



**NAPT Program**  
North American Proficiency Testing

## 2005 North American Proficiency Testing Program 4<sup>th</sup> Quarter Report January 23, 2006



Laboratory ID

Analysis	Units	n	Soil 2005-116		Soil 2005-117		Soil 2005-118		Soil 2005-119		Soil 2005-120					
			Median	MAD	Lab <sup>1</sup>	Median	MAD	Lab	Median	MAD	Lab	Median	MAD	Lab		
<b>Salinity -SP</b>																
Sat. Paste Moisture	%	33	29.0	2.0		31.7	3.3		46.9	3.1		39.0	4.0		30.4	1.4
pH - sp	Unit	44	5.50	0.20		7.25	0.15		5.40	0.10		6.30	0.11		7.46	0.16
ECE - sp	dS/m	45	0.49	0.09		3.37	0.43		0.64	0.08		1.28	0.18		1.29	0.12
HCO <sub>3</sub> - sp	mmol/L	17	0.65	0.25		3.31	1.55		0.48	0.18		1.00	0.48		2.50	0.90
Ca - sp	mmol/L	38	2.18	0.39		25.2	3.4		3.2	0.59		6.89	0.99		9.50	1.43
Mg - sp	mmol/L	38	0.94	0.17		7.7	1.1		1.50	0.31		4.10	0.73		1.80	0.26
Na - sp	mmol/L	39	0.55	0.24		1.76	0.28		0.49	0.22		1.27	0.25		1.39	0.16
SAR - sp	value	34	0.5	0.20		0.4	0.06		0.3	0.13		0.5	0.09		0.6	0.06
Cl - sp	mmol/L	26	0.38	0.16		4.48	0.89		0.34	0.11		0.57	0.14		2.25	0.38
SO <sub>4</sub> - sp	mmol/L	25	1.10	0.21		3.11	0.61		0.66	0.04		0.78	0.14		1.62	0.32
NO <sub>3</sub> - sp	mmol/L	12	1.79	0.64		21.6	10.1		3.43	1.25		9.4	5.8		4.12	1.63
B - sp	mg/L	20	0.14	0.035		0.09	0.034		0.10	0.040		0.15	0.050		0.13	0.035
<b>Soil EC</b>																
Soil EC (1:1)	(dS/m)	32	0.15	0.04		1.04	0.17		0.33	0.04		0.40	0.080		0.39	0.04
Soil EC (1:2)	(dS/m)	47	0.10	0.02		0.67	0.07		0.20	0.02		0.28	0.05		0.28	0.03
<b>Soil pH</b>																
pH (1:1)	Unit	95	5.69	0.09		7.58	0.11		5.50	0.09		6.48	0.10		7.80	0.10
pH (1:2)	Unit	41	5.76	0.16		7.60	0.17		5.55	0.10		6.43	0.17		7.87	0.14
pH (1:1) 0.01M CaCl <sub>2</sub>	Unit	24	5.04	0.12		7.38	0.12		5.05	0.08		6.11	0.07		7.41	0.09
pH (1:2) 0.01M CaCl <sub>2</sub>	Unit	15	5.03	0.12		7.28	0.18		5.10	0.08		6.12	0.09		7.30	0.18
<b>Buffer pH</b>																
SMP Buffer pH	Unit	66	6.42	0.09		7.50	0.06		6.35	0.09		6.84	0.11		7.50	0.05
Adams-Evans Buf pH	Unit	15	7.43	0.04		7.81	0.03		7.30	0.04		7.59	0.02		7.89	0.02
Woodruff Buf. pH	Unit	22	6.37	0.07		7.06	0.06		6.38	0.08		6.75	0.05		7.05	0.05
Mehlich Buf. pH	Unit	5	6.00	0.00		6.73	0.11		6.05	0.07		6.34	0.05		6.70	0.07
Titrateable Acidity	cmol/kg	1	8.2	0.0		0.7	0.0		11.6	0.0		9.9	0.0		0.8	0.0

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



**NAPT Program**  
North American Proficiency Testing

## 2005 North American Proficiency Testing Program 4<sup>th</sup> Quarter Report January 23, 2006



**Soil Systems**  
Quality of America

Laboratory ID

Soil	Analysis	Units	n	Soil 2005-116		Soil 2005-117		Soil 2005-118		Soil 2005-119		Soil 2005-120	
				Median	MAD	Lab <sup>1</sup>	Median	MAD	Lab	Median	MAD	Lab	Median
<b>Nitrate (NO<sub>3</sub>-N)</b>													
Cd. Rd.		mg/kg	72	11.9	1.1	123	8	32.0	2.0	62.1	8.2	29.7	2.5
ISE		mg/kg	23	11.0	1.4	115	14	25.5	3.5	43.1	8.6	27.2	4.7
CTA		mg/kg	6	12.9	0.8	113	31	33.0	1.2	70.8	1.1	29.4	0.5
Ion Chromatography		mg/kg	3	9.6	0.6	128	13	36.0	1.0	75.7	2.30	28.0	1.8
Other		mg/kg	8	13.9	1.4	114	13	37.0	8.3	65.6	9.6	28.3	2.2
NH <sub>4</sub> - N (KCl Extr.)		mg/kg	55	11.5	1.7	12.2	2.3	13.5	1.6	10.9	1.9	4.1	1.19
<b>Phosphorus &amp; Sulfur</b>													
PO <sub>4</sub> -P Bray P1 (1:10)		mg/kg	59	88.0	8.0	9.5	3.5	53.7	3.7	102	8	86.5	6.5
PO <sub>4</sub> -P Bray P1 (1:7)		mg/kg	10	75.5	8.5	11.0	4.0	36.0	6.0	76.4	14.0	63.9	13.6
PO <sub>4</sub> -P Olsen/Bicarb		mg/kg	63	37.0	3.0	21.5	1.7	22.5	2.5	36.3	5.8	49.2	4.8
PO <sub>4</sub> -P AB-DTPA		mg/kg	2	37.4	23.1	0.0	0.0	20.5	16.8	36.5	24.7	60.0	24.6
PO <sub>4</sub> -P M. Morgan		mg/kg	7	8.8	0.9	37.5	3.2	3.6	0.4	7.0	0.3	69.0	11.0
PO <sub>4</sub> -P M. Kewlona		mg/kg	4	65.7	11.8	34.0	6.6	40.7	7.5	66.0	4.3	66.7	10.4
PO <sub>4</sub> -P Strg Bray P-2		mg/kg	10	145	10	181	22	71.5	7.5	148	30	248	12
PO <sub>4</sub> -P Water Soluble		mg/kg	9	7.5	2.4	4.6	1.64	1.9	1.4	1.2	0.75	10.38	3.44
SO <sub>4</sub> -S (PO <sub>4</sub> Extr.)		mg/kg	44	6.0	1.8	23.1	4.9	7.9	1.8	9.1	3.6	11.0	2.7
<b>Ammonium Ace. Bases</b>													
K		mg/kg	92	313	22	345	20	363	22	127	22	282	20
Ca		mg/kg	86	1360	99	4234	577	2147	138	1477	244	3384	336
Mg		mg/kg	88	166	12	356	23.6	382	26	253	45	158	11
Na		mg/kg	66	15.0	4.3	33.0	5.7	17.0	5.1	31.0	6.2	30.7	4.9
K - Bray (1:10)		mg/kg	6	257	11	236	17	242	12	92	5	227	12
K - Bicarb.		mg/kg	8	274	21	231	10	255	14	128	9.5	250	16
K - Modified Morgan		mg/kg	6	233	12	192	8	215	17	121	16	200	17
Ca Modified Morgan		mg/kg	3	1192	6	19740	2710	2320	122	1784	3	4954	453
Al KCL Extr.		mg/kg	3	0.56	0.16	0.20	0.10	0.82	0.12	0.40	0.29	0.3	0.2

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## 2005 North American Proficiency Testing Program 4<sup>th</sup> Quarter Report January 23, 2006



Laboratory ID

Soil	Soil 2005-116	Soil 2005-117	Soil 2005-118	Soil 2005-119	Soil 2005-120									
Analysis	Units	n	Median	MAD	Lab <sup>1</sup>	Median	MAD	Lab	Median	MAD	Lab	Median	MAD	Lab
<b>Mehlich-1 Multi Element</b>														
Soil Scoop Mass	g	8	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	79	9.2	48.3	5.3	24.5	1.5	40.0	3.6	128.3	17.7	128.3	17.7
K	mg/kg	9	247	7.0	128	11.5	182	10	92	13	198	18	198	18
Ca	mg/kg	9	1536	156	5638	597	1570	177	1968	304	4411	382	4411	382
Mg	mg/kg	9	160	9	284	20	287	14.8	260	42	174	16	174	16
Mn	mg/kg	8	42.5	3.0	2.1	0.66	162.2	12.72	23	5.1	23.4	1.6	23.4	1.6
Zn	mg/kg	7	2.96	0.12	0.06	0.02	2.07	0.16	3.83	0.26	3.89	0.39	3.89	0.39
<b>Mehlich-3 Multi-Element</b>														
Soil Scoop Mass	g	29	2.18	0.22	2.06	0.27	2.09	0.16	1.56	0.29	2.27	0.24	2.27	0.24
Scoop Volume	mL	16	1.18	0.16	1.18	0.06	1.18	0.08	1.05	0.13	1.18	0.18	1.18	0.18
<b>Colorimetric</b>														
P	mg/kg	27	89	10.0	64.2	5.2	54.0	4.0	104	8	101	8.0	101	8.0
P ICP	mg/kg	43	121	10.5	65.0	4.5	59.0	3.3	112	6	106	5.5	106	5.5
K	mg/kg	52	328	19	361	22	368	22	119	14	306	23	306	23
Ca	mg/kg	51	1610	157	5976	422	2235	210	1601	185	4610	423	4610	423
Mg	mg/kg	51	185	16	434	31	384	26.8	282	42.7	208	18.0	208	18.0
Na	mg/kg	33	17.8	5.3	37.0	4.0	20.5	5.4	32.2	7.5	32.9	5.7	32.9	5.7
S	mg/kg	33	27.0	5.0	34.9	5.0	19.9	2.5	25.8	2.6	21.9	4.1	21.9	4.1
Al	mg/kg	23	775	92	190	58	892	113	1203	125	324	79	324	79
Zn	mg/kg	43	3.57	0.51	2.10	0.30	2.8	0.38	5.29	0.72	5.81	0.67	5.81	0.67
Mn	mg/kg	41	42.7	4.3	83.5	12.0	226	22	45.1	7.4	72.0	5.8	72.0	5.8
Fe	mg/kg	38	236	25	34.3	6.3	169	22	333	45	78.0	10.0	78.0	10.0
Cu	mg/kg	42	1.90	0.21	1.70	0.15	2.30	0.30	2.76	0.40	2.20	0.27	2.20	0.27
B	mg/kg	36	0.87	0.14	1.40	0.18	0.53	0.11	0.86	0.22	1.00	0.10	1.00	0.10

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Soil	Soil 2005-116	Soil 2005-117	Soil 2005-118	Soil 2005-119	Soil 2005-120							
Analysis	Units	n	Median	MAD	Lab <sup>1</sup>	Median	MAD	Lab	Median	MAD	Lab	
<b>Micronutrients</b>												
Zn - DTPA	mg/kg	72	2.11	0.22	0.50	0.11	1.86	0.19	1.70	0.37	1.80	0.17
Mn - DTPA	mg/kg	63	38.99	3.21	1.32	0.36	193	26	3.70	0.92	5.8	0.80
Fe - DTPA	mg/kg	65	94.0	13.3	2.5	0.94	70.9	11.1	41.9	9.6	6.9	0.83
Cu - DTPA	mg/kg	65	0.78	0.10	0.40	0.10	1.50	0.19	0.91	0.18	0.80	0.09
Zn - HCl	mg/kg	6	3.85	0.11	0.32	0.17	3.1	0.2	4.70	0.35	6.80	0.52
Mn-H <sub>3</sub> PO <sub>4</sub>	mg/kg	11	33.7	3.3	2.15	0.65	134	8.5	12.7	2.9	17.2	2.2
Cl - Ca(NO <sub>3</sub> ) <sub>2</sub> Extr.	mg/kg	20	3.44	0.78	52.6	5.6	4.2	1.2	5.4	2.2	24.4	2.6
B - Hot Water	mg/kg	53	0.80	0.19	0.68	0.22	0.52	0.15	0.61	0.19	0.55	0.15
B - DTPA-Sorb	mg/kg	10	0.29	0.09	0.47	0.04	0.21	0.07	0.23	0.05	0.42	0.07
<b>Soil Organic Matter</b>												
Soil Kjeldahl N	%	22	0.201	0.015	0.130	0.010	0.185	0.012	0.281	0.019	0.066	0.014
Soil TN (combustion)	%	36	0.198	0.008	0.130	0.010	0.183	0.012	0.290	0.010	0.069	0.011
Soil TOC (combustion)	%	32	2.14	0.053	1.88	0.08	1.98	0.06	3.11	0.08	0.66	0.029
SOM - Walkley-Black	%	46	3.68	0.23	1.85	0.15	3.14	0.22	4.89	0.71	1.08	0.09
SOM - LOI (Raw Values)	%	79	3.80	0.20	2.29	0.19	4.20	0.30	6.42	0.33	1.37	0.14
CaCO <sub>3</sub> Content	%	12	0.43	0.11	6.90	0.80	0.43	0.20	0.44	0.20	1.54	0.33
CEC - Displacement	cmol/kg	23	13.1	1.0	15.1	1.2	21.5	2.1	15.8	1.4	10.6	0.78
- Estimation	cmol/kg	14	12.3	3.3	26.3	2.6	17.2	4.1	10.8	1.2	19.1	0.81
Scoop Density	mg/cm <sup>3</sup>	13	1.35	0.03	1.25	0.10	1.21	0.06	0.88	0.05	1.36	0.03
<b>Particle Size Analysis</b>												
Sand 2000 - 50 um	%	47	67.5	2.5	47.8	3.0	14.4	4.5	31.9	3.6	62.7	3.3
Silt 50 - 2 um	%	48	22.3	3.8	35.5	4.6	55.0	5.6	52.0	3.1	27.0	3.0
Clay 2 - 0 um	%	48	8.9	2.0	17.4	2.6	30.2	3.4	16.0	3.0	9.1	1.7

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