2008 North American Proficiency Testing Program
2nd Quarter Report - July 5, 2008

Laboratory ID

Soil			Soil 2008-106			Soil 2008-107			Soil 2008-108			Soil 2008-109			Soil 2008-110		
Analysis	**Units**	***n***	**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	**23.2**	*1.31*		**39.4**	*3.00*		**49.5**	*3.50*		**29.5**	*2.32*		**43.0**	*3.70*	
pH - sp	Unit	32	**5.35**	*0.17*		**5.85**	*0.06*		**7.32**	*0.12*		**7.97**	*0.13*		**7.40**	*0.10*	
ECe - sp	dS/m	33	**0.23**	*0.05*		**2.20**	*0.14*		**0.85**	*0.10*		**0.54**	*0.06*		**0.78**	*0.06*	
HCO3 - sp	mmolc/L	10	**0.61**	*0.20*		**0.80**	*0.25*		**4.75**	*2.07*		**5.09**	*1.40*		**2.94**	*0.87*	
Ca - sp	mmolc/L	26	**1.12**	*0.31*		**13.3**	*1.40*		**6.06**	*0.91*		**4.37**	*0.64*		**5.04**	*0.50*	
Mg - sp	mmolc/L	26	**0.50**	*0.14*		**5.06**	*0.77*		**1.38**	*0.17*		**1.63**	*0.35*		**1.97**	*0.22*	
Na - sp	mmolc/L	26	**0.54**	*0.26*		**0.74**	*0.18*		**0.81**	*0.19*		**1.24**	*0.23*		**1.13**	*0.18*	
SAR - sp	value	23	**0.45**	*0.22*		**0.22**	*0.03*		**0.35**	*0.06*		**0.71**	*0.09*		**0.58**	*0.08*	
Cl - sp	mmolc/L	14	**0.57**	*0.23*		**0.59**	*0.13*		**1.56**	*0.12*		**0.51**	*0.15*		**1.01**	*0.13*	
SO4 - sp	mmolc/L	17	**0.41**	*0.11*		**2.31**	*0.23*		**2.15**	*0.31*		**0.63**	*0.20*		**0.75**	*0.09*	
NO_3 - sp	mmolc/L	15	**0.56**	*0.43*		**13.4**	*8.64*		**0.22**	*0.20*		**0.25**	*0.24*		**2.50**	*1.36*	
B - sp	mg/L	13	**0.07**	*0.03*		**0.16**	*0.03*		**0.71**	*0.08*		**0.12**	*0.04*		**0.07**	*0.03*	
Soil pH & EC																	
Soil EC (1:1)	(dS/m)	24	**0.08**	*0.01*		**0.76**	*0.08*		**0.30**	*0.03*		**0.19**	*0.03*		**0.37**	*0.03*	
Soil EC (1:2)	(dS/m)	44	**0.05**	*0.01*		**0.51**	*0.04*		**0.22**	*0.03*		**0.15**	*0.02*		**0.22**	*0.02*	
pH (1:1) Water	Unit	71	**5.54**	*0.10*		**6.05**	*0.05*		**7.40**	*0.10*		**8.21**	*0.10*		**7.58**	*0.09*	
pH (1:2) Water	Unit	26	**5.70**	*0.10*		**6.11**	*0.11*		**7.48**	*0.08*		**8.38**	*0.12*		**7.60**	*0.10*	
pH (1:1) 0.01M CaCl2	Unit	23	**4.87**	*0.07*		**5.80**	*0.08*		**7.00**	*0.10*		**7.70**	*0.09*		**7.24**	*0.06*	
pH (1:2) 0.01M CaCl2	Unit	12	**4.88**	*0.06*		**5.81**	*0.06*		**6.94**	*0.05*		**7.59**	*0.13*		**7.19**	*0.04*	
Buffer pH, Lime Req.																	
SMP Buffer pH	Unit	57	**6.59**	*0.10*		**6.96**	*0.06*		**7.30**	*0.04*		**7.52**	*0.05*		**7.40**	*0.05*	
Adams-Evans Buf pH	Unit	11	**7.45**	*0.06*		**7.53**	*0.06*		**7.81**	*0.02*		**7.90**	*0.03*		**7.73**	*0.03*	
Woodruff Buf. pH	Unit	25	**6.49**	*0.09*		**6.74**	*0.05*		**7.00**	*0.05*		**7.11**	*0.05*		**7.03**	*0.06*	
Mehlich Buffer pH	Unit	3	**6.00**	*0.00*		**6.21**	*0.01*		**6.69**	*0.00*		**6.88**	*0.00*		**6.73**	*0.00*	
Titratable Acidity	cmol/kg	1	**7.58**	*0.00*		**5.73**	*0.00*										

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Laboratory ID

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Analysis	**Units**	***n***	**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	56	**5.00**	*0.55*		**93.6**	*4.45*		**10.4**	*0.62*		**8.02**	*0.89*		**26.3**	*1.44*	
NO3-N ISE	mg/kg	14	**5.30**	*1.97*		**80.6**	*9.13*		**9.8**	*1.96*		**10.0**	*1.82*		**24.0**	*2.13*	
NO3-N CTA	mg/kg	3	**5.38**	*0.33*		**94.9**	*6.15*		**12.5**	*1.23*		**7.25**	*0.35*		**25.9**	*1.86*	
NO3-N Ion Chr.	mg/kg	2	**22.7**	*16.87*		**76.3**	*24.1*		**18.0**	*8.99*		**11.6**	*4.87*		**26.7**	*3.11*	
NO3-N Other _____	mg/kg	12	**4.96**	*0.78*		**91.9**	*8.80*		**10.9**	*0.53*		**7.78**	*1.08*		**25.9**	*1.02*	
NH4 - N (KCl Extr.)	mg/kg	45	**2.63**	*0.76*		**46.8**	*3.62*		**37.6**	*2.45*		**1.95**	*0.48*		**3.44**	*0.53*	
Phosphorus and Sulfur																	
PO4-P Bray P (1:10)	mg/kg	50	**114**	*11.0*		**62.7**	*4.50*		**194**	*20.0*		**52.0**	*7.57*		**27.2**	*1.80*	
PO4-P Bray P1 (1:7)	mg/kg	7	**94.0**	*6.4*		**56.7**	*3.50*		**152**	*13.3*		**41.8**	*8.25*		**22.5**	*2.53*	
PO4-P Olsen/Bicarb	mg/kg	48	**45.9**	*3.58*		**30.1**	*2.05*		**80.9**	*8.90*		**26.0**	*2.33*		**12.6**	*1.28*	
PO4-P AB-DTPA	mg/kg	3	**5.20**	*0.60*		**13.6**	*1.50*		**13.3**	*10.8*		**20.5**	*18.4*		**25.0**	*18.0*	
PO4-P Modified Morgan	mg/kg	3	**4.80**	*0.80*		**10.0**	*1.30*		**103**	*25.1*		**67.2**	*15.9*		**24.0**	*5.40*	
PO4-P True Morgan	mg/kg	3	**4.50**	*0.50*		**14.4**	*0.40*		**127**	*2.60*		**68.9**	*4.50*		**22.2**	*4.80*	
PO4-P Mod. Kewlona	mg/kg	4	**66.5**	*1.01*		**44.6**	*1.62*		**148**	*1.90*		**62.0**	*10.5*		**19.5**	*2.17*	
PO4-P Stong Bray (1:10)	mg/kg	8	**184**	*9.8*		**264**	*12.0*		**525**	*161*		**243**	*26.0*		**356**	*57.3*	
PO4-P Water Soluble	mg/kg	6	**4.41**	*2.96*		**7.17**	*2.84*		**14.2**	*4.50*		**8.02**	*1.69*		**4.65**	*1.79*	
SO4 - S (PO4 Extr.)	mg/kg	33	**4.00**	*1.97*		**19.0**	*3.40*		**19.0**	*3.96*		**4.00**	*1.50*		**6.19**	*2.01*	
Bases																	
K Ammonium Acetate	mg/kg	75	**114**	*11.0*		**760**	*35.0*		**313**	*31.0*		**225**	*15.0*		**191**	*9.2*	
Ca Ammonium Acetate	mg/kg	72	**645**	*84.5*		**2378**	*128*		**1892**	*257*		**3717**	*380*		**2885**	*170*	
Mg Ammonium Acetate	mg/kg	72	**127**	*11.5*		**375**	*18.5*		**146**	*18.0*		**286**	*17.0*		**429**	*19.9*	
Na Ammonium Acetate	mg/kg	54	**14.5**	*5.50*		**22.0**	*4.84*		**23.0**	*5.99*		**38.9**	*8.79*		**46.0**	*10.0*	
Bray Extractable K	mg/kg	3	**100**	*3.0*		**511**	*7.3*		**267**	*18.0*		**172**	*16.7*		**142**	*15.0*	
K- Olsen/Bicarb.	mg/kg	6	**98.5**	*6.35*		**505**	*9.0*		**322**	*7.6*		**145**	*20.0*		**101**	*6.0*	
K Modified Morgan	mg/kg	2	**97.8**	*15.30*		**571**	*152*		**310**	*5.4*		**163**	*42.7*		**131**	*47.8*	
K True Morgan	mg/kg	4	**76.0**	*6.50*		**384**	*15.5*		**272**	*7.4*		**121**	*8.0*		**77.0**	*7.50*	
Ca Modified Morgan	mg/kg	2	**564**	*68.0*		**2140**	*129*		**2499**	*93.2*		**8902**	*862*		**2855**	*265*	
Aluminum KCL Extr.	mg/kg	6	**17.9**	*10.7*		**1.10**	*1.10*		**0.34**	*0.34*		**0.46**	*0.46*		**0.85**	*0.75*	

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Mehlich-1 Multi Element (scoop)																	
Scoop Soil Mass	g	6	**5.00**	*0.00*		**5.00**	*0.00*		**5.00**	*0.00*		**5.00**	*0.00*		**5.00**	*0.00*	
P	mg/kg	6	**56.7**	*2.49*		**208**	*8.6*		**421**	*33.3*		**58.4**	*1.63*		**319**	*31.7*	
K	mg/kg	6	**81.9**	*4.38*		**402**	*15.2*		**263**	*28.2*		**77.1**	*9.80*		**86.4**	*4.70*	
Ca	mg/kg	6	**634**	*58.0*		**2426**	*26.8*		**3328**	*239*		**5192**	*226*		**3248**	*220*	
Mg	mg/kg	6	**113**	*8.5*		**325**	*11.3*		**184**	*17.0*		**274**	*12.7*		**390**	*21.4*	
Mn	mg/kg	5	**7.49**	*3.20*		**84.3**	*1.58*		**139**	*9.19*		**2.40**	*0.40*		**28.5**	*1.52*	
Zn	mg/kg	5	**2.45**	*0.16*		**1.10**	*0.04*		**13.4**	*0.70*		**0.28**	*0.02*		**2.00**	*0.12*	
Mehlich-3 Mult-Element (scoop)																	
Scoop Soil Mass	g	28	**2.46**	*0.17*		**2.02**	*0.14*		**1.78**	*0.22*		**2.33**	*0.20*		**2.14**	*0.14*	
Assumed Density	g/cm3	16	**1.18**	*0.00*		**1.18**	*0.00*		**1.18**	*0.00*		**1.18**	*0.00*		**1.18**	*0.00*	
Volume of Scoop	cm3	29	**2.00**	*0.30*		**2.00**	*0.30*		**2.00**	*0.30*		**2.00**	*0.30*		**2.00**	*0.30*	
Extractrant Volume mL	mL	30	**20.0**	*0.00*		**20.0**	*0.00*		**20.0**	*0.00*		**20.0**	*0.00*		**20.0**	*0.00*	
P Colorimetric	mg/kg	23	**130**	*10.0*		**81.0**	*5.70*		**313**	*55.2*		**96.0**	*4.00*		**46.0**	*3.20*	
P ICP-AES	mg/kg	37	**141**	*9.8*		**89.9**	*7.10*		**336**	*24.4*		**110**	*9.5*		**50.2**	*4.75*	
K	mg/kg	44	**121**	*15.7*		**737**	*51.5*		**334**	*27.5*		**236**	*21.0*		**200**	*8.0*	
Ca	mg/kg	41	**732**	*91.8*		**2585**	*151*		**2672**	*214*		**5285**	*411*		**3121**	*258*	
Mg	mg/kg	41	**137**	*15.0*		**412**	*31.7*		**171**	*14.6*		**362**	*23.9*		**504**	*26.0*	
Na	mg/kg	30	**13.1**	*6.93*		**16.9**	*5.35*		**19.8**	*4.75*		**35.7**	*8.26*		**39.3**	*5.50*	
S	mg/kg	32	**14.3**	*2.96*		**24.5**	*3.00*		**33.0**	*4.25*		**15.4**	*3.43*		**14.2**	*2.65*	
Al	mg/kg	21	**982**	*135*		**660**	*46.0*		**778**	*53.3*		**199**	*77.0*		**578**	*49.0*	
Zn	mg/kg	35	**3.40**	*0.40*		**2.03**	*0.13*		**16.1**	*1.40*		**16.3**	*1.29*		**3.54**	*0.46*	
Mn	mg/kg	34	**10.3**	*1.03*		**240**	*18.9*		**321**	*23.6*		**110**	*9.0*		**234**	*17.0*	
Fe	mg/kg	32	**284**	*26.7*		**85.8**	*7.25*		**188**	*15.1*		**30.8**	*3.81*		**65.9**	*6.60*	
Cu	mg/kg	35	**1.99**	*0.26*		**2.94**	*0.17*		**14.2**	*1.45*		**1.82**	*0.25*		**3.42**	*0.22*	
B	mg/kg	30	**0.44**	*0.25*		**0.78**	*0.16*		**3.30**	*0.35*		**1.69**	*0.29*		**1.30**	*0.15*	

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Micronutrients																	
Zn - DTPA	mg/kg	70	**1.89**	*0.21*		**1.00**	*0.08*		**5.73**	*0.58*		**5.60**	*0.60*		**1.50**	*0.13*	
Mn - DTPA	mg/kg	55	**3.95**	*0.49*		**85.5**	*4.44*		**63.2**	*8.16*		**4.78**	*0.87*		**13.3**	*2.28*	
Fe - DTPA	mg/kg	57	**69.7**	*8.30*		**16.2**	*1.90*		**33.0**	*4.70*		**3.70**	*0.70*		**9.34**	*0.86*	
Cu - DTPA	mg/kg	58	**1.50**	*0.19*		**1.60**	*0.11*		**8.01**	*0.90*		**0.60**	*0.11*		**1.20**	*0.11*	
Zn - HCl	mg/kg	4	**2.89**	*0.38*		**1.96**	*0.06*		**17.5**	*1.40*		**14.4**	*1.48*		**3.77**	*0.05*	
Mn-H3PO4	mg/kg	9	**6.41**	*2.49*		**68.2**	*2.45*		**131**	*9.0*		**4.48**	*0.70*		**20.5**	*0.80*	
Cl - Ca(NO3)2 Extr.	mg/kg	16	**2.54**	*1.02*		**7.26**	*1.60*		**22.1**	*3.75*		**4.27**	*1.62*		**13.8**	*1.37*	
B - Hot Wat.	mg/kg	43	**0.23**	*0.08*		**0.72**	*0.18*		**2.33**	*0.57*		**0.60**	*0.16*		**0.60**	*0.15*	
B-DTPA/Sorbitol	mg/kg	7	**0.20**	*0.10*		**0.38**	*0.07*		**1.74**	*0.22*		**0.65**	*0.08*		**0.55**	*0.06*	
Soil Organic Matter																	
Soil Kjeldahl N	%	20	**0.057**	*0.005*		**0.124**	*0.006*		**0.204**	*0.011*		**0.104**	*0.006*		**0.132**	*0.008*	
Soil TN (combustion)	%	31	**0.065**	*0.008*		**0.133**	*0.014*		**0.216**	*0.010*		**0.110**	*0.010*		**0.137**	*0.007*	
Soil TOC (Combustion)	%	9	**0.620**	*0.020*		**1.290**	*0.075*		**1.987**	*0.085*		**1.107**	*0.237*		**1.320**	*0.046*	
Soil Total C (Combustion)	%	22	**0.635**	*0.050*		**1.304**	*0.080*		**2.058**	*0.047*		**1.411**	*0.075*		**1.375**	*0.110*	
SOM - Walkley-Black	%	33	**1.10**	*0.190*		**2.25**	*0.195*		**3.10**	*0.242*		**1.75**	*0.160*		**2.24**	*0.103*	
SOM - LOI (% Wt loss)	%	65	**1.80**	*0.120*		**2.60**	*0.140*		**4.29**	*0.240*		**1.93**	*0.130*		**2.70**	*0.200*	
CaCO3 Content	%	13	**0.34**	*0.33*		**0.60**	*0.33*		**1.21**	*0.32*		**4.17**	*0.37*		**1.10**	*0.50*	
CEC - Cation Displacement	cmol/kg	21	**8.10**	*1.00*		**19.4**	*2.52*		**14.3**	*2.06*		**10.0**	*1.28*		**18.0**	*2.74*	
CEC - Estimation	cmol/kg	13	**10.0**	*0.70*		**18.3**	*1.70*		**11.0**	*0.90*		**22.7**	*3.23*		**18.8**	*1.22*	
Soil Density (Scoop)	g/cc	13	**1.43**	*0.04*		**1.19**	*0.05*		**1.01**	*0.05*		**1.39**	*0.02*		**1.26**	*0.02*	
Particle Size Analysis																	
Sand 2000 - 50 um	%	38	**65.0**	*2.14*		**24.0**	*4.90*		**22.0**	*4.00*		**65.2**	*2.80*		**47.0**	*3.00*	
Silt 50 - 2 um	%	38	**20.8**	*1.80*		**55.4**	*4.07*		**58.0**	*4.00*		**26.0**	*1.60*		**36.0**	*2.02*	
Clay 2 - 0 um	%	38	**13.7**	*1.65*		**21.0**	*2.00*		**20.0**	*3.00*		**8.0**	*2.00*		**18.0**	*1.56*	

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