



2011 North American Proficiency Testing Program
3rd Quarter Report - November 7, 2011

Laboratory ID
General

Soil Analysis	Units	n	Soil 2011-111			Soil 2011-112			Soil 2011-113			Soil 2011-114 *			Soil 2011-115		
			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	%	31	22.4	1.60		49.1	3.40		30.2	2.00					55.5	3.70	
pH - sp	Unit	40	6.33	0.160		5.37	0.120		5.76	0.090					7.64	0.060	
ECe - sp	dS/m	41	0.530	0.070		0.590	0.070		1.60	0.130					1.80	0.135	
HCO ₃ - sp	mmol/L	16	0.97	0.097		1.71	0.171		0.719	0.072					9.11	2.01	
Ca - sp	mmol/L	35	2.85	0.410		2.70	0.580		6.09	0.390					5.55	0.425	
Mg - sp	mmol/L	35	1.32	0.140		0.79	0.200		4.20	0.420					4.90	0.495	
Na - sp	mmol/L	35	0.652	0.065		2.57	0.270		3.15	0.280					2.40	0.200	
SAR - sp	value	33	0.400	0.040		1.96	0.135		1.36	0.075					1.03	0.070	
Cl - sp	mmol/L	25	0.250	0.081		2.25	0.290		1.22	0.100					1.39	0.200	
SO ₄ - sp	mmol/L	25	0.802	0.132		0.94	0.180		2.17	0.200					2.66	0.340	
NO ₃ - sp	mmol/L	17	2.59	0.650		0.024	0.002		9.56	1.88					3.11	0.311	
B - sp	mg/L	14	0.075	0.016		0.060	0.010		0.220	0.030					0.362	0.042	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	38	0.150	0.030		0.312	0.052		0.490	0.090					0.950	0.100	
Soil EC (1:2)	(dS/m)	55	0.086	0.014		0.160	0.023		0.318	0.043					0.640	0.050	
pH (1:1) Water	Unit	86	6.54	0.095		5.66	0.060		5.93	0.070					7.86	0.070	
pH (1:2) Water	Unit	35	6.71	0.170		5.84	0.150		6.09	0.100					8.00	0.140	
pH (1:1) 0.01M CaCl ₂	Unit	22	5.97	0.045		5.11	0.060		5.60	0.050					7.60	0.095	
pH (1:2) 0.01M CaCl ₂	Unit	13	6.14	0.210		5.23	0.130		5.64	0.080					7.59	0.110	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	44	7.32	0.065		6.76	0.100		7.13	0.060					7.50	0.050	
Adams-Evans Buf pH	Unit	10	7.85	0.030		7.49	0.110		7.75	0.050					7.72	0.030	
Woodruff Buf. pH	Unit	21	6.93	0.040		6.58	0.075		6.80	0.040					7.19	0.035	
Mehlich Buffer pH	Unit	8	6.47	0.050		6.02	0.060		6.31	0.047					6.91	0.020	
Sikora Buffer pH	Unit	19	7.30	0.080		6.72	0.035		7.10	0.050					7.50	0.040	
Titrateable Acidity	cmol/kg																

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Inorganic Nitrogen (NO3-N & NH4-N)

NO3-N Cd. Rd.	mg/kg	60	11.1	1.16	0.500	0.050	52.5	3.80						
NO3-N ISE	mg/kg	16	12.0	2.27	2.35	0.24	50.1	7.40						
NO3-N CTA	mg/kg	4	12.6	1.74	3.26	0.326	53.0	8.49						
NO3-N Ion Chr.	mg/kg	3	9.06	0.898	0.000	0.000	47.2	9.11						
NO3-N Other _____	mg/kg	11	11.4	0.890	1.00	0.010	53.0	1.80						
NH4 - N (KCl Extr.)	mg/kg	52	1.91	0.501	11.6	1.37	2.39	0.440						

Phosphorus and Sulfur

PO4-P Bray P (1:10)	mg/kg	47	15.0	2.50	8.00	1.05	49.0	4.70						
PO4-P Bray P1 (1:7)	mg/kg	8	12.7	1.85	7.90	1.24	39.7	4.75						
PO4-P Olsen/Bicarb	mg/kg	58	6.00	1.30	5.08	1.08	26.9	3.10						
PO4-P AB-DTPA	mg/kg	1	2.65	0.000	0.750	0.000	14.9	0.000						
PO4-P Modified Morgan	mg/kg	3	1.70	0.170	1.10	0.100	7.70	0.700						
PO4-P True Morgan	mg/kg	7	2.00	0.020	1.30	0.300	10.1	1.05						
PO4-P Mod. Kewlona	mg/kg	4	6.30	1.40	4.51	1.15	25.3	3.00						
PO4-P Stong Bray (1:10)	mg/kg	9	22.1	2.10	10.0	1.30	331	38.0						
PO4-P Water Soluble	mg/kg	2	2.01	0.201	3.36	0.080	3.97	0.397						
SO4 - S (PO4 Extr.)	mg/kg	34	5.50	1.25	8.08	1.72	14.4	2.60						

Bases

K Ammonium Acetate	mg/kg	77	93.0	11.7	85.4	5.56	335	27.1						
Ca Ammonium Acetate	mg/kg	74	678	87.5	2830	181	1030	121						
Mg Ammonium Acetate	mg/kg	74	122	16.7	343	19.5	274	27.9						
Na Ammonium Acetate	mg/kg	62	16.9	1.69	117	7.25	59.2	8.21						
Bray Extractable K	mg/kg	4	89.0	6.41	57.5	0.320	306	13.0						
K- Olsen/Bicarb.	mg/kg	6	79.8	7.55	59.1	10.7	277	20.5						
K Modified Morgan	mg/kg	2	81.2	0.150	85.2	2.80	294	13.5						
K True Morgan	mg/kg	6	77.9	10.8	61.9	7.65	237	4.50						
Ca Modified Morgan	mg/kg	3	605	15.0	2840	80.0	830	21.0						
Aluminum KCL Extr.	mg/kg	4	0.965	0.097	0.915	0.085	1.34	0.134						

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Mehlich-1 Multi Element (scoop)										E D N O R E S U L T S R E		
Scoop Soil Mass	g	5	5.00	0.000	5.00	0.000	5.00	0.000			5.00	0.000
P	mg/kg	5	10.6	1.38	5.33	0.600	249	4.85			305	4.52
K	mg/kg	5	67.2	5.73	44.7	0.377	235	3.97			1110	31.8
Ca	mg/kg	5	622	77.0	1840	19.9	1320	70.5			3690	349
Mg	mg/kg	5	115	7.17	255	5.80	246	1.77			818	57.9
Mn	mg/kg	5	19.3	1.68	35.2	1.27	21.6	0.820			17.9	0.458
Zn	mg/kg	5	6.42	0.150	1.52	0.063	2.74	0.020			0.321	0.032
Mehlich-3 Multi-Element (scoop)												
Scoop Soil Mass	g	29	2.50	0.120	2.00	0.110	2.50	0.150		2.00	0.110	
Assumed Density	g/cm3	17	1.25	0.065	1.18	0.040	1.22	0.085		1.18	0.085	
Volume of Scoop	cm3	26	2.00	0.300	2.00	0.300	2.00	0.300		2.00	0.300	
Extractant Volume mL	mL	33	20.0	0.000	20.0	0.000	20.0	0.000		20.0	0.000	
P Colorimetric	mg/kg	24	15.0	1.00	8.0	1.00	59.0	5.20		219	15.0	
P ICP-AES	mg/kg	51	15.9	2.58	13.6	1.52	63.0	5.00		252	18.0	
K	mg/kg	57	105	13.7	85.0	7.00	381	45.3		2280	162	
Ca	mg/kg	54	768	108	2880	232	1120	137		4720	288	
Mg	mg/kg	54	148	20.9	359	28.6	326	26.1		1110	67.1	
Na	mg/kg	40	18.7	1.87	128	14.2	63.5	7.50		91.4	11.6	
S	mg/kg	42	7.89	1.67	15.9	1.93	19.9	1.86		37.8	3.74	
Al	mg/kg	29	504	75.5	680	70.0	384	72.5		421	52.3	
Zn	mg/kg	46	8.27	1.04	2.72	0.460	3.71	0.390		9.00	0.600	
Mn	mg/kg	45	58.2	6.55	51.0	3.38	46.8	4.08		202	17.0	
Fe	mg/kg	43	121	9.85	193	13.7	216	21.0		82.9	11.8	
Cu	mg/kg	46	3.42	0.325	1.80	0.195	1.30	0.200		5.85	0.560	
B	mg/kg	37	0.300	0.100	0.600	0.151	0.505	0.051		4.62	0.480	

Micronutrients										
Zn - DTPA	mg/kg	73	4.11	0.430	2.00	0.205	1.90	0.203	3.62	0.245
Mn - DTPA	mg/kg	57	13.3	1.37	41.7	2.30	13.1	1.20	22.2	2.48
Fe - DTPA	mg/kg	60	14.5	1.62	66.0	6.84	56.4	5.89	9.10	1.24
Cu - DTPA	mg/kg	61	1.65	0.180	1.40	0.110	1.00	0.105	2.94	0.270
Zn - HCl	mg/kg	4	7.05	0.300	1.95	0.145	3.91	0.225	7.56	0.265
Mn-H3PO4	mg/kg	10	17.0	1.79	26.3	1.50	14.8	0.700	18.9	1.89
Cl - Ca(NO3)2 Extr.	mg/kg	15	2.21	0.221	35.2	3.38	15.2	2.20	26.6	3.25
B - Hot Wat.	mg/kg	42	0.185	0.065	0.580	0.145	0.359	0.081	2.03	0.450
B-DTPA/Sorbitol	mg/kg	13	0.110	0.020	0.210	0.059	0.230	0.060	2.47	0.190
Soil Organic Matter										
Soil Kjeldahl N	%	20	0.031	0.006	0.130	0.010	0.060	0.005	0.223	0.023
Soil TN (combustion)	%	43	0.031	0.009	0.137	0.010	0.062	0.008	0.240	0.010
Soil TOC (Combustion)	%	11	0.277	0.047	1.65	0.090	0.490	0.030	2.41	0.290
Soil Total C (Combustion)	%	34	0.250	0.030	1.63	0.053	0.490	0.020	2.59	0.110
SOM - Walkley-Black	%	41	0.460	0.046	2.76	0.160	0.920	0.115	3.80	0.270
SOM - LOI (% Wt loss)	%	74	0.695	0.095	3.50	0.200	1.30	0.130	4.27	0.265
Other										
CaCO3 Content	%	16	0.240	0.024	0.333	0.033	0.480	0.048	3.56	0.356
CEC - Cation Displacement	cmol/kg	24	5.31	1.03	21.5	2.00	8.89	0.910	26.0	4.12
CEC - Estimation	cmol/kg	19	5.10	0.730	20.3	2.11	9.50	1.45	31.6	3.10
Soil Density (Scoop)	g/cc	13	1.52	0.030	1.21	0.045	1.50	0.032	1.21	0.064
Particle Size Analysis-Hydrometer										
Sand 2000 - 50 um	%	44	78.0	2.08	29.0	3.72	76.4	2.30	20.0	5.00
Silt 50 - 2 um	%	44	12.7	1.39	41.7	3.10	17.4	2.60	55.0	4.39
Clay 2 - 0 um	%	44	8.80	1.20	29.4	1.90	6.00	1.50	26.0	3.40
Particle Size Analysis- Pipette										
Sand 2000 - 50 um	%	5	78.0	1.40	27.4	0.650	81.2	1.48	13.4	0.620
Silt 50 - 2 um	%	5	13.0	0.700	45.3	2.86	12.4	1.24	61.1	3.21
Clay 2 - 0 um	%	5	7.99	1.20	27.1	1.59	5.86	0.550	24.9	3.48

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