



2008 North American Proficiency Testing Program
1st Quarter Report - April 21, 2008

Laboratory ID

Soil Analysis	Units	n	Soil 2008-101			Soil 2008-102			Soil 2008-103			Soil 2008-104			Soil 2008-105		
			Median	MAD	Lab ^{1,2}	Median	MAD	Lab ^{1,2}	Median	MAD	Lab ^{1,2}	Median	MAD	Lab ^{1,2}	Median	MAD	Lab ^{1,2}
Salinity																	
Sat. Paste Moisture	%	28	38.8	1.85		45.9	2.40		38.1	2.43		28.6	2.01		49.1	2.00	
pH - sp	Unit	35	5.83	0.12		5.00	0.10		6.66	0.14		7.86	0.14		8.00	0.10	
ECe - sp	dS/m	36	2.20	0.19		1.42	0.14		0.48	0.08		0.76	0.10		3.50	0.22	
HCO ₃ - sp	mmolc/L	10	0.75	0.25		0.78	0.18		2.93	1.17		6.09	0.67		8.50	2.21	
Ca - sp	mmolc/L	28	13.8	1.50		5.70	0.58		2.90	0.27		4.34	0.51		3.66	0.39	
Mg - sp	mmolc/L	28	5.19	0.57		1.41	0.13		1.62	0.21		1.75	0.18		2.95	0.30	
Na - sp	mmolc/L	27	0.700	0.140		0.38	0.14		0.610	0.167		1.47	0.18		26.2	3.40	
SAR - sp	value	26	0.225	0.045		0.180	0.080		0.375	0.090		0.810	0.105		13.9	1.28	
Cl - sp	mmolc/L	16	0.570	0.113		11.5	0.76		0.740	0.090		0.626	0.096		12.7	1.18	
SO ₄ - sp	mmolc/L	19	2.31	0.190		0.22	0.051		0.900	0.100		1.50	0.208		5.02	0.61	
NO ₃ - sp	mmolc/L	16	17.8	3.89		0.337	0.320		0.732	0.729		0.835	0.806		10.3	4.55	
B - sp	mg/L	10	0.175	0.019		0.040	0.021		0.060	0.023		0.190	0.036		1.97	0.184	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	29	0.760	0.065		0.420	0.070		0.210	0.024		0.330	0.040		1.20	0.199	
Soil EC (1:2)	(dS/m)	48	0.490	0.043		0.330	0.050		0.140	0.020		0.230	0.027		0.885	0.155	
pH (1:1) Water	Unit	80	6.07	0.05		5.13	0.08		6.80	0.09		8.20	0.10		8.40	0.08	
pH (1:2) Water	Unit	30	6.19	0.08		5.26	0.09		6.90	0.10		8.39	0.07		8.65	0.14	
pH (1:1) 0.01M CaCl ₂	Unit	22	5.82	0.09		4.79	0.07		6.29	0.06		7.75	0.09		7.99	0.09	
pH (1:2) 0.01M CaCl ₂	Unit	13	5.80	0.04		4.80	0.06		6.25	0.12		7.72	0.10		7.95	0.12	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	60	6.94	0.08		6.39	0.08		7.16	0.06		7.53	0.05		7.56	0.05	
Adams-Evans Buf pH	Unit	8	7.55	0.12		7.38	0.04		7.80	0.05		7.88	0.03		7.83	0.06	
Woodruff Buf. pH	Unit	24	6.76	0.05		6.32	0.09		6.91	0.02		7.14	0.04		7.21	0.04	
Mehlich Buffer pH	Unit	7	6.20	0.08		6.00	0.11		6.44	0.04		6.90	0.09		6.92	0.06	
Titrateable Acidity	cmol/kg	1	6.99	0.00		5.82	5.40										

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Inorganic Nitrogen (NO3-N & NH4-N)																	
NO3-N Cd. Rd.	mg/kg	59	94.0	4.10		5.00	0.62		15.6	0.62		10.0	1.00		81.8	5.60	
NO3-N ISE	mg/kg	17	81.0	15.0		5.93	1.38		14.0	2.74		11.6	2.63		68.3	17.70	
NO3-N CTA	mg/kg	4	82.1	20.4		8.83	0.78		14.0	0.84		8.90	0.35		76.5	8.22	
NO3-N Ion Chr.	mg/kg	1	106	0.0		6.61	0.00		16.0	0.00		10.7	0.00		103	0.00	
NO3-N Other _____	mg/kg	13	94.2	4.40		4.97	1.03		15.1	1.47		9.77	0.93		82.0	8.00	
NH4 - N (KCl Extr.)	mg/kg	44	45.0	3.54		11.5	1.50		3.22	0.43		1.98	0.48		11.5	1.40	
Phosphorus and Sulfur																	
PO4-P Bray P (1:10)	mg/kg	51	60.7	4.30		70.4	4.90		72.0	6.50		4.00	2.01		81.6	17.0	
PO4-P Bray P1 (1:7)	mg/kg	7	58.9	6.11		61.0	5.00		63.6	3.40		3.38	0.73		86.0	18.0	
PO4-P Olsen/Bicarb	mg/kg	56	31.0	2.70		31.0	3.10		29.8	2.49		35.0	3.00		94.4	10.4	
PO4-P AB-DTPA	mg/kg	3	12.1	6.00		8.10	7.39		17.4	11.0		22.4	15.8		62.4	49.6	
PO4-P Modified Morgan	mg/kg	6	13.8	0.55		3.55	0.60		21.5	1.90		55.1	2.15		185	14.5	
PO4-P True Morgan	mg/kg	4	14.9	0.58		2.65	1.15		21.9	2.30		48.1	8.55		200	33.8	
PO4-P Mod. Kewlona	mg/kg	4	48.0	2.89		47.8	1.60		47.5	1.90		56.6	3.40		196	12.5	
PO4-P Stong Bray (1:10)	mg/kg	10	251	29.0		98.0	4.00		144	10.3		130	11.2		345	46.5	
PO4-P Water Soluble	mg/kg	5	3.00	2.30		1.30	1.08		2.40	2.20		3.20	2.70		28.6	22.4	
SO4 - S (PO4 Extr.)	mg/kg	38	18.8	2.55		7.54	3.46		7.65	1.60		9.35	2.50		46.0	10.0	
Bases																	
K Ammonium Acetate	mg/kg	82	742	47.5		370	37.0		103	8.8		450	37.0		6005	811	
Ca Ammonium Acetate	mg/kg	78	2409	181		503	54.5		1113	89.0		4126	559		3860	594	
Mg Ammonium Acetate	mg/kg	79	382	23.5		45.6	7.73		201	19.4		324	34.0		594	79.0	
Na Ammonium Acetate	mg/kg	60	20.4	5.85		11.7	4.80		17.0	6.00		37.0	7.20		1461	246	
Bray Extractable K	mg/kg	2	520	36.0		307	24.0		92.5	15.6		358	16.0		2709	571	
K- Olsen/Bicarb.	mg/kg	6	493	16.6		374	14.4		112	14.5		378	21.5		3732	317	
K Modified Morgan	mg/kg	4	537	145		342	17.0		94.0	9.00		397	73.0		3150	443	
K True Morgan	mg/kg	4	438	83.5		323	24.5		96.0	9.58		333	66.5		2955	140	
Ca Modified Morgan	mg/kg	3	2290	87		540	6.0		1107	30.0		21920	2563		21216	14.0	
Aluminum KCL Extr.	mg/kg	6	0.35	0.35		5.00	2.00		0.42	0.42		0.25	0.25		0.29	0.29	

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Mehlich-1 Multi Element (scoop)																	
Scoop Soil Mass	g	6	5.00	0.00		5.00	0.00		5.00	0.00		5.00	0.00		5.00	0.00	
P	mg/kg	7	215	20.1		27.4	1.85		77.0	8.04		14.4	1.32		98.8	11.07	
K	mg/kg	7	400	13.9		347	55.8		91.3	10.42		247	9.8		754	77.4	
Ca	mg/kg	7	2409	146		579	71.7		1382	76.7		5688	336		4215	311	
Mg	mg/kg	7	326	15.7		44.0	3.85		218	13.5		317	12.7		498	51.0	
Mn	mg/kg	7	80.2	3.20		235	33.9		26.3	2.98		1.76	0.68		3.20	1.08	
Zn	mg/kg	7	1.11	0.04		4.34	0.65		6.16	0.66		0.120	0.100		0.100	0.090	
Mehlich-3 Multi-Element (scoop)																	
Scoop Soil Mass	g	26	2.00	0.14		1.79	0.20		2.00	0.21		2.41	0.20		1.83	0.18	
Assumed Density	g/cm ³	14	1.18	0.00		1.18	0.00		1.18	0.00		1.18	0.00		1.18	0.00	
Volume of Scoop	cm ³	26	2.00	0.30		2.00	0.30		2.00	0.30		2.00	0.30		2.00	0.30	
Extractant Volume mL	mL	28	20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00	
P Colorimetric	mg/kg	23	82.4	10.2		64.5	8.50		89.0	6.00		96.9	5.18		212	24.6	
P ICP-AES	mg/kg	37	85.9	8.90		70.4	6.90		97.6	5.37		104	10.0		239	20.1	
K	mg/kg	46	758	64.2		384	40.1		109	7.4		484	45.4		5319	550	
Ca	mg/kg	43	2583	200		555	88.0		1279	105		7121	868		5907	515	
Mg	mg/kg	43	417	31.7		51.6	8.56		231	15.4		489	49.4		872	62.1	
Na	mg/kg	32	19.4	5.91		11.9	5.03		17.2	5.17		36.7	7.46		1280	182	
S	mg/kg	29	25.4	5.65		17.4	3.36		15.2	2.80		26.0	4.06		58.0	9.50	
Al	mg/kg	21	669	40.0		1165	46.0		591	29.8		111	36.4		245	71.0	
Zn	mg/kg	36	2.19	0.25		5.06	0.49		7.26	0.84		6.05	0.57		5.45	0.66	
Mn	mg/kg	35	234	18.6		406	31.6		34.1	2.93		95.4	6.59		171	12.0	
Fe	mg/kg	33	83.0	7.20		156	14.0		254	17.4		51.4	6.57		39.0	5.00	
Cu	mg/kg	36	3.10	0.28		1.46	0.18		4.76	0.41		2.11	0.26		2.71	0.32	
B	mg/kg	29	0.800	0.100		0.390	0.140		0.600	0.100		1.69	0.275		9.87	0.930	

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Micronutrients																	
Zn - DTPA	mg/kg	73	1.00	0.100		3.20	0.40		3.69	0.35		2.00	0.21		2.00	0.20	
Mn - DTPA	mg/kg	56	78.9	7.49		170	26.3		11.0	1.09		6.71	1.24		17.7	2.60	
Fe - DTPA	mg/kg	59	15.8	2.05		37.5	6.06		39.0	4.43		11.0	1.30		3.60	0.50	
Cu - DTPA	mg/kg	61	1.52	0.19		0.82	0.12		2.24	0.27		0.70	0.100		1.46	0.16	
Zn - HCl	mg/kg	6	1.79	0.23		3.95	0.26		6.21	0.63		0.36	0.27		1.55	0.61	
Mn-H3PO4	mg/kg	11	62.3	2.49		215	14.5		17.8	1.92		2.50	0.60		4.12	1.28	
Cl - Ca(NO3)2 Extr.	mg/kg	16	6.54	1.79		174	10.3		7.83	1.20		5.72	1.67		173	14.8	
B - Hot Wat.	mg/kg	47	0.790	0.170		0.300	0.080		0.410	0.110		0.680	0.150		5.25	1.30	
B-DTPA/Sorbitol	mg/kg	9	0.330	0.060		0.115	0.060		0.225	0.020		0.970	0.070		6.47	0.26	
Soil Organic Matter																	
Soil Kjeldahl N	%	18	0.128	0.010		0.151	0.010		0.122	0.006		0.080	0.010		0.190	0.017	
Soil TN (combustion)	%	32	0.130	0.007		0.153	0.007		0.130	0.007		0.080	0.007		0.192	0.008	
Soil TOC (Combustion)	%	13	1.28	0.070		1.89	0.075		1.67	0.06		0.890	0.500		2.18	0.43	
Soil Total C (Combustion)	%	21	1.31	0.050		1.95	0.080		1.72	0.08		1.80	0.068		2.75	0.11	
SOM - Walkley-Black	%	41	2.27	0.170		3.18	0.280		2.60	0.20		1.28	0.130		3.20	0.30	
SOM - LOI (% Wt loss)	%	71	2.70	0.210		4.39	0.210		2.91	0.17		1.47	0.128		4.13	0.32	
CaCO3 Content	%	10	0.50	0.13		0.32	0.22		0.32	0.16		8.80	1.00		6.80	1.11	
CEC - Cation Displacement	cmol/kg	25	20.0	1.71		11.9	2.10		9.77	1.15		10.9	0.90		35.2	5.41	
CEC - Estimation	cmol/kg	11	18.0	0.70		8.45	2.55		7.67	0.67		23.9	3.10		48.6	5.05	
Soil Density (Scoop)	g/cc	12	1.17	0.04		0.99	0.03		1.14	0.06		1.42	0.03		1.02	0.05	
Particle Size Analysis																	
Sand 2000 - 50 um	%	44	21.5	4.05		30.0	3.20		38.7	3.09		54.0	2.06		24.9	3.70	
Silt 50 - 2 um	%	44	58.0	3.90		46.2	3.90		46.8	3.50		32.0	2.00		55.0	4.60	
Clay 2 - 0 um	%	44	20.7	3.30		23.0	4.00		14.0	3.00		13.4	2.60		19.9	5.00	

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