



2006 North American Proficiency Testing Program 3rd Quarter Report - November 15, 2006

Laboratory ID

Soil Analysis	Units	n	Soil 2006-111			Soil 2006-112			Soil 2006-113			Soil 2006-114			Soil 2006-115		
			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	%	34	29.0	2.00		36.7	2.94		36.1	2.91		38.7	2.70		49.5	3.08	
pH - sp	Unit	42	4.12	0.130		7.94	0.140		7.71	0.110		5.99	0.130		7.96	0.095	
ECe - sp	dS/m	42	0.33	0.045		0.38	0.040		0.35	0.055		0.30	0.040		3.45	0.350	
HCO ₃ - sp	mmolc/L	13	0.20	0.184		3.11	0.470		2.56	0.538		1.00	0.377		6.29	1.26	
Ca - sp	mmolc/L	38	0.45	0.110		2.41	0.380		1.58	0.318		1.49	0.285		3.55	0.620	
Mg - sp	mmolc/L	38	0.50	0.085		1.30	0.195		0.99	0.165		0.42	0.057		2.70	0.500	
Na - sp	mmolc/L	38	1.53	0.225		0.65	0.160		0.65	0.172		0.28	0.151		23.5	3.28	
SAR - sp	value	32	2.26	0.277		0.41	0.076		0.50	0.100		0.26	0.145		13.1	1.14	
Cl - sp	mmolc/L	23	0.76	0.148		0.24	0.107		0.29	0.090		0.36	0.094		11.1	1.20	
SO ₄ - sp	mmolc/L	23	0.39	0.036		0.32	0.060		0.30	0.060		0.37	0.080		5.28	0.602	
NO ₃ - sp	mmolc/L	20	1.04	0.254		0.05	0.050		0.03	0.020		0.39	0.326		7.81	3.71	
B - sp	mg/L	17	0.10	0.029		0.18	0.030		0.14	0.040		0.10	0.020		1.56	0.240	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	31	0.10	0.030		0.22	0.023		0.13	0.020		0.13	0.020		1.20	0.100	
Soil EC (1:2)	(dS/m)	49	0.07	0.013		0.15	0.020		0.09	0.010		0.08	0.006		0.90	0.139	
pH (1:1) Water	Unit	88	4.38	0.080		8.36	0.100		8.00	0.100		6.11	0.090		8.40	0.100	
pH (1:2) Water	Unit	35	4.59	0.110		8.37	0.180		8.07	0.180		6.27	0.090		8.60	0.105	
pH (1:1) 0.01M CaCl ₂	Unit	24	3.41	0.095		7.74	0.105		7.23	0.080		5.47	0.080		7.98	0.080	
pH (1:2) 0.01M CaCl ₂	Unit	16	3.44	0.080		7.73	0.100		7.27	0.080		5.46	0.080		7.95	0.090	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	67	6.55	0.150		7.50	0.050		7.49	0.050		6.74	0.065		7.56	0.060	
Adams-Evans Buf pH	Unit	11	7.61	0.050		7.80	0.050		7.86	0.050		7.56	0.050		7.83	0.050	
Woodruff Buf. pH	Unit	25	6.30	0.100		7.14	0.050		7.06	0.050		6.60	0.080		7.19	0.050	
Mehlich Buffer pH	Unit	7	5.85	0.080		6.88	0.050		6.63	0.050		6.13	0.050		6.97	0.050	
Titrateable Acidity	cmol/kg	3	4.20	0.330		0.05	0.000		1.71	0.000		8.16	0.625		0.54	0.000	

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Inorganic Nitrogen (NO3-N & NH4-N)																	
NO3-N Cd. Rd.	mg/kg	64	5.72	0.780		3.22	0.320		1.00	0.400		8.10	0.560		80.1	7.40	
NO3-N ISE	mg/kg	25	7.05	1.24		5.59	2.22		2.10	0.850		8.00	1.06		83.8	15.3	
NO3-N CTA	mg/kg	5	6.00	0.500		4.25	0.750		1.50	0.500		9.88	1.52		85.1	5.06	
NO3-N Ion Chr.	mg/kg	1	5.47	0.015		3.65	0.175		1.17	0.335		8.55	0.550		89.8	5.75	
NO3-N Other _____	mg/kg	7	5.83	1.33		3.02	0.250		1.67	0.870		9.00	1.73		79.1	6.13	
NH4 - N (KCl Extr.)	mg/kg	54	2.89	0.490		2.89	0.515		2.10	0.460		3.30	0.478		8.95	1.15	
Phosphorus and Sulfur																	
PO4-P Bray P (1:10)	mg/kg	57	4.30	1.30		25.0	2.00		27.6	3.30		98.0	9.83		88.0	20.5	
PO4-P Bray P1 (1:7)	mg/kg	10	3.72	1.28		17.3	1.16		20.0	1.09		82.0	5.22		76.0	14.8	
PO4-P Olsen/Bicarb	mg/kg	58	4.99	1.14		10.0	1.00		11.0	1.22		36.9	3.90		94.5	13.2	
PO4-P AB-DTPA	mg/kg	1	3.74	0.00		8.82	0.00		11.4	0.00		29.2	0.00		115	0.00	
PO4-P M. Morgan	mg/kg	6	2.95	0.080		23.7	1.55		19.2	1.29		10.0	0.600		210	29.9	
PO4-P Mod. Kewlona	mg/kg	2	5.05	2.46		22.0	2.97		21.0	1.55		71.2	3.20		179	13.0	
PO4-P Stong Bray (1:10)	mg/kg	11	5.00	1.00		278	45.0		234	42.0		172	17.0		364	54.0	
PO4-P Water Soluble	mg/kg	5	2.98	0.900		3.29	1.97		6.47	1.43		7.52	2.52		27.3	9.41	
SO4 - S (PO4 Extr.)	mg/kg	42	3.03	1.525		4.29	1.69		4.10	1.60		4.50	1.68		42.0	7.50	
Bases																	
K Ammonium Acetate	mg/kg	94	17.1	5.05		252	18.4		539	26.8		322	17.8		5540	1080	
Ca Ammonium Acetate	mg/kg	87	148	41.0		4184	451		1450	99.7		1581	102		3735	575	
Mg Ammonium Acetate	mg/kg	88	44.9	8.04		625	51.0		354	24.0		141	11.0		614	60.4	
Na Ammonium Acetate	mg/kg	69	27.6	6.54		29.0	7.00		23.9	5.00		12.0	4.07		1396	187	
Bray Extractable K	mg/kg	2	15.2	4.85		180	5.00		476	11.5		256	21.0		1848	420	
K- Bicarb.	mg/kg	7	18.0	6.30		150	5.00		460	16.0		345	30.0		4010	240	
K Modified Morgan	mg/kg	5	14.5	1.50		116	6.00		378	25.0		256	6.00		3150	110	
Ca Modified Morgan	mg/kg	2	128	15.5		11241	344		1442	150		1545	126		19267	434	
Aluminum KCL Extr.	mg/kg	7	7.00	2.70		0.35	0.35		0.11	0.11		0.46	0.46		0.19	0.19	

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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	4.00	1.42		39.3	1.32		213	26.2		80.0	11.4		99.0	8.98	
K	mg/kg	7	15.7	2.68		60.1	7.15		401	31.2		222	17.0		785	117	
Ca	mg/kg	7	193	29.6		5018	398		1715	118		1599	34.2		4680	466	
Mg	mg/kg	7	50.2	4.56		649	75.1		377	21.2		141	16.8		477	10.8	
Mn	mg/kg	5	0.61	0.323		3.37	0.580		17.6	1.66		35.3	3.74		1.57	0.376	
Zn	mg/kg	6	0.59	0.280		0.06	0.042		4.23	0.348		3.13	0.245		0.10	0.102	
Mehlich-3 Multi-Element (scoop)																	
Scoop Soil Mass	g	31	2.54	0.214		2.01	0.275		2.29	0.215		2.00	0.198		1.83	0.225	
Assumed Density	g/cm ³	18	1.18	0.041		1.18	0.005		1.18	0.023		1.18	0.008		1.18	0.060	
Volume of Scoop	cm ³	34	2.00	0.500		2.00	0.500		2.00	0.500		2.00	0.500		2.00	0.500	
Extractant Volume mL	mL	34	20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00		20.0	0.00	
P Colorimetric	mg/kg	27	4.00	1.00		38.3	4.25		48.3	2.73		101	10.8		224	37.4	
P ICP-AES	mg/kg	45	5.00	1.00		39.7	2.49		48.4	4.05		128	6.74		242	19.0	
K	mg/kg	55	15.9	4.10		276	19.7		558	45.6		335	20.6		5334	702	
Ca	mg/kg	52	208	34.0		5619	436		1678	133		1760	143		5848	541	
Mg	mg/kg	52	52.2	8.27		874	65.0		434	30.2		155	11.0		892	95.6	
Na	mg/kg	39	25.0	5.80		28.0	4.50		24.0	5.00		11.0	4.80		1378	249	
S	mg/kg	36	5.70	2.64		13.9	4.08		9.50	2.65		14.2	2.45		63.1	8.90	
Al	mg/kg	26	57.4	7.96		357	80.5		482	33.9		782	100		249	59.1	
Zn	mg/kg	43	0.50	0.106		4.30	0.649		5.99	0.760		4.26	0.600		6.01	0.660	
Mn	mg/kg	37	0.59	0.305		243	18.9		55.6	5.40		82.0	11.0		171	17.0	
Fe	mg/kg	39	38.9	6.56		87.0	11.0		105	15.0		176	20.7		45.6	7.60	
Cu	mg/kg	41	0.27	0.138		4.45	0.554		2.58	0.328		2.09	0.298		2.80	0.483	
B	mg/kg	33	0.24	0.160		3.03	0.413		0.87	0.170		0.45	0.112		10.1	1.21	

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Micronutrients																	
Zn - DTPA	mg/kg	74	0.31	0.065		1.19	0.095		2.29	0.183		2.40	0.195		2.02	0.175	
Mn - DTPA	mg/kg	61	0.34	0.128		10.0	1.98		3.11	0.548		21.9	2.36		10.1	2.44	
Fe - DTPA	mg/kg	64	28.3	3.11		7.76	0.880		9.64	1.26		42.0	5.24		4.50	0.500	
Cu - DTPA	mg/kg	61	0.12	0.047		1.60	0.124		0.92	0.087		1.01	0.114		1.41	0.149	
Zn - HCl	mg/kg	4	0.43	0.070		0.17	0.060		5.72	0.595		3.90	0.445		0.86	0.445	
Mn-H3PO4	mg/kg	8	0.35	0.150		5.58	0.965		8.18	0.527		27.7	0.590		2.44	0.375	
Cl - Ca(NO3)2 Extr.	mg/kg	18	8.15	1.65		2.90	1.10		3.00	1.00		3.61	1.31		174	11.5	
B - Hot Wat.	mg/kg	48	0.20	0.100		0.90	0.320		0.49	0.160		0.49	0.110		4.38	1.22	
B-DTPA/Sorbitol	mg/kg	10	0.10	0.030		1.32	0.172		0.38	0.045		0.19	0.035		6.47	0.590	
Soil Organic Matter																	
Soil Kjeldahl N	%	25	0.04	0.008		0.13	0.011		0.05	0.008		0.17	0.009		0.18	0.013	
Soil TN (combustion)	%	37	0.05	0.006		0.13	0.009		0.06	0.006		0.17	0.009		0.20	0.010	
Soil TOC (Combustion)	%	30	1.02	0.076		5.24	0.154		0.52	0.030		2.18	0.096		2.73	0.081	
SOM - Walkley-Black	%	43	2.03	0.240		2.19	0.210		1.00	0.105		3.64	0.360		3.24	0.400	
SOM - LOI (% Wt loss)	%	77	1.66	0.140		2.54	0.156		1.41	0.110		3.80	0.200		4.08	0.266	
CaCO3 Content	%	10	0.16	0.144		18.2	11.8		0.70	0.330		0.50	0.186		6.88	1.48	
CEC - Cation Displacement	cmol/kg	22	3.00	1.00		19.2	2.42		11.1	0.632		14.4	1.07		36.4	4.01	
CEC - Estimation	cmol/kg	17	3.70	2.50		27.4	5.40		12.2	1.90		11.7	2.28		46.7	10.3	
Soil Density (Scoop)	g/cc	11	1.40	0.100		1.08	0.03		1.26	0.066		1.12	0.070		0.96	0.040	
Particle Size Analysis																	
Sand 2000 - 50 um	%	45	94.0	3.00		18.0	4.00		55.4	3.15		48.9	2.90		24.0	4.00	
Silt 50 - 2 um	%	45	3.0	1.80		54.0	5.00		38.0	3.60		35.0	2.61		53.0	5.00	
Clay 2 - 0 um	%	43	2.0	1.37		25.0	3.00		6.0	1.50		15.9	2.30		23.0	3.92	

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