

## 1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98107

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Analysis	Units	Sample		Descriptive			Statistics		Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Salinity</b>									
Sat. Paste Moisture	%	36	37.2	91.8	47.0	3.3	7.0	75.0	
pH - sp	Unit	46	4.3	7.4	5.20	0.20	3.8	84.8	
ECe - sp	dS/m	52	0.05	136.1	0.16	0.05	29.0	88.5	
HCO <sub>3</sub> - sp	mmolc/L	14	0.0	1.3	0.33	0.22	66.2	78.6	
Ca - sp	mmolc/L	42	0.0	10	0.42	0.13	31.3	81.0	
Mg - sp	mmolc/L	42	0.0	3	0.28	0.07	24.9	83.3	
Na - sp	mmolc/L	42	0.15	10	0.40	0.17	43.3	78.6	
SAR - sp	value	31	0.21	6.1	0.50	0.19	38.0	77.4	
Cl - sp	mmolc/L	29	0.08	7	0.19	0.07	36.8	72.4	
SO <sub>4</sub> - sp	mmolc/L	18	0.01	1.1	0.09	0.06	70.6	77.8	
B - sp	mg/L	22	0.00	2.10	0.10	0.07	71.5	72.7	
<b>Soil EC</b>									
Soil EC (1:1)	(dS/m)	32	0.05	42	0.10	0.02	20.0	78.1	
Soil EC (1:2)	(dS/m)	41	0.02	40.0	0.06	0.02	33.3	75.0	
<b>Soil pH</b>									
pH (1:1)	Unit	84	4.51	6.80	5.40	0.10	1.9	84.3	
pH (1:2)	Unit	34	4.74	6.40	5.48	0.12	2.2	79.4	
pH (1:2) 0.01 M CaCl <sub>2</sub>	Unit	15	4.42	7.38	4.70	0.20	4.3	80.0	
<b>Buffer pH</b>									
SMP Buffer pH	Unit	66	5.14	6.90	5.99	0.19	3.2	92.3	
Adams-Evans Buf pH	Unit	11	6.56	7.20	7.00	0.20	2.9	100.0	
Woodruff Buf. pH	Unit	10	5.80	6.40	6.04	0.14	2.3	90.0	
<b>Nitrate (NO<sub>3</sub>-N)</b>									
Cd. Rd.	mg/kg	55	1.0	19.0	7.3	0.8	11.5	74.5	
ISE	mg/kg	33	1.4	15.9	6.0	1.4	23.3	90.9	
CTA	mg/kg	7	6.6	16.0	7.8	0.8	10.3	85.7	
Ion Chromatography	mg/kg	8	2.1	33.0	7.0	1.6	22.8	75.0	
Other	mg/kg	9	4.0	13.0	6.8	1.5	22.1	100.0	
NH <sub>4</sub> - N (KCl Extr.)	mg/kg	49	0.3	200	17.6	2.1	12.1	71.4	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

**1998 Interim North American Proficiency Testing Program**

**July 27, 1998**

**2<sup>nd</sup> Quarter Results**

**Soil ID - 98107**

Analysis - cont.	Units	Sample		Descriptive			Statistics		Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Phosphorus and Sulfur</b>									
PO4-P Bray P1 (1:10)	mg/kg	49	1	67	3.0	1.0	33.3	77.6	
PO4-P Bray P1 (1:7)	mg/kg	14	0.0	7.0	2.2	1.2	55.1	92.9	
PO4-P Olsen/Bicarb	mg/kg	70	0.2	27	4.1	1.9	46.3	87.1	
PO4-P AB-DTPA	mg/kg	5	0	7	2.5	2.1	82.1	100.0	
PO4-P M. Morgan	mg/kg	6	0	6	0.8	0.3	37.5	66.7	
SO4 - S (PO4 Extr.)	mg/kg	54	0	124	10.7	7.7	71.8	88.9	
<b>Ammonium Acetate Bases</b>									
K	mg/kg	96	61	404	128	11	8.9	80.2	
Ca	mg/kg	89	175	3057	1050	92	8.8	79.8	
Mg	mg/kg	89	3	711	330	33	9.9	88.8	
Na	mg/kg	76	1	118	24	7	27.7	77.6	
<b>Mehlich-1 Multi Element</b>									
Soil Scoop Mass	g	7	5	6	5.0	0.00			
K	mg/kg	9	2	74	43	31	74.0	100.0	
PO4-P	mg/kg	10	0	116	2.5	2.2	88.1	70.0	
Ca	mg/kg	8	418	1037	867	152	17.5	75.0	
Mg	mg/kg	8	133	321	271	32.8	12.1	75.0	
Zn	mg/kg	8	1	2	1.0	0.2	19.5	75.0	
<b>Mehlich-3 Multi-Element</b>									
Soil Scoop Mass	g	28	0.9	10	2.00	0.48			
P	mg/kg	39	0.00	81	2.7	1.5	53.7	86.8	
K	mg/kg	41	79.57	496	128	10	7.8	72.5	
Ca	mg/kg	41	396	3287	1146	102	8.9	75.0	
Mg	mg/kg	41	218	4400	348	37	10.5	87.5	
Na	mg/kg	25	13	98	23.0	7.4	32.0	87.5	
Al	mg/kg	15	246.7	83000	1530	219	14.3	78.6	
Zn	mg/kg	35	0.4	150	1.06	0.24	22.3	76.5	
Mn	mg/kg	33	28.9	3400	158	18	11.7	71.9	
Fe	mg/kg	30	6.4	130000	102	14	13.3	82.8	
Cu	mg/kg	33	0.9	260	3.66	0.30	8.2	84.4	
B	mg/kg	24	0.1	1.6	0.37	0.21	56.8	91.3	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98107

Analysis - cont.	Units	Sample		Descriptive			Statistics		Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Cations</b>									
K- Bicarb.	mg/kg	8	80	120	99	3	3.0	62.5	
K Modified Morgan	mg/kg	3	81	119	85	4	4.7	66.7	
Ca Modified Morgan	mg/kg	2	1096	1280	1188	92	7.7	100.0	
<b>Micronutrients</b>									
Zn - DTPA	mg/kg	87	0.20	2.8	0.50	0.10	20.0	80.5	
Mn - DTPA	mg/kg	79	13.4	226	59.4	8.3	14.0	88.6	
Fe - DTPA	mg/kg	81	4.3	55	20.5	3.5	17.1	80.2	
Cu - DTPA	mg/kg	80	0.68	11.8	2.02	0.29	14.4	77.5	
Zn - HCl	mg/kg	7	1.0	5	2.00	0.20	10.0	57.1	
Mn-H3PO4	mg/kg	6	2	88	83.0	7.6	9.2	66.7	
Cl - Ca(NO3)2 Extr.	mg/kg	15	1.0	22	5.0	1.1	21.0	80.0	
B - Hot Water	mg/kg	61	0.06	4	0.24	0.12	50.0	82.0	
<b>Soil Organic Matter</b>									
Soil Kjeldahl N	%	34	0.02	1091	0.11	0.013	11.8	67.6	
Soil TN (combustion)	%	24	0.09	1100	0.12	0.015	12.3	70.8	
Soil TOC (combustion)	%	23	0.90	3.2	1.95	0.13	6.7	82.6	
SOM - Walkley-Black	%	59	1.5	9.0	3.06	0.26	8.5	81.4	
SOM - LOI (Raw Values)	%	55	2.3	11	6.1	0.7	11.5	81.8	
CaCO <sub>3</sub> Content	%	17	0.0	9.1	0.35	0.30	85.0	88.9	
Soil CEC	cmol/kg	32	8.1	94.3	26.2	5.8	22.1	81.3	
<b>Particle Size Analysis</b>									
Sand 2000 - 50 um	%	54	6.0	72.0	31.8	6.0	18.9	83.3	
Silt 50 - 2 um	%	54	16.2	60.8	31.6	5.5	17.4	90.7	
Clay 2 - 0 um	%	54	5.0	54.0	33.0	5.0	15.2	90.7	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

## 1998 Interim North American Proficiency Testing Program

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July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98108

Analysis	Units	No.	Sample		Descriptive			Statistics		Lab ID
			Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>		
<b>Salinity</b>										
Sat. Paste Moisture	%	36	30.0	55.0	37.1	2.4	6.5	85.7		
pH - sp	Unit	45	6.1	8.0	6.90	0.14	2.0	80.0		
ECe - sp	dS/m	51	0.07	254.0	0.33	0.06	18.2	84.3		
HCO <sub>3</sub> - sp	mmolc/L	16	0.8	3.9	2.50	0.64	25.6	92.9		
Ca - sp	mmolc/L	42	0.1	36	1.78	0.38	21.4	85.4		
Mg - sp	mmolc/L	42	0.0	12	1.00	0.24	24.1	80.5		
Na - sp	mmolc/L	42	0.22	12	0.55	0.16	28.4	85.4		
SAR - sp	value	31	0.20	2.8	0.38	0.12	31.6	77.4		
Cl - sp	mmolc/L	28	0.10	14	0.36	0.12	31.9	72.4		
SO <sub>4</sub> - sp	mmolc/L	23	0.04	8.0	0.47	0.09	18.3	61.1		
B - sp	mg/L	24	0.10	3.40	0.22	0.09	39.5	81.8		
<b>Soil EC</b>										
Soil EC (1:1)	(dS/m)	33	0.08	85	0.14	0.05	35.7	90.6		
Soil EC (1:2)	(dS/m)	42	0.02	110.0	0.09	0.02	18.6	82.5		
<b>Soil pH</b>										
pH (1:1)	Unit	85	6.30	7.30	6.99	0.11	1.6	86.7		
pH (1:2)	Unit	34	6.08	7.43	7.00	0.10	1.4	70.6		
pH (1:2) 0.01 M CaCl <sub>2</sub>	Unit	15	4.84	6.56	6.26	0.14	2.2	86.7		
<b>Buffer pH</b>										
SMP Buffer pH	Unit	43	6.98	7.83	7.30	0.05	0.7	87.7		
Adams-Evans Buf pH	Unit	10	7.70	8.02	7.86	0.03	0.3	63.6		
Woodruff Buf. pH	Unit	8	6.50	7.00	6.91	0.04	0.7	90.0		
<b>Nitrate (NO<sub>3</sub>-N)</b>										
Cd. Rd.	mg/kg	55	0.0	15.6	4.2	0.7	17.4	78.2		
ISE	mg/kg	32	0.6	32.2	4.3	0.8	17.6	87.9		
CTA	mg/kg	7	2.0	6.0	4.4	0.5	11.4	66.7		
Ion Chromatography	mg/kg	8	1.3	4.0	3.4	0.5	13.6	87.5		
Other	mg/kg	9	2.4	9.0	3.4	1.0	29.4	88.9		
NH <sub>4</sub> - N (KCl Extr.)	mg/kg	48	0.0	100	3.1	1.1	34.8	85.7		

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

# 1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98108

Analysis - cont.	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	Lab ID
<b>Phosphorus and Sulfur</b>									
PO4-P Bray P1 (1:10)	mg/kg	50	35	105	69.5	5.5	7.9	79.6	
PO4-P Bray P1 (1:7)	mg/kg	14	39.0	83.0	62.3	7.3	11.7	78.6	
PO4-P Olsen/Bicarb	mg/kg	70	6.0	82	31.0	3.0	9.7	78.3	
PO4-P AB-DTPA	mg/kg	5	20	44	24.4	4.5	18.4	80.0	
PO4-P M. Morgan	mg/kg	8	15	76	18.7	1.6	8.3	83.3	
SO4 - S (PO4 Extr.)	mg/kg	55	1	14	4.0	1.0	25.0	83.3	
<b>Ammonium Acetate Bases</b>									
K	mg/kg	96	68	1566	135	9	6.7	69.5	
Ca	mg/kg	89	175	1564	1040	38	3.7	69.3	
Mg	mg/kg	89	2	455	216	13	6.0	80.7	
Na	mg/kg	76	0	97	17	6	35.3	81.3	
<b>Mehlich-1 Multi Element</b>									
Soil Scoop Mass	g	7	5	6	5.0	0.00			
K	mg/kg	9	56	120	102	11	10.9	77.8	
PO4-P	mg/kg	10	63	139	106.9	6.4	6.0	70.0	
Ca	mg/kg	8	728	1195	984	56	5.7	62.5	
Mg	mg/kg	8	115	267	187	18.0	9.6	75.0	
Zn	mg/kg	8	2	4	2.4	0.2	10.4	75.0	
<b>Mehlich-3 Multi-Element</b>									
Soil Scoop Mass	g	28	1.0	10	2.07	0.49			
P	mg/kg	41	0.05	136	76.0	8.7	11.4	84.2	
K	mg/kg	41	101.00	1217	144	9	6.0	65.0	
Ca	mg/kg	41	871	2530	1230	118	9.6	87.5	
Mg	mg/kg	41	183	1800	248	27	11.0	87.5	
Na	mg/kg	25	7	140	20.2	8.2	40.6	70.8	
Al	mg/kg	14	10.1	7400	294	43	14.6	66.7	
Zn	mg/kg	35	0.9	31	3.23	0.37	11.5	79.4	
Mn	mg/kg	33	17.8	340	94	11	11.2	78.1	
Fe	mg/kg	30	1.9	8700	313	27	8.6	79.3	
Cu	mg/kg	33	0.4	7	1.94	0.34	17.5	80.6	
B	mg/kg	24	0.3	2.7	0.77	0.30	38.3	95.7	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

**1998 Interim North American Proficiency Testing Program**

July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98108

Analysis - cont.	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	Lab ID
<b>Cations</b>									
K- Bicarb.	mg/kg	8	118	159	145	13	9.0	100.0	
K Modified Morgan	mg/kg	3	121	133	128	6	4.7	100.0	
Ca Modified Morgan	mg/kg	2	1035	1100	1070	33	3.0	100.0	
<b>Micronutrients</b>									
Zn - DTPA	mg/kg	87	0.62	3.1	1.30	0.10	7.7	80.5	
Mn - DTPA	mg/kg	79	3.4	90	16.9	2.0	11.7	81.0	
Fe - DTPA	mg/kg	81	9.8	85	45.2	3.8	8.4	81.5	
Cu - DTPA	mg/kg	80	0.80	2.1	1.20	0.10	8.3	86.3	
Zn - HCl	mg/kg	7	1.6	4	3.30	0.50	15.2	85.7	
Mn-H3PO4	mg/kg	6	15	23	19.5	3.2	16.2	100.0	
Cl - Ca(NO3)2 Extr.	mg/kg	15	2.0	50	5.0	1.0	20.0	66.7	
B - Hot Water	mg/kg	62	0.29	1	0.49	0.11	22.4	82.0	
<b>Soil Organic Matter</b>									
Soil Kjeldahl N	%	34	0.05	875	0.07	0.009	12.7	79.4	
Soil TN (combustion)	%	25	0.05	880	0.08	0.020	25.0	83.3	
Soil TOC (combustion)	%	23	0.52	1.8	0.70	0.08	10.8	78.3	
SOM - Walkley-Black	%	60	0.7	3.9	1.26	0.16	12.4	84.5	
SOM - LOI (Raw Values)	%	57	0.4	2	1.4	0.2	10.7	85.5	
CaCO3 Content	%	15	0.0	10.5	0.35	0.21	60.0	88.2	
Soil CEC	cmol/kg	34	3.4	77.3	7.7	0.9	11.7	84.4	
<b>Particle Size Analysis</b>									
Sand 2000 - 50 um	%	54	10.0	76.9	35.5	6.5	18.3	83.3	
Silt 50 - 2 um	%	54	15.2	71.0	54.9	4.9	8.9	81.5	
Clay 2 - 0 um	%	54	1.0	28.0	8.8	1.6	18.6	79.6	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

## 1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter ResultsSoil ID - 98109 5A

Analysis	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Salinity</b>									
Sat. Paste Moisture	%	36	29.7	77.0	56.6	4.5	8.0	82.9	
pH - sp	Unit	45	6.1	8.1	6.59	0.13	2.0	82.2	
E <sub>Ce</sub> - sp	dS/m	50	0.16	2.7	0.49	0.10	21.1	94.1	
HCO <sub>3</sub> - sp	mmolc/L	16	1.7	6.1	4.10	0.90	22.0	92.9	
Ca - sp	mmolc/L	42	0.3	94	3.55	1.04	29.3	92.7	
Mg - sp	mmolc/L	42	0.1	16	1.18	0.28	23.7	87.8	
Na - sp	mmolc/L	42	0.08	7	0.30	0.14	46.0	87.8	
SAR - sp	value	31	0.06	4.0	0.17	0.10	58.8	93.5	
Cl - sp	mmolc/L	29	0.25	20	0.58	0.10	17.2	65.5	
SO <sub>4</sub> - sp	mmolc/L	23	0.06	11.0	0.65	0.20	30.8	83.3	
B - sp	mg/L	23	0.04	1.90	0.16	0.05	29.5	77.3	
<b>Soil EC</b>									
Soil EC (1:1)	(dS/m)	34	0.15	160	0.30	0.04	13.3	78.1	
Soil EC (1:2)	(dS/m)	43	0.05	130.0	0.16	0.04	21.9	85.0	
<b>Soil pH</b>									
pH (1:1)	Unit	86	6.01	7.00	6.74	0.06	0.9	79.5	
pH (1:2)	Unit	34	6.22	7.10	6.83	0.08	1.2	85.3	
pH (1:2) 0.01 M CaCl <sub>2</sub>	Unit	15	6.00	6.40	6.23	0.09	1.4	93.3	
<b>Buffer pH</b>									
SMP Buffer pH	Unit	47	6.60	7.40	6.93	0.09	1.3	93.8	
Adams-Evans Buf pH	Unit	10	7.44	7.66	7.56	0.09	1.1	100.0	
Woodruff Buf. pH	Unit	9	6.70	9.79	6.80	0.01	0.1	60.0	
<b>Nitrate (NO<sub>3</sub>-N)</b>									
Cd. Rd.	mg/kg	56	0.0	33.1	4.0	0.9	22.5	80.0	
ISE	mg/kg	32	0.4	12.0	3.5	0.8	22.9	81.8	
CTA	mg/kg	7	3.4	8.0	5.0	2.5	50.0	100.0	
Ion Chromatography	mg/kg	8	0.4	33.0	3.1	1.2	39.5	87.5	
Other	mg/kg	9	0.4	10.2	3.6	1.4	38.9	88.9	
NH <sub>4</sub> - N (KCl Extr.)	mg/kg	48	0.1	200	4.0	0.9	21.9	77.6	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

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July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98109

		Sample	Descriptive	Statistics					Lab ID
Analysis - cont.	Units	No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Phosphorus and Sulfur</b>									
PO4-P Bray P1 (1:10)	mg/kg	50	51	122	67.1	5.0	7.4	79.6	
PO4-P Bray P1 (1:7)	mg/kg	14	44.0	78.2	62.5	8.0	12.8	100.0	
PO4-P Olsen/Bicarb	mg/kg	71	8.0	60	44.3	1.9	4.3	59.4	
PO4-P AB-DTPA	mg/kg	5	13	43	15.2	2.7	17.8	60.0	
PO4-P M. Morgan	mg/kg	8	13	72	16.0	0.9	5.3	66.7	
SO4 - S (PO4 Extr.)	mg/kg	55	1	40	6.3	1.5	23.8	75.9	
<b>Ammonium Acetate Bases</b>									
K	mg/kg	97	185	989	417	31	7.4	83.2	
Ca	mg/kg	90	304	4507	3236	248	7.7	81.8	
Mg	mg/kg	90	4	866	370	29	7.7	87.5	
Na	mg/kg	77	0	230	15	8	53.3	85.3	
<b>Mehlich-1 Multi Element</b>									
Soil Scoop Mass	g	7	5	6	5.0	0.00			
K	mg/kg	9	20	18054	207	135	65.2	88.9	
PO4-P	mg/kg	10	46	400	54.0	6.5	12.0	60.0	
Ca	mg/kg	8	1987	3099	2500	249	9.9	100.0	
Mg	mg/kg	8	196	367	296	35.5	12.0	87.5	
Zn	mg/kg	8	2	6	2.9	0.2	7.8	75.0	
<b>Mehlich-3 Multi-Element</b>									
Soil Scoop Mass	g	28	1.0	10	2.00	0.50			
P	mg/kg	41	0.07	216	83.0	6.2	7.5	78.9	
K	mg/kg	41	238.00	2875	426	40	9.4	80.0	
Ca	mg/kg	41	1328	5386	3530	300	8.5	85.0	
Mg	mg/kg	41	230	4200	409	39	9.5	82.5	
Na	mg/kg	25	3	177	16.1	8.0	49.9	79.2	
Al	mg/kg	14	10.8	24000	778	99	12.7	66.7	
Zn	mg/kg	35	1.1	76	4.60	0.51	11.1	70.6	
Mn	mg/kg	33	15.5	950	105	12	11.4	81.3	
Fe	mg/kg	30	0.6	25000	163	17	10.1	79.3	
Cu	mg/kg	33	0.6	20	2.30	0.30	13.0	77.4	
B	mg/kg	24	0.5	2.2	1.31	0.32	24.7	91.3	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.



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**July 27, 1998**

**2<sup>nd</sup> Quarter Results**

**Soil ID - 98109**

Analysis - cont.	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Cations</b>									
K- Bicarb.	mg/kg	8	284	410	352	59	16.6	100.0	
K Modified Morgan	mg/kg	3	258	380	261	61	23.4	100.0	
Ca Modified Morgan	mg/kg	2	3480	3520	3500	20	0.6	100.0	
<b>Micronutrients</b>									
Zn - DTPA	mg/kg	87	1.76	12.3	2.60	0.20	7.7	85.1	
Mn - DTPA	mg/kg	79	5.4	85	26.0	4.0	15.2	86.1	
Fe - DTPA	mg/kg	81	1.3	65	47.8	5.0	10.4	87.7	
Cu - DTPA	mg/kg	79	0.90	6.2	1.40	0.12	8.6	90.0	
Zn - HCl	mg/kg	7	3.0	21	5.20	1.25	24.0	85.7	
Mn-H3PO4	mg/kg	6	12	24	21.9	2.0	9.2	83.3	
Cl - Ca(NO3)2 Extr.	mg/kg	15	6.0	56	11.0	2.3	20.6	86.7	
B - Hot Water	mg/kg	63	0.10	2	0.84	0.23	27.4	85.2	
<b>Soil Organic Matter</b>									
Soil Kjeldahl N	%	35	0.07	2346	0.23	0.022	9.6	64.7	
Soil TN (combustion)	%	24	0.15	2350	0.24	0.020	8.4	79.2	
Soil TOC (combustion)	%	23	2.18	3.4	2.39	0.11	4.4	78.3	
SOM - Walkley-Black	%	60	1.8	5.2	4.03	0.29	7.2	82.8	
SOM - LOI (Raw Values)	%	57	2.7	7	4.7	0.4	8.9	87.3	
CaCO3 Content	%	18	0.0	17.7	0.35	0.25	71.4	70.6	
Soil CEC	cmol/kg	35	1.9	225.9	23.9	3.6	14.9	87.5	
<b>Particle Size Analysis</b>									
Sand 2000 - 50 um	%	54	1.0	58.0	12.2	3.8	31.1	72.2	
Silt 50 - 2 um	%	54	21.2	79.0	56.0	6.0	10.7	88.9	
Clay 2 - 0 um	%	54	4.0	43.0	30.0	4.0	13.3	87.0	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

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July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98110 (55)

Analysis	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Salinity</b>									
Sat. Paste Moisture	%	36	19.3	36.2	25.9	1.9	7.2	80.0	
pH - sp	Unit	45	6.0	7.8	6.50	0.10	1.5	80.0	
ECe - sp	dS/m	50	0.60	6.6	3.08	0.29	9.4	72.5	
HCO <sub>3</sub> - sp	mmolc/L	16	1.0	3.5	1.91	0.31	16.2	78.6	
Ca - sp	mmolc/L	42	1.3	360	16.45	1.77	10.8	80.5	
Mg - sp	mmolc/L	42	0.5	96	7.33	0.92	12.5	80.5	
Na - sp	mmolc/L	42	5.17	299	12.03	1.32	11.0	80.5	
SAR - sp	value	32	2.00	21.0	3.59	0.16	4.3	74.2	
Cl - sp	mmolc/L	30	2.18	286	9.40	0.70	7.4	69.0	
SO <sub>4</sub> - sp	mmolc/L	23	3.23	365.7	23.40	3.00	12.8	55.6	
B - sp	mg/L	24	0.50	2.60	0.82	0.12	14.1	86.4	
<b>Soil EC</b>									
Soil EC (1:1)	(dS/m)	33	0.51	820	0.90	0.19	21.1	90.6	
Soil EC (1:2)	(dS/m)	43	0.29	250.0	0.58	0.08	13.8	77.5	
<b>Soil pH</b>									
pH (1:1)	Unit	84	6.28	7.00	6.65	0.05	0.8	68.7	
pH (1:2)	Unit	35	6.04	6.90	6.71	0.09	1.3	88.2	
pH (1:2) 0.01 M CaCl <sub>2</sub>	Unit	15	6.10	6.68	6.34	0.07	1.0	86.7	
<b>Buffer pH</b>									
SMP Buffer pH	Unit	49	6.80	7.50	7.22	0.08	1.1	90.8	
Adams-Evans Buf pH	Unit	10	7.60	8.04	7.84	0.04	0.5	81.8	
Woodruff Buf. pH	Unit	8	6.89	7.00	6.90	0.01	0.1	70.0	
<b>Nitrate (NO<sub>3</sub>-N)</b>									
Cd. Rd.	mg/kg	56	2.5	44.5	13.1	1.8	13.4	81.8	
ISE	mg/kg	32	5.0	36.0	13.5	1.7	12.2	78.8	
CTA	mg/kg	7	10.0	15.5	12.5	1.7	13.6	100.0	
Ion Chromatography	mg/kg	8	3.2	41.0	11.8	1.4	12.0	62.5	
Other	mg/kg	10	9.1	17.0	12.5	1.7	13.2	88.9	
NH <sub>4</sub> - N (KCl Extr.)	mg/kg	49	0.0	100	3.3	0.8	23.1	77.6	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

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July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98110

		Sample	Descriptive	Statistics					Lab ID
Analysis - cont.	Units	No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Phosphorus and Sulfur</b>									
PO4-P Bray P1 (1:10)	mg/kg	49	22	195	147.0	18.0	12.2	79.6	
PO4-P Bray P1 (1:7)	mg/kg	14	98.0	172.0	131.0	16.0	12.2	92.9	
PO4-P Olsen/Bicarb	mg/kg	72	7.0	106	69.2	1.8	2.6	36.2	
PO4-P AB-DTPA	mg/kg	5	39	76	56.6	5.0	8.8	60.0	
PO4-P M. Morgan	mg/kg	8	39	206	50.3	6.5	12.9	83.3	
SO4 - S (PO4 Extr.)	mg/kg	53	19	169	94.3	27.5	29.2	96.3	
<b>Ammonium Acetate Bases</b>									
K	mg/kg	97	40	562	252	24	9.3	77.9	
Ca	mg/kg	90	155	3703	1030	97	9.4	85.2	
Mg	mg/kg	90	79	411	180	20	11.1	87.5	
Na	mg/kg	77	12	820	136	15	11.0	78.7	
<b>Mehlich-1 Multi Element</b>									
Soil Scoop Mass	g	7	5	7	5.0	0.00			
K	mg/kg	9	156	14086	190	18	9.5	77.8	
PO4-P	mg/kg	10	126	280	171.5	27.2	15.8	90.0	
Ca	mg/kg	8	838	1442	1080	76	7.0	62.5	
Mg	mg/kg	8	112	217	168	17.1	10.2	75.0	
Zn	mg/kg	8	13	34	16.6	1.9	11.5	87.5	
<b>Mehlich-3 Multi-Element</b>									
Soil Scoop Mass	g	28	1.0	10	2.37	0.50			
P	mg/kg	41	0.06	283	220.0	32.0	14.5	86.8	
K	mg/kg	41	107.00	1855	296	33	11.1	80.0	
Ca	mg/kg	41	112	2704	1350	139	10.3	80.0	
Mg	mg/kg	41	151	1800	223	23	10.4	82.5	
Na	mg/kg	27	12	212	158.0	18.8	11.9	87.5	
Al	mg/kg	14	7.0	8300	386	37	9.6	80.0	
Zn	mg/kg	35	2.3	68	22.20	3.06	13.8	79.4	
Mn	mg/kg	33	19.3	240	110	16	14.8	78.1	
Fe	mg/kg	30	1.8	13000	258	31	12.0	86.2	
Cu	mg/kg	33	1.1	22	10.00	1.22	12.2	77.4	
B	mg/kg	24	0.4	3.1	1.55	0.38	24.2	91.3	

1 - Values flagged exceed Warning Limits " \*\* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

**1998 Interim North American Proficiency Testing Program**

**July 27, 1998**

**2<sup>nd</sup> Quarter Results**

**Soil ID - 98110**

Analysis - cont.	Units	Sample		Descriptive			Statistics		Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Cations</b>									
K- Bicarb.	mg/kg	8	220	323	<b>242</b>	22	9.1	87.5	
K Modified Morgan	mg/kg	3	205	217	<b>215</b>	2	0.9	66.7	
Ca Modified Morgan	mg/kg	2	928	1120	<b>1020</b>	96	9.4	100.0	
<b>Micronutrients</b>									
Zn - DTPA	mg/kg	87	3.20	15.1	<b>10.90</b>	0.98	9.0	81.6	
Mn - DTPA	mg/kg	78	4.6	251	<b>22.3</b>	2.8	12.7	83.5	
Fe - DTPA	mg/kg	81	9.3	73	<b>52.4</b>	6.4	12.3	87.7	
Cu - DTPA	mg/kg	80	0.90	12.9	<b>5.65</b>	0.52	9.1	76.3	
Zn - HCl	mg/kg	7	6.6	24	<b>17.70</b>	5.25	29.7	100.0	
Mn-H3PO4	mg/kg	6	14	30	<b>25.5</b>	3.5	13.8	83.3	
Cl - Ca(NO3)2 Extr.	mg/kg	15	15.5	230	<b>92.0</b>	15.0	16.3	73.3	
B - Hot Water	mg/kg	63	0.45	5	<b>1.04</b>	0.16	15.4	77.0	
<b>Soil Organic Matter</b>									
Soil Kjeldahl N	%	35	0.04	703	<b>0.07</b>	0.010	14.3	73.5	
Soil TN (combustion)	%	23	0.03	720	<b>0.08</b>	0.020	25.0	83.3	
Soil TOC (combustion)	%	23	0.41	1.4	<b>0.67</b>	0.05	7.5	69.6	
SOM - Walkley-Black	%	61	0.5	3.9	<b>1.20</b>	0.20	16.7	84.5	
SOM - LOI (Raw Values)	%	56	0.5	13	<b>1.2</b>	0.1	8.3	78.2	
CaCO <sub>3</sub> Content	%	16	0.0	16.3	<b>0.45</b>	0.16	34.8	82.4	
Soil CEC	cmol/kg	35	2.0	83.7	<b>6.6</b>	1.4	21.2	81.3	
<b>Particle Size Analysis</b>									
Sand 2000 - 50 um	%	54	59.0	88.0	<b>78.0</b>	2.0	2.6	81.5	
Silt 50 - 2 um	%	54	3.2	34.0	<b>12.1</b>	2.0	16.2	85.2	
Clay 2 - 0 um	%	54	1.0	22.0	<b>10.0</b>	1.3	12.6	81.5	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

## 1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter Results56  
Soil ID - 98111

Analysis	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Salinity</b>									
Sat. Paste Moisture	%	36	20.0	51.7	29.8	2.6	8.6	82.9	
pH - sp	Unit	45	5.9	7.9	6.50	0.10	1.5	77.8	
ECe - sp	dS/m	50	0.28	2.3	1.49	0.21	14.1	86.3	
HCO <sub>3</sub> - sp	mmolc/L	16	1.1	3.9	2.21	0.48	21.6	78.6	
Ca - sp	mmolc/L	42	0.6	167	6.75	1.25	18.5	80.5	
Mg - sp	mmolc/L	42	0.3	56	3.88	0.73	18.7	85.4	
Na - sp	mmolc/L	42	2.70	122	4.77	0.46	9.7	75.6	
SAR - sp	value	31	1.37	12.5	2.04	0.09	4.4	74.2	
Cl - sp	mmolc/L	30	0.32	42	1.10	0.15	13.6	65.5	
SO <sub>4</sub> - sp	mmolc/L	23	0.76	68.6	3.96	0.74	18.7	55.6	
B - sp	mg/L	25	0.10	2.00	0.25	0.05	20.0	68.2	
<b>Soil EC</b>									
Soil EC (1:1)	(dS/m)	32	0.20	470	0.49	0.10	19.6	81.3	
Soil EC (1:2)	(dS/m)	43	0.12	160.0	0.30	0.04	14.3	77.5	
<b>Soil pH</b>									
pH (1:1)	Unit	83	6.00	6.80	6.57	0.07	1.1	85.5	
pH (1:2)	Unit	34	5.86	6.84	6.65	0.05	0.8	64.7	
pH (1:2) 0.01 M CaCl <sub>2</sub>	Unit	15	5.90	6.53	6.20	0.10	1.6	80.0	
<b>Buffer pH</b>									
SMP Buffer pH	Unit	48	6.70	7.40	7.19	0.09	1.2	89.2	
Adams-Evans Buf pH	Unit	10	7.55	7.95	7.74	0.06	0.8	72.7	
Woodruff Buf. pH	Unit	8	6.80	6.90	6.90	0.00	0.0	60.0	
<b>Nitrate (NO<sub>3</sub>-N)</b>									
Cd. Rd.	mg/kg	56	5.6	114.9	40.1	3.3	8.2	67.3	
ISE	mg/kg	31	8.0	55.7	39.7	4.5	11.3	78.8	
CTA	mg/kg	7	29.4	49.0	34.0	3.6	10.6	66.7	
Ion Chromatography	mg/kg	8	3.0	82.0	38.3	5.3	13.8	50.0	
Other	mg/kg	9	22.3	49.0	41.4	4.2	10.1	77.8	
NH <sub>4</sub> - N (KCl Extr.)	mg/kg	49	0.4	100	9.7	1.4	13.9	83.7	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

# 1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98111

Analysis - cont.	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Phosphorus and Sulfur</b>									
PO4-P Bray P1 (1:10)	mg/kg	49	9	44	24.3	2.5	10.3	81.6	
PO4-P Bray P1 (1:7)	mg/kg	14	13.0	29.4	22.9	2.2	9.4	64.3	
PO4-P Olsen/Bicarb	mg/kg	70	3.0	20	11.0	2.2	20.0	88.4	
PO4-P AB-DTPA	mg/kg	5	5	12	5.0	0.5	10.4	80.0	
PO4-P M. Morgan	mg/kg	8	4	19	5.2	1.0	19.2	83.3	
SO4 - S (PO4 Extr.)	mg/kg	54	7	40	21.4	4.6	21.5	85.2	
<b>Ammonium Acetate Bases</b>									
K	mg/kg	95	42	512	94	8	8.5	75.8	
Ca	mg/kg	88	100	2568	1070	75	7.0	76.1	
Mg	mg/kg	88	2	486	207	17	8.0	85.2	
Na	mg/kg	75	7	164	75	10	13.3	82.7	
<b>Mehlich-1 Multi Element</b>									
Soil Scoop Mass	g	7	5	7	5.0	0.00			
K	mg/kg	9	13	76	60	16	26.7	66.7	
PO4-P	mg/kg	10	10	94	16.0	4.1	25.3	70.0	
Ca	mg/kg	8	723	1246	1030	59	5.7	50.0	
Mg	mg/kg	8	121	266	200	15.4	7.7	62.5	
Zn	mg/kg	8	4	10	4.9	0.7	15.0	75.0	
<b>Mehlich-3 Multi-Element</b>									
Soil Scoop Mass	g	28	1.0	10	2.13	0.51			
P	mg/kg	41	0.02	46	28.0	5.0	17.9	89.5	
K	mg/kg	41	56.00	897	104	10	9.6	80.0	
Ca	mg/kg	41	911	2588	1290	106	8.2	77.5	
Mg	mg/kg	41	173	1300	247	26	10.5	80.0	
Na	mg/kg	27	3	118	81.5	8.7	10.6	75.0	
Al	mg/kg	14	4.2	6700	512	65	12.7	73.3	
Zn	mg/kg	35	1.7	66	7.00	0.92	13.1	76.5	
Mn	mg/kg	33	42.7	900	228	24	10.7	75.0	
Fe	mg/kg	29	26.4	8800	131	22	16.5	79.3	
Cu	mg/kg	33	0.4	8	1.51	0.29	19.4	83.9	
B	mg/kg	24	0.4	2.0	0.81	0.25	30.4	87.0	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

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2<sup>nd</sup> Quarter Results

Soil ID - 98111

Analysis - cont.	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Cations</b>									
K- Bicarb.	mg/kg	8	83	106	95	11	11.6	75.0	
K Modified Morgan	mg/kg	3	72	76	76	0	0.0	33.3	
Ca Modified Morgan	mg/kg	2	1002	1020	1011	9	0.9	50.0	
<b>Micronutrients</b>									
Zn - DTPA	mg/kg	85	1.20	5.3	3.60	0.36	9.9	88.5	
Mn - DTPA	mg/kg	77	15.1	279	74.9	9.9	13.2	83.5	
Fe - DTPA	mg/kg	79	4.2	50	22.0	3.1	14.1	84.0	
Cu - DTPA	mg/kg	78	0.56	1.5	0.84	0.14	16.2	91.3	
Zn - HCl	mg/kg	7	2.2	8	5.80	1.20	20.7	71.4	
Mn-H3PO4	mg/kg	6	69	89	75.5	4.2	5.5	66.7	
Cl - Ca(NO3)2 Extr.	mg/kg	15	8.0	61	12.3	3.2	26.0	93.3	
B - Hot Water	mg/kg	61	0.30	2	0.60	0.15	25.0	78.7	
<b>Soil Organic Matter</b>									
Soil Kjeldahl N	%	34	0.06	961	0.10	0.015	15.8	73.5	
Soil TN (combustion)	%	23	0.04	1010	0.10	0.017	17.0	79.2	
Soil TOC (combustion)	%	23	0.17	1.9	1.02	0.08	7.8	69.6	
SOM - Walkley-Black	%	59	1.0	3.9	1.75	0.15	8.6	74.1	
SOM - LOI (Raw Values)	%	56	1.2	3	2.0	0.2	10.2	94.5	
CaCO3 Content	%	16	0.0	11.4	0.28	0.23	80.5	82.4	
Soil CEC	cmol/kg	34	1.4	79.3	8.0	1.2	14.8	81.3	
<b>Particle Size Analysis</b>									
Sand 2000 - 50 um	%	53	45.2	76.9	57.7	3.3	5.7	85.2	
Silt 50 - 2 um	%	53	2.5	44.5	31.0	3.0	9.7	85.2	
Clay 2 - 0 um	%	53	2.0	25.0	11.3	1.7	15.0	85.2	

1 - Values flagged exceed Warning Limits " \* " based on 2.5 x MAD (Median Absolute Deviation) and Control Limits " \*\* " based on 4 x MAD.  
 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

## 1998 Interim North American Proficiency Testing Program

2<sup>nd</sup> Quarter Results

July 27, 1998

Soil ID - 98112 51

Analysis	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Salinity</b>									
Sat. Paste Moisture	%	36	40.0	67.0	51.0	3.5	6.8	85.7	
pH - sp	Unit	46	6.0	7.9	6.49	0.11	1.7	75.6	
ECe - sp	dS/m	51	0.07	0.6	0.32	0.03	9.4	74.5	
HCO <sub>3</sub> - sp	mmolc/L	16	1.4	3.5	1.85	0.27	14.6	71.4	
Ca - sp	mmolc/L	42	0.2	37	1.75	0.26	14.9	78.0	
Mg - sp	mmolc/L	41	0.1	7	0.61	0.10	16.4	73.2	
Na - sp	mmolc/L	41	0.02	8	0.27	0.17	62.3	80.5	
SAR - sp	value	30	0.02	2.1	0.11	0.07	59.1	64.5	
Cl - sp	mmolc/L	27	0.04	7	0.21	0.10	45.2	82.8	
SO <sub>4</sub> - sp	mmolc/L	23	0.05	8.1	0.45	0.11	24.4	66.7	
B - sp	mg/L	24	0.01	2.00	0.12	0.04	30.4	72.7	
<b>Soil EC</b>									
Soil EC (1:1)	(dS/m)	33	0.01	120	0.22	0.04	18.2	71.9	
Soil EC (1:2)	(dS/m)	43	0.04	65.0	0.13	0.03	20.0	77.5	
<b>Soil pH</b>									
pH (1:1)	Unit	84	5.40	6.90	6.63	0.08	1.1	91.6	
pH (1:2)	Unit	35	6.04	7.19	6.77	0.07	1.0	82.4	
pH (1:2) 0.01 M CaCl <sub>2</sub>	Unit	15	5.80	6.36	6.10	0.10	1.6	86.7	
<b>Buffer pH</b>									
SMP Buffer pH	Unit	49	6.10	7.40	7.00	0.10	1.4	95.4	
Adams-Evans Buf pH	Unit	10	7.48	7.77	7.61	0.07	0.9	100.0	
Woodruff Buf. pH	Unit	8	6.80	6.89	6.81	0.00	0.1	70.0	
<b>Nitrate (NO<sub>3</sub>-N)</b>									
Cd. Rd.	mg/kg	56	1.6	39.0	8.1	1.1	13.0	78.2	
ISE	mg/kg	33	1.4	45.4	7.8	1.3	16.7	81.8	
CTA	mg/kg	7	7.5	10.5	9.5	0.5	5.3	83.3	
Ion Chromatography	mg/kg	8	2.1	38.0	7.4	0.7	9.5	75.0	
Other	mg/kg	10	3.1	10.4	9.3	1.1	11.3	66.7	
NH <sub>4</sub> - N (KCl Extr.)	mg/kg	49	0.2	200	4.0	0.9	22.5	71.4	

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# 1998 Interim North American Proficiency Testing Program

July 27, 1998

2<sup>nd</sup> Quarter Results

Soil ID - 98112

		Sample	Descriptive	Statistics				Lab ID
Analysis - cont.	Units	No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>
<b>Phosphorus and Sulfur</b>								
PO4-P Bray P1 (1:10)	mg/kg	49	6	25	14.0	1.3	9.3	83.7
PO4-P Bray P1 (1:7)	mg/kg	14	0.8	25.2	13.5	2.0	14.8	78.6
PO4-P Olsen/Bicarb	mg/kg	73	2.0	22	8.2	1.6	19.5	81.2
PO4-P AB-DTPA	mg/kg	5	2	8	3.4	1.1	31.3	60.0
PO4-P M. Morgan	mg/kg	8	3	16	3.2	0.2	6.3	66.7
SO4 - S (PO4 Extr.)	mg/kg	54	1	15	5.0	1.4	27.0	85.2
<b>Ammonium Acetate Bases</b>								
K	mg/kg	98	14	1563	493	38	7.7	77.9
Ca	mg/kg	91	270	3708	2500	208	8.3	81.8
Mg	mg/kg	91	3	699	313	23	7.4	88.6
Na	mg/kg	78	0	137	13	7	50.4	82.7
<b>Mehlich-1 Multi Element</b>								
Soil Scoop Mass	g	7	5	6	5.0	0.00		
K	mg/kg	9	13	324	262	54	20.6	66.7
PO4-P	mg/kg	10	14	467	21.7	4.5	20.8	70.0
Ca	mg/kg	8	1774	2457	2120	115	5.4	62.5
Mg	mg/kg	8	179	299	256	24.0	9.4	87.5
Zn	mg/kg	8	1	3	1.5	0.2	10.7	75.0
<b>Mehlich-3 Multi-Element</b>								
Soil Scoop Mass	g	28	1.0	10	2.00	0.50		
P	mg/kg	42	0.05	36	19.0	3.9	20.6	86.8
K	mg/kg	42	123.00	7323	489	35	7.2	67.5
Ca	mg/kg	41	1039	4553	2750	225	8.2	87.5
Mg	mg/kg	41	225	3200	343	32	9.3	87.5
Na	mg/kg	25	1	69	15.9	8.3	52.1	83.3
Al	mg/kg	14	5.5	18000	670	75	11.2	73.3
Zn	mg/kg	35	0.7	49	2.50	0.40	16.0	82.4
Mn	mg/kg	33	18.2	500	98	12	12.3	78.1
Fe	mg/kg	30	0.0	16000	108	12	10.7	79.3
Cu	mg/kg	33	0.3	10	1.27	0.27	21.3	80.6
B	mg/kg	24	0.5	3.1	1.01	0.26	25.9	82.6

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 2 - Percentage (%) of all reported laboratory values within established Warning Limits.

**1998 Interim North American Proficiency Testing Program**

**July 27, 1998**

**2<sup>nd</sup> Quarter Results**

**Soil ID - 98112**

Analysis - cont.	Units	Sample		Descriptive		Statistics			Lab ID
		No.	Min	Max	Median	MAD <sup>1</sup>	RMD %	% Values < WL <sup>2</sup>	
<b>Cations</b>									
K- Bicarb.	mg/kg	8	335	500	435	21	4.8	75.0	
K Modified Morgan	mg/kg	3	340	465	358	18	5.0	66.7	
Ca Modified Morgan	mg/kg	2	2520	2600	2560	40	1.6	100.0	
<b>Micronutrients</b>									
Zn - DTPA	mg/kg	87	0.50	3.1	1.30	0.10	7.7	87.4	
Mn - DTPA	mg/kg	79	5.6	104	28.7	3.1	10.8	84.8	
Fe - DTPA	mg/kg	81	6.9	44	33.5	3.5	10.4	88.9	
Cu - DTPA	mg/kg	80	0.30	2.0	0.60	0.10	16.7	88.8	
Zn - HCl	mg/kg	7	1.1	3	2.30	0.42	18.3	85.7	
Mn-H3PO4	mg/kg	6	15	32	25.2	2.3	9.1	66.7	
Cl - Ca(NO3)2 Extr.	mg/kg	14	1.6	58	3.0	1.0	33.3	86.7	
B - Hot Water	mg/kg	62	0.09	2	0.70	0.20	28.6	83.6	
<b>Soil Organic Matter</b>									
Soil Kjeldahl N	%	36	0.10	2071	0.20	0.016	8.0	64.7	
Soil TN (combustion)	%	23	0.14	2080	0.21	0.012	5.7	66.7	
Soil TOC (combustion)	%	23	1.67	2.6	2.21	0.11	5.0	87.0	
SOM - Walkley-Black	%	60	1.7	5.1	3.86	0.19	4.9	70.7	
SOM - LOI (Raw Values)	%	56	3.0	6	4.2	0.3	7.0	80.0	
CaCO3 Content	%	16	0.0	12.7	0.43	0.24	54.3	82.4	
Soil CEC	cmol/kg	35	3.6	200.1	19.8	3.5	17.7	84.4	
<b>Particle Size Analysis</b>									
Sand 2000 - 50 um	%	54	7.6	64.9	18.0	4.9	27.1	87.0	
Silt 50 - 2 um	%	54	4.2	73.0	60.0	4.3	7.2	83.3	
Clay 2 - 0 um	%	54	4.0	65.2	21.6	2.3	10.6	81.5	

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 2 - Percentage (%) of all reported laboratory values within established Warning Limits.