



**2010 North American Proficiency Testing Program
3rd Quarter Report - Oct 15, 2010**

**Laboratory ID
General**

Soil Analysis	Units	n	Soil 2010-111			Soil 2010-112			Soil 2010-113			Soil 2010-114			Soil 2010-115		
			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	%	25	32.0	2.00		37.0	2.95		52.0	4.00		35.0	1.90		27.6	0.90	
pH - sp	Unit	37	6.010	0.150		7.68	0.12		6.90	0.110		4.56	0.110		5.12	0.100	
ECe - sp	dS/m	38	2.345	0.265		1.40	0.15		0.70	0.070		0.770	0.070		1.600	0.180	
HCO3 - sp	mmol/L	14	3.99	2.580		3.33	1.59		3.04	1.368		0.55	0.251		0.578	0.283	
Ca - sp	mmol/L	30	4.82	0.805		8.27	0.75		4.9	0.51		3.29	0.335		8.29	0.715	
Mg - sp	mmol/L	30	4.430	0.605		1.87	0.20		2.0	0.29		1.39	0.202		4.348	0.325	
Na - sp	mmol/L	30	3.996	0.435		3.81	0.37		0.5	0.15		0.511	0.105		0.610	0.150	
SAR - sp	value	28	1.815	0.135		1.61	0.10		0.28	0.075		0.310	0.090		0.220	0.078	
Cl - sp	mmol/L	18	11.815	1.080		2.7	0.61		0.23	0.100		0.440	0.090		3.265	0.262	
SO4 - sp	mmol/L	19	5.560	0.360		4.52	0.47		0.7	0.10		0.77	0.095		0.858	0.105	
NO ₃ - sp	mmol/L	12	0.076	0.076		3.185	1.52		1.78	1.28		4.74	1.082		8.790	2.940	
B - sp	mg/L	14	0.100	0.025		0.229	0.04		0.070	0.029		0.291	0.060		0.080	0.024	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	36	0.6	0.161		0.640	0.06		0.56	0.070		0.280	0.080		0.455	0.110	
Soil EC (1:2)	(dS/m)	50	0.5	0.056		0.395	0.06		0.29	0.057		0.180	0.030		0.279	0.023	
pH (1:1) Water	Unit	85	6.1	0.055		8.00	0.09		7.10	0.085		4.70	0.100		5.30	0.090	
pH (1:2) Water	Unit	34	6.2	0.110		8.10	0.10		7.21	0.090		4.78	0.115		5.41	0.120	
pH (1:1) 0.01M CaCl ₂	Unit	21	5.6	0.095		7.66	0.10		6.74	0.100		4.28	0.080		5.00	0.060	
pH (1:2) 0.01M CaCl ₂	Unit	11	5.6	0.050		7.66	0.09		6.80	0.073		4.18	0.030		4.92	0.071	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	48	7.0	0.085		7.54	0.06		7.13	0.050		6.03	0.135		6.63	0.100	
Adams-Evans Buf pH	Unit	12	7.8	0.037		7.75	0.04		7.59	0.015		7.30	0.090		7.60	0.052	
Woodruff Buf. pH	Unit	22	6.8	0.030		7.14	0.04		6.94	0.040		6.00	0.030		6.51	0.040	
Mehlich Buffer pH	Unit	8	6.3	0.037		6.89	0.14		6.49	0.030		5.67	0.065		6.10	0.120	
Sikora Buffer pH	Unit	16	7.1	0.100		7.50	0.02		7.10	0.023		6.17	0.100		6.73	0.110	
Titrateable Acidity	cmol/kg	0															

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

2 - Limits not compared to lab data for methods with < 7 labs reporting



**2010 North American Proficiency Testing Program
3rd Quarter Report - Oct 15, 2010**

**Laboratory ID
General**

Soil Analysis	Units	n	Soil 2010-111			Soil 2010-112			Soil 2010-113			Soil 2010-114			Soil 2010-115		
			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}
Inorganic Nitrogen (NO3-N & NH4-N)																	
NO3-N Cd. Rd.	mg/kg	58	7.8	0.73		28.80	1.87		28.6	1.81		28.8	1.60		45.5	2.42	
NO3-N ISE	mg/kg	22	8.7	1.78		29.00	5.80		27.9	4.63		30.5	2.90		48.8	3.00	
NO3-N CTA	mg/kg	7	10.5	1.50		29.00	1.90		29.8	2.11		32.4	4.45		46.0	3.97	
NO3-N Ion Chr.	mg/kg	1	7.0	0.000		25.57	0.000		29.4	0.00		25.8	0.00		45.9	0.00	
NO3-N Other _____	mg/kg	7	7.7	0.24		29.47	1.41		29.5	2.66		30.7	2.07		48.2	3.350	
NH4 - N (KCl Extr.)	mg/kg	53	30.0	2.702		4.7	0.58		7.10	1.000		24.1	2.30		12.55	1.250	
Phosphorus and Sulfur																	
PO4-P Bray P (1:10)	mg/kg	50	35.7	3.30		24.5	12.60		43.1	2.70		200.0	19.55		163.0	11.50	
PO4-P Bray P1 (1:7)	mg/kg	8	26.5	4.95		18.4	2.34		30.6	3.65		137.7	20.85		118.6	18.85	
PO4-P Olsen/Bicarb	mg/kg	61	17.0	2.13		13.2	1.23		27.0	2.19		92.7	12.30		46.2	5.69	
PO4-P AB-DTPA	mg/kg	2	5.9	4.23		2.9	1.71		4.5	2.7		20.6	17.8		10.98	9.22	
PO4-P Modified Morgan	mg/kg	4	6.3	0.350		31.00	1.500		7.0	1.00		10.0	0.80		8.70	0.30	
PO4-P True Morgan	mg/kg	5	5.9	0.550		30.70	2.300		8.0	0.49		9.1	1.40		8.20	1.700	
PO4-P Mod. Kewlona	mg/kg	4	16.2	1.82		24.7	4.13		30.1	1.72		98.4	24.75		80.0	25.57	
PO4-P Stong Bray (1:10)	mg/kg	7	44.0	1.0		148.2	3.79		67	1.0		276	21.8		223.5	13.50	
PO4-P Water Soluble	mg/kg	3	3.7	1.12		3.42	0.78		3.39	0.310		6.80	0.62		3.76	1.74	
SO4 - S (PO4 Extr.)	mg/kg	38	30.6	3.40		33.8	6.15		7	1		14.0	4.41		8.00	1.36	
Bases																	
K Ammonium Acetate	mg/kg	87	445.0	37		690	50.7		370	25.5		95	9.4		111	10.1	
Ca Ammonium Acetate	mg/kg	84	579.0	70		4878	603.0		4323	313		444	69.0		609	74.2	
Mg Ammonium Acetate	mg/kg	84	131.0	16.2		329	30.0		712	48.0		54	10.9		94	11.1	
Na Ammonium Acetate	mg/kg	70	52.7	7.35		99.9	8.85		23	4.0		14.0	5.00		13.5	4.85	
Bray Extractable K	mg/kg	3	454.0	50.0		474	50.0		234	11.0		94	0.2		118.0	5.00	
K- Olsen/Bicarb.	mg/kg	7	375.0	37.0		396	29.00		235	13.0		89	14.0		99	12.5	
K Modified Morgan	mg/kg	1	409.0	0.0		665	0.0		361	0.0		92	0.0		102	0.0	
K True Morgan	mg/kg	5	375.0	20.0		312	10.00		169	6.0		70	1.0		87.0	2.00	
Ca Modified Morgan	mg/kg	2	484.0	31		14363	1232.0		4616	141.5		403	13.0		463	38.0	
Aluminum KCL Extr.	mg/kg	4	0.9	0.588		0.17	0.115		0.125	0.075		51.56	3.91		2	1.3	

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

2 - Limits not compared to lab data for methods with < 7 labs reporting



2010 North American Proficiency Testing Program 3rd Quarter Report - Oct 15, 2010

Laboratory ID
General

Soil Analysis	Units	n	Soil 2010-111			Soil 2010-112			Soil 2010-113			Soil 2010-114			Soil 2010-115		
			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}
Mehlich-1 Multi Element (scoop)																	
Scoop Soil Mass	g	6	5.0	0.000		5.00	0.000		5.00	0.000		5.00	0.000		5.00	0.000	
P	mg/kg	6	16.7	0.9		11.7	2.62		24	2.7		59.0	5.5		63.8	2.08	
K	mg/kg	6	413.5	23.5		208	2.5		159	6.3		81	5.8		96.3	3.99	
Ca	mg/kg	6	641.5	51		5068	402.7		3169	135		482	34.4		672	59.6	
Mg	mg/kg	6	139.0	8.7		251	11.99		527	27.5		53	4.16		99	4.6	
Mn	mg/kg	6	28.1	1.10		2.1	0.44		28.2	1.44		47.8	1.79		83.9	3.58	
Zn	mg/kg	6	7.7	0.215		0.07	0.049		1.8	0.30		2.28	0.112		4.53	0.264	
Mehlich-3 Multi-Element (scoop)																	
Scoop Soil Mass	g	27	2.5	0.310		2.33	0.250		2.15	0.158		2.42	0.250		2.42	0.250	
Assumed Density	g/cm ³	18	1.2	0.033		1.18	0.043		1.18	0.030		1.18	0.028		1.18	0.015	
Volume of Scoop	cm ³	29	2.0	0.300		2.00	0.300		2.00	0.300		2.00	0.300		2.00	0.300	
Extractant Volume mL	mL	29	20.0	0.000		20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00	
P Colorimetric	mg/kg	22	33.5	3.25		52.0	3.90		44.3	4.14		174.5	31.00		166.0	19.85	
P ICP-AES	mg/kg	44	44.9	4.24		54.6	3.73		48.0	3.00		216.0	12.00		192.4	10.62	
K	mg/kg	51	464.0	50.0		727	56.7		361	28.5		100	8.3		122	12.1	
Ca	mg/kg	48	658.0	67		6463	609.0		4493	404		470	62.3		675	82.8	
Mg	mg/kg	47	154.0	14.0		451	25.8		754	54.0		59	8.2		110	11.9	
Na	mg/kg	36	58.5	6.42		110.9	8.89		24	6.7		14.4	7.02		14.4	6.90	
S	mg/kg	35	48.0	6.00		70.4	8.00		14	2.1		36.4	4.37		20.9	3.46	
Al	mg/kg	26	405.5	49.5		263	75.0		759	71.0		1319	127.5		1020	83.5	
Zn	mg/kg	42	8.2	0.775		2.99	0.294		3.0	0.30		2.72	0.274		5.86	0.595	
Mn	mg/kg	41	27.7	3.1		138.3	11.66		76.0	5.75		50.1	4.90		124.4	9.63	
Fe	mg/kg	38	425.0	52.20		46	6.6		130	13.5		335	32.7		307	31.1	
Cu	mg/kg	42	1.0	0.172		2.700	0.246		3.0	0.23		0.81	0.135		4.00	0.410	
B	mg/kg	33	0.7	0.220		2.300	0.243		1.10	0.140		0.610	0.160		0.495	0.195	

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

2 - Limits not compared to lab data for methods with < 7 labs reporting



**2010 North American Proficiency Testing Program
3rd Quarter Report - Oct 15, 2010**

**Laboratory ID
General**

Soil Analysis	Units	n	Soil 2010-111			Soil 2010-112			Soil 2010-113			Soil 2010-114			Soil 2010-115		
			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}
Micronutrients																	
Zn - DTPA	mg/kg	76	5.5	0.430		1.17	0.130		1.75	0.135		1.85	0.250		3.17	0.310	
Mn - DTPA	mg/kg	60	21.5	2.03		7.1	1.07		21.09	2.01		42.5	3.44		62.8	4.74	
Fe - DTPA	mg/kg	63	150.0	27.000		4	0.7		23.7	2.80		158.6	22.9		49.1	9.40	
Cu - DTPA	mg/kg	65	0.5	0.085		1.200	0.120		2.10	0.230		0.57	0.088		1.80	0.200	
Soil Organic Matter																	
Zn - HCl	mg/kg	5	7.5	0.680		2.20	0.860		3.2	0.35		2.71	0.010		4.50	0.110	
Mn-H3PO4	mg/kg	10	22.1	1.46		3.9	0.82		16.4	2.72		39.1	2.93		72.2	5.55	
Cl - Ca(NO3)2 Extr.	mg/kg	14	141.5	15.00		36	3.6		3.0	0.87		5.87	0.90		36.00	4.05	
B - Hot Wat.	mg/kg	38	0.4	0.157		1.070	0.390		0.514	0.211		0.580	0.200		0.220	0.080	
B-DTPA/Sorbitol	mg/kg	13	0.3	0.141		1.510	0.100		0.461	0.057		0.370	0.123		0.140	0.080	
Soil Kjeldahl N	%	18	0.1	0.009		0.070	0.005		0.169	0.009		0.144	0.013		0.101	0.006	
Soil TN (combustion)	%	36	0.1	0.008		0.075	0.012		0.180	0.012		0.160	0.015		0.105	0.011	
Soil TOC (Combustion)	%	9	1.3	0.120		0.65	0.115		1.850	0.030		2.030	0.120		1.14	0.055	
Soil Total C (Combustion)	%	27	1.3	0.066		1.01	0.030		1.892	0.058		2.120	0.090		1.21	0.165	
SOM - Walkley-Black	%	42	2.5	0.238		1.10	0.100		2.940	0.198		3.60	0.300		2.21	0.195	
SOM - LOI (% Wt loss)	%	74	2.4	0.108		1.43	0.180		4.080	0.280		3.88	0.210		2.24	0.080	
CaCO3 Content	%	16	0.2	0.070		3.996	0.296		0.700	0.500		0.100	0.100		0.170	0.170	
CEC - Cation Displacement	cmol/kg	21	6.6	1.23		17.79	2.347		30.19	4.610		10.20	1.400		7.8	0.89	
CEC - Estimation	cmol/kg	15	6.8	1.60		30.80	4.50		29.6	1.95		12.15	3.480		8.6	1.75	
Soil Density (Scoop)	g/cc	13	1.4	0.040		1.30	0.040		1.20	0.046		1.36	0.040		1.39	0.067	
Particle Size Analysis																	
Sand 2000 - 50 um	%	47	73.0	3.00		55.0	2.93		14.0	3.04		77.5	2.70		67.4	2.57	
Silt 50 - 2 um	%	47	19.0	2.90		19.4	3.54		46.8	4.80		15.8	2.20		23.8	2.25	
Clay 2 - 0 um	%	47	7.0	2.00		26.20	2.80		38.00	3.00		5.60	1.60		8.6	1.90	

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

2 - Limits not compared to lab data for methods with < 7 labs reporting