



2007 North American Proficiency Testing Program
4th Quarter Report - November 21, 2007

Laboratory ID

Soil Analysis	Units	n	Soil 2007-116			Soil 2007-117			Soil 2007-118			Soil 2007-119			Soil 2007-120		
			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	%	30	26.3	1.95		45.7	1.63		26.9	1.45		38.2	2.17		46.8	3.19	
pH - sp	Unit	35	5.40	0.16		5.36	0.14		5.80	0.10		7.47	0.17		8.08	0.10	
ECe - sp	dS/m	36	0.95	0.12		0.47	0.06		0.44	0.05		1.47	0.24		0.75	0.07	
HCO ₃ - sp	mmolc/L	11	0.77	0.30		1.00	0.30		1.24	0.38		9.25	1.75		5.20	0.79	
Ca - sp	mmolc/L	30	4.05	0.40		2.52	0.50		1.57	0.26		8.60	1.22		4.70	0.49	
Mg - sp	mmolc/L	30	2.43	0.24		1.83	0.30		0.87	0.15		4.33	0.50		2.54	0.21	
Na - sp	mmolc/L	29	1.89	0.13		0.35	0.14		0.18	0.08		0.79	0.17		1.16	0.17	
SAR - sp	value	27	1.04	0.06		0.23	0.10		0.19	0.11		0.32	0.06		0.60	0.10	
Cl - sp	mmolc/L	18	2.32	0.21		1.62	0.13		0.25	0.06		1.32	0.20		1.15	0.23	
SO ₄ - sp	mmolc/L	17	0.82	0.10		0.70	0.10		0.58	0.09		3.47	0.40		1.54	0.19	
NO ₃ - sp	mmolc/L	15	4.71	2.88		0.92	0.89		1.72	1.15		0.60	0.55		0.05	0.04	
B - sp	mg/L	15	0.16	0.05		0.16	0.05		0.08	0.04		0.32	0.10		0.19	0.05	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	23	0.26	0.04		0.29	0.02		0.13	0.03		0.50	0.07		0.46	0.06	
Soil EC (1:2)	(dS/m)	46	0.17	0.03		0.17	0.02		0.09	0.01		0.33	0.04		0.26	0.05	
pH (1:1) Water	Unit	74	5.56	0.09		5.56	0.09		5.96	0.07		7.50	0.09		8.36	0.09	
pH (1:2) Water	Unit	29	5.67	0.11		5.60	0.13		6.07	0.14		7.59	0.14		8.40	0.11	
pH (1:1) 0.01M CaCl ₂	Unit	20	5.07	0.11		5.08	0.10		5.36	0.05		7.15	0.08		7.94	0.09	
pH (1:2) 0.01M CaCl ₂	Unit	11	5.06	0.14		5.12	0.11		5.34	0.16		7.11	0.08		7.86	0.12	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	56	6.84	0.06		6.26	0.14		6.80	0.10		7.40	0.04		7.54	0.05	
Adams-Evans Buf pH	Unit	7	7.70	0.04		7.34	0.04		7.70	0.03		7.88	0.08		7.73	0.04	
Woodruff Buf. pH	Unit	20	6.69	0.06		6.30	0.05		6.66	0.05		7.09	0.04		7.20	0.05	
Mehlich Buffer pH	Unit	6	6.15	0.07		5.81	0.03		6.22	0.09		6.64	0.06		6.90	0.10	
Titrateable Acidity	cmol/kg																

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Inorganic Nitrogen (NO3-N & NH4-N)																	
NO3-N Cd. Rd.	mg/kg	57	24.0	2.09		13.8	0.88		10.7	1.20		43.1	2.88		8.60	0.85	
NO3-N ISE	mg/kg	17	22.3	2.73		11.1	2.90		11.2	1.64		37.2	6.31		8.40	1.90	
NO3-N CTA	mg/kg	5	23.3	0.85		14.6	0.41		11.6	0.38		43.6	1.16		9.25	0.30	
NO3-N Ion Chr.	mg/kg	1	21.9	0.00		12.8	0.00		9.29	0.00		45.5	0.00		8.12	0.00	
NO3-N Other _____	mg/kg	12	21.4	1.57		12.9	2.10		9.80	1.59		42.1	7.31		8.68	1.52	
NH4 - N (KCl Extr.)	mg/kg	44	11.1	1.20		7.99	1.05		8.27	1.06		13.9	1.40		2.70	0.63	
Phosphorus and Sulfur																	
PO4-P Bray P (1:10)	mg/kg	47	78.5	6.84		52.3	3.67		122	14.0		156	18.5		55.9	4.50	
PO4-P Bray P1 (1:7)	mg/kg	7	62.0	4.70		45.4	3.47		96.0	3.80		129	16.3		32.7	3.50	
PO4-P Olsen/Bicarb	mg/kg	55	36.0	3.00		28.6	2.50		30.5	3.48		80.3	6.78		24.0	1.90	
PO4-P AB-DTPA	mg/kg	2	24.4	9.80		12.7	5.73		28.9	15.1		78.6	16.1		12.9	4.20	
PO4-P Modified Morgan	mg/kg	5	7.50	0.20		5.60	0.50		6.33	0.47		120	2.8		80.0	0.00	
PO4-P True Morgan	mg/kg	4	12.0	2.71		5.95	1.93		5.70	1.45		103	19.5		63.7	15.0	
PO4-P Mod. Kewlona	mg/kg	3	47.0	3.96		36.3	1.70		89.5	1.55		137	7.3		50.7	3.33	
PO4-P Stong Bray (1:10)	mg/kg	9	258	19.2		69.7	3.70		160	14.0		273	63.0		421	177	
PO4-P Water Soluble	mg/kg	6	3.71	2.02		2.63	2.33		4.66	4.22		8.26	1.80		7.04	5.87	
SO4 - S (PO4 Extr.)	mg/kg	37	5.10	1.50		8.00	3.00		5.60	1.89		22.5	2.97		13.2	2.20	
Bases																	
K Ammonium Acetate	mg/kg	79	181	15.9		222	16.0		163	14.2		431	30.5		640	37.5	
Ca Ammonium Acetate	mg/kg	74	978	76.0		2277	132		392	52.8		2145	157		3920	290	
Mg Ammonium Acetate	mg/kg	75	224	22.9		665	35.1		60.0	11.9		316	27.6		861	52.4	
Na Ammonium Acetate	mg/kg	55	40.3	7.70		15.9	5.14		10.6	6.90		21.0	4.90		49.6	5.90	
Bray Extractable K	mg/kg	3	160	4.0		157	0.0		158	2.0		361	5.0		398	53.0	
K- Olsen/Bicarb.	mg/kg	7	141	5.6		164	6.0		140	9.5		400	16.0		361	14.4	
K Modified Morgan	mg/kg	4	124	9.0		128	11.5		130	8.5		329	53.0		264	96.5	
K True Morgan	mg/kg	3	156	4.9		162	41.6		146	13.5		412	13.5		323	58.0	
Ca Modified Morgan	mg/kg	2	786	32.0		2234	36.0		331	30.5		2668	83.0		5348	263	
Aluminum KCL Extr.	mg/kg	6	3.03	0.67		0.86	0.32		0.66	0.30		0.28	0.17		0.20	0.24	

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Mehlich-1 Multi Element (scoop)																	
Scoop Soil Mass	g	4	5.00	0.00		5.00	0.00		5.00	0.00		5.00	0.00		5.00	0.00	
P	mg/kg	4	156	29.3		31.5	2.04		48.0	2.58		246	29.7		301	101	
K	mg/kg	4	114	2.8		128	8.2		129	13.7		262	40.0		208	59.8	
Ca	mg/kg	4	1207	108		2057	36.1		485	74.6		2780	783		3539	774	
Mg	mg/kg	4	211	11.9		558	6.2		70.6	13.9		344	79.0		563	219	
Mn	mg/kg	4	26.7	2.44		15.6	1.66		128	16.6		55.4	29.3		16.0	7.84	
Zn	mg/kg	4	4.94	0.22		1.93	0.35		2.66	0.15		8.52	3.18		1.13	0.34	
Mehlich-3 Multi-Element (scoop)																	
Scoop Soil Mass	g	28	2.59	0.20		2.12	0.13		2.60	0.16		1.99	0.18		2.10	0.14	
Assumed Density	g/cm ³	15	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	29	2.00	0.30		2.00	0.30		2.00	0.30		2.00	0.30		2.00	0.30	
Extractant Volume mL	mL	29	20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00	
P Colorimetric	mg/kg	24	81.5	8.75		50.5	4.39		120	16.2		180	17.0		121	11.0	
P ICP-AES	mg/kg	42	92.8	9.20		56.8	5.25		137	15.8		213	13.9		130	9.0	
K	mg/kg	48	182	17.8		230	19.2		169	19.0		461	26.7		663	31.1	
Ca	mg/kg	46	1056	111		2564	214		456	62.6		2717	181		4834	337	
Mg	mg/kg	45	250	26.9		737	48.5		66.2	8.8		406	22.0		1127	81.0	
Na	mg/kg	35	43.0	5.00		15.5	4.50		9.50	4.50		19.0	4.55		54.5	7.81	
S	mg/kg	32	10.7	2.20		16.1	2.46		17.4	2.73		39.6	4.93		22.7	3.45	
Al	mg/kg	24	480	65.3		1003	90.5		1090	134		323	29.2		630	42.7	
Zn	mg/kg	38	5.95	0.92		2.39	0.22		3.87	0.44		16.8	1.83		5.11	0.61	
Mn	mg/kg	37	32.8	4.11		23.3	2.54		179	17.8		232	25.1		180	16.4	
Fe	mg/kg	35	287	30.4		265	24.0		247	27.7		257	22.8		99.0	11.4	
Cu	mg/kg	38	0.92	0.18		2.91	0.25		0.88	0.18		17.1	1.42		6.00	0.50	
B	mg/kg	30	0.37	0.17		0.86	0.17		0.30	0.10		3.31	0.38		2.78	0.30	

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Micronutrients																	
Zn - DTPA	mg/kg	74	3.35	0.32		1.69	0.15		1.46	0.14		6.34	0.47		1.70	0.12	
Mn - DTPA	mg/kg	57	21.7	2.85		9.52	2.02		104	15.0		24.4	3.90		8.90	1.60	
Fe - DTPA	mg/kg	60	83.3	11.7		115	14.0		50.9	6.25		46.1	5.05		9.28	1.52	
Cu - DTPA	mg/kg	58	0.71	0.09		2.07	0.19		0.38	0.08		8.66	0.79		1.68	0.18	
Zn - HCl	mg/kg	4	7.20	1.36		2.75	0.38		2.86	0.37		16.4	0.99		5.31	0.74	
Mn-H3PO4	mg/kg	10	19.6	1.25		8.80	0.85		108	12.4		66.4	10.5		13.4	1.79	
Cl - Ca(NO3)2 Extr.	mg/kg	15	19.8	2.90		22.2	2.90		2.57	0.77		13.8	2.80		16.1	1.90	
B - Hot Wat.	mg/kg	42	0.28	0.08		0.89	0.19		0.21	0.05		1.71	0.37		1.12	0.21	
B-DTPA/Sorbitol	mg/kg	11	0.17	0.05		0.49	0.13		0.18	0.05		1.51	0.19		1.59	0.16	
Soil Organic Matter																	
Soil Kjeldahl N	%	20	0.077	0.005		0.165	0.010		0.085	0.006		0.279	0.015		0.132	0.012	
Soil TN (combustion)	%	38	0.081	0.009		0.170	0.010		0.095	0.012		0.309	0.012		0.145	0.006	
Soil TOC (Combustion)	%	13	0.763	0.037		2.010	0.085		1.153	0.067		2.750	0.137		1.505	0.105	
Soil Total C (Combustion)	%	21	0.764	0.044		2.068	0.082		1.155	0.085		2.840	0.110		1.640	0.060	
SOM - Walkley-Black	%	38	1.46	0.14		3.51	0.21		2.00	0.20		4.45	0.36		2.48	0.15	
SOM - LOI (% Wt loss)	%	68	1.66	0.11		4.06	0.26		2.04	0.14		4.76	0.29		3.00	0.21	
CaCO3 Content	%	10	0.50	0.40		0.40	0.31		0.15	0.15		0.56	0.31		2.35	0.70	
CEC - Cation Displacement	cmol/kg	24	8.87	0.87		24.0	1.39		5.40	1.19		14.0	1.85		25.1	1.71	
CEC - Estimation	cmol/kg	12	9.20	1.75		23.3	4.40		5.00	1.95		15.3	2.25		30.1	2.40	
Soil Density (Scoop)	g/cc	15	1.52	0.04		1.20	0.05		1.52	0.02		1.12	0.08		1.22	0.02	
Particle Size Analysis																	
Sand 2000 - 50 um	%	39	79.4	2.30		26.0	3.72		86.0	2.25		58.0	2.78		13.0	4.00	
Silt 50 - 2 um	%	39	14.0	1.30		40.0	3.00		8.0	1.30		30.0	2.50		55.4	7.20	
Clay 2 - 0 um	%	39	6.3	1.20		31.0	2.47		6.0	1.70		11.9	1.90		31.0	4.85	

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