



2008 North American Proficiency Testing Program
3rd Quarter Report - September 7, 2008

Laboratory ID

Soil Analysis	Units	n	Soil 2008-111			Soil 2008-112			Soil 2008-113			Soil 2008-114			Soil 2008-115		
			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	%	24	42.0	3.72		52.0	2.15		38.9	1.55		29.6	1.19		25.0	1.90	
pH - sp	Unit	29	7.80	0.150		6.87	0.150		5.90	0.100		6.35	0.150		5.20	0.145	
ECe - sp	dS/m	31	0.79	0.120		0.78	0.061		2.09	0.275		1.19	0.120		1.58	0.195	
HCO ₃ - sp	mmolc/L	12	5.91	2.09		6.09	1.29		0.862	0.250		5.57	1.92		0.566	0.245	
Ca - sp	mmolc/L	26	4.00	0.635		5.62	0.745		13.3	1.34		4.32	0.555		6.99	1.04	
Mg - sp	mmolc/L	26	1.40	0.177		0.925	0.110		5.03	0.445		2.52	0.344		3.66	0.503	
Na - sp	mmolc/L	26	3.46	0.500		0.295	0.180		0.717	0.145		3.25	0.405		0.930	0.121	
SAR - sp	value	25	2.10	0.205		0.200	0.100		0.230	0.050		1.75	0.180		0.425	0.050	
Cl - sp	mmolc/L	17	0.790	0.163		0.281	0.050		0.560	0.092		3.93	0.440		0.850	0.100	
SO ₄ - sp	mmolc/L	17	1.31	0.253		1.15	0.150		2.35	0.210		1.61	0.270		7.92	0.930	
NO ₃ - sp	mmolc/L	11	0.140	0.140		0.170	0.170		17.2	2.60		0.180	0.174		5.84	2.37	
B - sp	mg/L	10	0.34	0.035		0.080	0.020		0.169	0.030		0.050	0.016		0.210	0.030	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	31	0.35	0.020		0.28	0.030		0.73	0.040		0.30	0.060		0.41	0.110	
Soil EC (1:2)	(dS/m)	45	0.24	0.030		0.22	0.030		0.49	0.040		0.22	0.033		0.28	0.039	
pH (1:1) Water	Unit	82	8.20	0.100		6.90	0.075		6.10	0.050		6.43	0.060		5.36	0.075	
pH (1:2) Water	Unit	34	8.40	0.115		7.01	0.110		6.26	0.075		6.58	0.085		5.54	0.140	
pH (1:1) 0.01M CaCl ₂	Unit	23	7.70	0.060		6.53	0.050		5.87	0.070		6.00	0.050		4.98	0.070	
pH (1:2) 0.01M CaCl ₂	Unit	9	7.61	0.070		6.56	0.020		5.91	0.030		5.97	0.030		4.96	0.055	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	54	7.50	0.065		7.07	0.065		6.96	0.060		7.04	0.060		6.99	0.090	
Adams-Evans Buf pH	Unit	8	7.81	0.020		7.71	0.025		7.59	0.070		7.75	0.025		7.74	0.030	
Woodruff Buf. pH	Unit	21	7.15	0.050		6.90	0.040		6.77	0.060		6.80	0.050		6.70	0.050	
Mehlich Buffer pH	Unit	5	6.77	0.030		6.46	0.040		6.23	0.035		6.38	0.050		6.25	0.040	
Titrateable Acidity	cmol/kg	0													22.2	0.00	

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Inorganic Nitrogen (NO3-N & NH4-N)																	
NO3-N Cd. Rd.	mg/kg	57	11.1	1.00		20.3	1.70		92.3	3.69		10.3	1.10		26.8	1.80	
NO3-N ISE	mg/kg	16	11.4	2.53		15.3	1.85		87.2	9.25		11.0	1.52		28.7	4.95	
NO3-N CTA	mg/kg	5	12.1	1.94		23.8	0.83		96.4	17.4		15.0	0.350		23.3	1.15	
NO3-N Ion Chr.	mg/kg	1	11.2	0.00		20.2	0.00		99.1	0.00		9.62	0.00		27.1	0.00	
NO3-N Other _____	mg/kg	11	11.0	1.18		21.3	1.17		93.2	7.22		10.6	0.600		26.2	1.20	
NH4 - N (KCl Extr.)	mg/kg	45	10.1	1.11		35.1	2.89		46.8	3.50		26.4	2.30		11.5	1.46	
Phosphorus and Sulfur																	
PO4-P Bray P (1:10)	mg/kg	51	29.0	5.00		124	10.7		61.9	3.00		101	8.90		95.5	8.69	
PO4-P Bray P1 (1:7)	mg/kg	8	22.0	2.26		92.3	5.11		57.5	8.03		84.4	16.0		75.2	10.1	
PO4-P Olsen/Bicarb	mg/kg	56	16.0	2.00		41.8	6.13		30.9	1.70		31.5	2.83		45.9	4.15	
PO4-P AB-DTPA	mg/kg	0															
PO4-P Modified Morgan	mg/kg	5	25.0	6.70		12.0	2.00		12.2	1.80		10.5	0.50		12.0	0.30	
PO4-P True Morgan	mg/kg	4	26.4	1.85		12.7	0.95		14.2	0.50		10.7	0.80		13.4	0.75	
PO4-P Mod. Kewlona	mg/kg	3	31.0	5.00		90.0	5.05		47.0	1.90		61.2	5.40		55.5	2.50	
PO4-P Stong Bray (1:10)	mg/kg	9	163	35.0		213	20.7		262	12.0		139	4.5		226	17.5	
PO4-P Water Soluble	mg/kg	5	6.60	4.88		4.50	2.60		8.16	1.14		9.30	3.30		13.0	3.76	
SO4 - S (PO4 Extr.)	mg/kg	36	10.4	4.65		11.0	3.73		18.9	2.95		8.55	2.50		37.5	5.97	
Bases																	
K Ammonium Acetate	mg/kg	80	2835	337		278	38.8		743	44.5		199	15.4		370	34.2	
Ca Ammonium Acetate	mg/kg	78	4657	658		1721	230		2399	153		691	50.5		545	65.7	
Mg Ammonium Acetate	mg/kg	78	430	54.5		86.1	11.1		374	28.0		120	12.2		106	11.0	
Na Ammonium Acetate	mg/kg	61	457	76.0		14.2	7.35		22.0	7.00		46.7	6.53		22.0	7.00	
Bray Extractable K	mg/kg	2	1355	249		211	15.0		533	6.5		189	4.0		361	2.5	
K- Olsen/Bicarb.	mg/kg	7	1714	186		287	23.0		500	31.0		186	28.6		293	42.0	
K Modified Morgan	mg/kg	3	2797	1089		229	6.9		674	50.4		173	4.0		320	60.0	
K True Morgan	mg/kg	4	1489	113		276	23.5		388	7.5		164	2.5		268	16.0	
Ca Modified Morgan	mg/kg	3	17676	700		2050	94.0		2217	118		570	24.0		450	44.0	
Aluminum KCL Extr.	mg/kg	4	1.06	1.00		0.638	0.355		1.09	0.950		0.909	0.450		2.75	1.91	

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Mehlich-1 Multi Element (scoop)																	
Scoop Soil Mass	g	7	5.00	0.00		5.00	0.00		5.00	0.00		5.00	0.00		5.00	0.00	
P	mg/kg	7	26.7	4.26		66.0	4.51		221	14.5		56.0	2.24		143	5.72	
K	mg/kg	7	236	36.9		246	22.0		387	17.8		169	9.8		264	16.5	
Ca	mg/kg	7	5100	259		2158	292		2322	256		742	38.2		686	56.5	
Mg	mg/kg	7	322	35.8		104	9.8		321	16.5		130	12.7		95.5	9.47	
Mn	mg/kg	7	2.48	3.20		565	95.5		104	7.7		47.1	2.19		30.6	1.47	
Zn	mg/kg	7	0.120	0.110		5.64	1.11		1.21	0.200		4.75	0.229		3.19	0.171	
Mehlich-3 Multi-Element (scoop)																	
Scoop Soil Mass	g	25	1.85	0.21		1.77	0.26		2.00	0.14		2.39	0.27		2.57	0.14	
Assumed Density	g/cm ³	12	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	27	2.00	0.30		2.00	0.30		2.00	0.30		2.00	0.30		2.00	0.30	
Extractant Volume mL	mL	27	20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00	
P Colorimetric	mg/kg	21	50.0	3.00		130	10.0		77.0	7.00		102	7.00		98.1	7.90	
P ICP-AES	mg/kg	40	54.8	3.17		145	8.5		89.5	6.50		130	11.0		111	10.4	
K	mg/kg	46	2548	218		262	33.1		750	52.1		210	21.6		403	56.0	
Ca	mg/kg	43	5760	370		1926	151.5		2642	159		803	83.5		654	70.0	
Mg	mg/kg	44	509	34.0		96.0	14.5		423	21.0		139	14.5		122	14.3	
Na	mg/kg	33	417	54.0		12.9	7.10		18.8	4.84		50.0	7.30		19.0	4.40	
S	mg/kg	33	22.4	5.10		24.6	4.80		25.4	3.60		19.5	3.40		48.1	7.08	
Al	mg/kg	24	353	67.7		1040	46.0		685	31.8		736	63.4		481	49.3	
Zn	mg/kg	38	2.40	0.362		6.40	0.550		2.13	0.176		5.88	0.48		4.11	0.44	
Mn	mg/kg	38	197	14.8		735	72.5		250	16.2		54.0	5.00		52.6	4.94	
Fe	mg/kg	35	35.8	4.10		217	14.3		86.4	6.30		196	11.0		210	13.7	
Cu	mg/kg	38	2.57	0.276		2.35	0.34		2.86	0.235		2.99	0.29		1.10	0.150	
B	mg/kg	33	2.70	0.200		1.00	0.235		0.791	0.138		0.505	0.144		0.380	0.105	

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Micronutrients																	
Zn - DTPA	mg/kg	72	0.81	0.100		2.60	0.400		1.00	0.105		3.27	0.36		2.27	0.305	
Mn - DTPA	mg/kg	54	7.98	1.83		357	59.9		94.0	10.0		30.2	3.78		24.3	3.09	
Fe - DTPA	mg/kg	57	2.81	0.446		50.4	9.50		15.0	1.65		70.0	9.68		55.6	8.50	
Cu - DTPA	mg/kg	60	1.05	0.145		1.33	0.185		1.68	0.138		2.04	0.235		0.700	0.100	
Zn - HCl	mg/kg	4	1.29	0.640		5.70	0.375		2.28	0.200		5.28	0.130		3.86	0.250	
Mn-H3PO4	mg/kg	11	3.80	2.49		506	90.2		75.8	10.0		34.6	3.47		23.1	3.40	
Cl - Ca(NO3)2 Extr.	mg/kg	17	9.10	1.60		4.19	2.19		6.00	2.00		41.0	8.00		7.30	2.10	
B - Hot Wat.	mg/kg	47	1.28	0.300		0.600	0.180		0.720	0.140		0.310	0.080		0.350	0.120	
B-DTPA/Sorbitol	mg/kg	10	1.44	0.155		0.345	0.085		0.315	0.104		0.160	0.065		0.175	0.070	
Soil Organic Matter																	
Soil Kjeldahl N	%	20	0.166	0.011		0.244	0.013		0.126	0.008		0.130	0.010		0.051	0.008	
Soil TN (combustion)	%	28	0.170	0.006		0.263	0.013		0.132	0.010		0.130	0.011		0.058	0.010	
Soil TOC (Combustion)	%	14	1.99	0.423		3.07	0.120		1.31	0.068		1.34	0.130		0.520	0.040	
Soil Total C (Combustion)	%	20	2.46	0.098		3.10	0.125		1.30	0.045		1.41	0.076		0.512	0.110	
SOM - Walkley-Black	%	43	2.70	0.200		4.94	0.460		2.22	0.150		2.63	0.217		1.07	0.167	
SOM - LOI (% Wt loss)	%	67	3.73	0.380		6.05	0.243		2.60	0.200		2.60	0.138		1.10	0.090	
CaCO3 Content	%	11	7.00	0.800		0.529	0.349		0.500	0.200		0.180	0.116		0.370	0.200	
CEC - Cation Displacement	cmol/kg	24	29.0	4.76		14.8	1.56		20.2	2.04		6.38	0.850		5.46	0.800	
CEC - Estimation	cmol/kg	14	39.2	1.57		10.7	1.10		19.4	1.60		6.00	0.995		6.20	1.30	
Soil Density (Scoop)	g/cc	14	1.01	0.07		0.94	0.05		1.14	0.049		1.36	0.059		1.50	0.034	
Particle Size Analysis																	
Sand 2000 - 50 um	%	40	35.0	3.80		28.9	6.10		24.0	3.75		67.2	4.18		86.0	3.44	
Silt 50 - 2 um	%	41	47.0	3.74		53.0	5.00		56.0	4.80		24.0	2.60		9.6	1.63	
Clay 2 - 0 um	%	41	19.0	3.00		19.9	3.89		21.0	2.60		8.4	1.58		6.0	1.85	

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