3	219	119	6.0	2.7	5.0	1.3	11.0	2.8
Ammonium Ace. Bases												
K	mg/kg	99	168	28	1036	81	640	43	25	5	282	17
Ca	mg/kg	94	896	165	4033	579	4309	554	262	62	3332	433
Mg	mg/kg	95	330	65	582	50.5	121	12	58	8	155	11
Na	mg/kg	76	17	6.0	515	42.2	14	6.2	24	4.8	31.2	6.2
K - Bray (1:10)												
	mg/kg	5	125	6	744	23	464	5.0	22	3.6	242	6.0
K - Bicarb.												
	mg/kg	8	148	20	851	48	480	7	23	3.0	238	18
K - Modified Morgan												
	mg/kg	5	145	3	780	102	420	55	20	0.6	211	23
Ca Modified Morgan												
	mg/kg	3	1029	127	12175	844	9320	180	267	78	4988	546
Al KCL Extr.												
	mg/kg	7	2.6	1.7	0.10	0.10	0.03	0.03	3.0	1.5	0.01	0.01

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Analysis	Units	n	Median	MAD	Lab ¹	Median	MAD	Lab	Median	MAD	Lab	Median	MAD	Lab
Mehlich-1 Multi Element														
Soil Scoop Mass	9	9	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
P	mg/kg	9	10.9	0.9	52.3	2.7	8.0	1.4	6.5	0.7	143	18	143	18
K	mg/kg	9	112	18.0	448	30.1	271	70	19.0	2.3	195	19	195	19
Ca	mg/kg	9	900	165	4602	373	5142	393	272	37	4542	281	4542	281
Mg	mg/kg	9	328	75	481	17	115	6.2	60.8	4.1	173	14	173	14
Mn	mg/kg	8	199	44.3	3.5	0.72	2.5	0.73	0.59	0.17	20.5	1.1	20.5	1.1
Zn	mg/kg	8	4.29	0.71	0.04	0.03	0.08	0.07	0.53	0.10	3.73	0.38	3.73	0.38
Mehlich-3 Multi-Element														
Soil Scoop Mass	9	31	1.38	0.38	1.94	0.37	2.03	0.35	2.44	0.35	2.26	0.29	2.26	0.29
Scoop Volume	mL	17	1.18	0.08	1.18	0.07	1.18	0.07	1.18	0.08	1.18	0.08	1.18	0.08
Colorimetric														
P	mg/kg	25	21.0	1.9	114	11.0	22.5	2.5	8.9	1.5	96.9	8.6	96.9	8.6
P ICP	mg/kg	42	37.8	3.8	117	9.1	27.8	3.4	9.0	1.3	100	10	100	10
K	mg/kg	52	161	20	1036	75.2	659	42.0	24	4.6	294	19	294	19
Ca	mg/kg	52	904	124	5374	459	5520	641	332	52	4447	373	4447	373
Mg	mg/kg	52	344	41	735	64	163	13.4	69	8.9	198	16.4	198	16.4
Na	mg/kg	33	19.0	7.7	534	38	16.9	4.5	29	6.9	34.9	6.2	34.9	6.2
S	mg/kg	29	19.0	4.7	401	39	19.0	7.3	8.5	3.4	23.1	5.2	23.1	5.2
Al	mg/kg	26	807	116	232	99	436	82	71.6	9.5	317	63	317	63
Zn	mg/kg	41	5.00	0.58	4.1	0.37	0.70	0.17	0.63	0.13	5.70	0.42	5.70	0.42
Mn	mg/kg	40	195	24.6	63	11.8	86	8.8	0.85	0.32	69	5.9	69	5.9
Fe	mg/kg	39	251	42.9	136	23	14.5	2.6	42.0	4.3	75	11.7	75	11.7
Cu	mg/kg	40	1.5	0.29	2.3	0.35	1.21	0.19	0.25	0.15	2.11	0.28	2.11	0.28
B	mg/kg	34	0.74	0.33	2.90	0.44	1.61	0.26	0.19	0.16	0.96	0.18	0.96	0.18

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Analysis	Units	n	Median	MAD	Lab ¹	Median	MAD	Lab	Median	MAD	Lab	Median	MAD	Lab

Micronutrients														
Zn - DTPA	mg/kg	75	4.21	0.71	0.92	0.13	0.18	0.05	0.47	0.06	1.60	0.20		
Mn - DTPA	mg/kg	65	180	41	1.4	0.45	1.6	0.51	0.60	0.10	3.4	0.69		
Fe - DTPA	mg/kg	67	97.6	13.4	7.7	1.6	1.0	0.30	33.5	3.7	5.9	0.90		
Cu - DTPA	mg/kg	68	0.93	0.13	0.80	0.17	0.25	0.05	0.15	0.05	0.80	0.10		

Zn - HCl	mg/kg	7	4.5	0.50	4.6	0.20	0.90	0.20	0.70	0.10	6.70	0.70
Mn-H ₃ PO ₄	mg/kg	11	173	30	4.0	1.8	2.25	0.55	0.60	0.20	14.6	1.6
Cl - Ca(NO ₃) ₂ Extr.	mg/kg	19	4.8	0.8	398	69.2	5.8	0.8	12.4	0.6	24.0	2.7
B - Hot Water	mg/kg	54	0.73	0.18	1.70	0.40	0.68	0.18	0.24	0.08	0.52	0.18
B - DTPA-Sorb	mg/kg	10	0.40	0.07	1.60	0.10	0.56	0.11	0.10	0.07	0.40	0.04

Soil Organic Matter

Soil Kjeldahl N	%	25	0.240	0.013	0.115	0.008	0.133	0.008	0.068	0.008	0.068	0.008
Soil TN (combustion)	%	40	0.240	0.010	0.116	0.007	0.136	0.010	0.070	0.010	0.070	0.008
Soil TOC (combustion)	%	32	2.95	0.09	1.50	0.08	1.41	0.07	1.54	0.08	0.66	0.04
SOM - Walkley-Black	%	51	4.65	0.65	1.90	0.20	2.11	0.19	3.00	0.30	1.10	0.14
SOM - LOI (Raw Values)	%	82	5.59	0.29	2.36	0.19	2.52	0.20	2.60	0.17	1.34	0.14

CaCO ₃ Content	%	15	0.25	0.25	4.18	0.85	2.25	0.31	0.14	0.14	1.37	0.39
CEC - Displacement	cmol/kg	25	17.8	1.8	18.1	1.5	17.4	1.76	5.2	1.1	10.7	1.00
- Estimation	cmol/kg	11	11.0	2.4	30.5	1.2	25.8	3.0	6.0	4.2	19.8	2.2
Scoop Density	mg/cm ³	13	0.81	0.02	1.11	0.04	1.20	0.09	1.43	0.03	1.33	0.04

Particle Size Analysis

Sand 2000 - 50 um	%	50	16.0	6.0	35.1	5.1	56.0	3.1	94.6	2.4	65.0	4.0
Silt 50 - 2 um	%	50	57.5	6.4	49.8	3.7	30.2	3.1	2.4	1.4	26.0	2.9
Clay 2 - 0 um	%	50	25.0	4.4	15.0	3.0	14.1	2.1	2.1	0.9	9.3	1.7

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