



2026 North American Proficiency Testing Program
Quarter 1 Report - 4/22/2026

Laboratory ID

PAP certification requirements: All 20 soil and/or 12 plant samples have to have data submitted with an average score >60% for each method to be certified, as well as an overall of all methods >80%.

Overall PAP Score for this Year

#DIV/0!

Soil	Soil 2026-101			Soil 2026-102			Soil 2026-103			Soil 2026-104			Soil 2026-105			Current		
Analysis - Modus Code	Units	n	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result	PAP Score
Saturated Paste																		
Moisture - sp	%	21	35.7	5.26		58.0	3.15		37.8	2.95		31.9	3.10		28.6	3.26		
pH - sp	Unit	23	4.65	0.11		5.34	0.11		6.79	0.14		5.50	0.12		7.90	0.19		
ECe - sp	dS/m	28	0.96	0.14		0.45	0.047		3.08	0.29		2.02	0.22		0.91	0.096		
HCO3 - sp	mmolc/L	9	0.40	0.31		0.35	0.16		1.43	0.30		0.75	0.32		3.23	0.90		
Ca - sp	mmolc/L	23	5.05	0.74		2.81	0.37		16.4	0.98		11.2	1.54		5.35	0.63		
Mg - sp	mmolc/L	25	2.18	0.40		0.42	0.080		9.42	0.76		4.43	0.62		2.25	0.27		
Na - sp	mmolc/L	23	2.02	0.26		0.32	0.063		1.40	0.13		1.75	0.23		1.70	0.21		
SAR - sp	value	18	0.98	0.066		0.25	0.046		0.40	0.020		0.60	0.070		0.82	0.060		
Cl - sp	mmolc/L	13	0.73	0.061		0.70	0.11		0.35	0.055		1.31	0.26		1.80	0.17		
SO4 - sp	mmolc/L	18	5.76	1.04		0.55	0.069		2.28	0.20		4.36	0.48		1.78	0.23		
NO3 - sp	mmolc/L	11	2.50	0.28		1.90	0.26		22.4	1.90		9.66	0.67		2.05	0.15		
B - sp	mg/L	15	0.090	0.020		0.050	0.024		0.22	0.025		0.092	0.020		0.10	0.020		
pH & EC (1:1 or 1:2)																		
EC (1:1)	(dS/m)	31	0.35	0.050		0.18	0.020		0.93	0.14		0.60	0.073		0.34	0.035		
EC (1:2)	(dS/m)	45	0.25	0.035		0.14	0.020		0.70	0.084		0.42	0.045		0.21	0.020		
pH (1:1) Water	Unit	77	4.70	0.094		5.38	0.11		6.92	0.14		5.68	0.11		8.19	0.16		
pH (1:2) Water	Unit	24	4.81	0.096		5.46	0.11		7.03	0.14		5.80	0.12		8.40	0.25		
pH (1:1) 0.01M CaCl2	Unit	22	4.32	0.086		4.86	0.097		6.67	0.13		5.39	0.11		7.70	0.15		
pH (1:2) 0.01M CaCl2	Unit	12	4.35	0.087		4.88	0.098		6.74	0.13		5.47	0.11		7.78	0.17		
Lime Req.																		
SMP Buffer pH	Unit	16	6.24	0.23		6.32	0.13		7.35	0.15		6.80	0.14		7.52	0.15		
Adams-Evans Buf pH	Unit	6	7.43	0.15		7.38	0.15		7.84	0.16		7.61	0.15		7.85	0.16		
Woodruff Buf. pH	Unit	18	6.27	0.13		6.42	0.13		7.00	0.14		6.70	0.13		7.12	0.14		
Mehlich Buffer pH	Unit	10	5.84	0.12		5.90	0.12		6.56	0.13		6.22	0.12		6.78	0.14		
Sikora Buffer pH	Unit	36	6.36	0.13		6.44	0.13		7.41	0.15		6.88	0.14		7.61	0.15		
Titrateable Acidity	cmol/kg																	
Inorganic Nitrogen (NO3-N & NH4-N)																		
NO3-N Cd. Rd.	mg/kg	62	13.9	0.89		19.2	2.71		150.0	6.90		63.1	4.79		12.8	1.05		
NO3-N ISE	mg/kg	5	13.0	N/A		23.4	N/A		203.0	N/A		86.4	N/A		22.6	N/A		
NO3-N CTA	mg/kg	1	55.0	N/A		84.1	N/A		651.0	N/A		272.0	N/A		52.2	N/A		
NO3-N Ion Chr.	mg/kg																	
NO3-N Other	mg/kg	10	13.3	0.95		19.1	1.21		141.0	11.0		61.3	5.29		10.8	0.84		
NH4 - N (KCl Extr.)	mg/kg	45	4.50	0.71		6.54	0.47		7.00	0.68		28.3	1.72		5.90	0.73		
Phosphorus and Sulfur																		
PO4-P Bray P (1:10)	mg/kg	41	27.8	3.20		19.0	1.85		55.2	5.42		14.0	1.35		10.6	4.28		
PO4-P Bray P1 (1:7)	mg/kg	6	21.8	2.02		14.2	N/A		44.0	3.24		10.6	2.50		11.1	7.08		
PO4-P Olsen/Bicarb	mg/kg	47	13.1	1.80		9.20	1.27		19.4	2.08		12.6	1.32		8.20	0.87		
PO4-P AB-DTPA	mg/kg	2	4.98	N/A		9.73	N/A		16.0	N/A		10.5	N/A		6.91	N/A		
PO4-P Modified Morgan	mg/kg	5	3.16	N/A		1.25	N/A		37.2	N/A		1.72	N/A		32.0	N/A		
PO4-P True Morgan	mg/kg	5	2.48	N/A		0.68	N/A		38.7	N/A		1.88	N/A		26.2	7.35		
PO4-P Mod. Kelowna	mg/kg	1	16.0	N/A		9.00	N/A		43.0	N/A		11.0	N/A		10.0	N/A		
PO4-P Stong Bray (1:10)	mg/kg	9	46.1	3.94		28.2	3.14		282.0	24.3		43.5	3.75		113.0	8.50		
PO4-P Water Soluble	mg/kg	1	1.14	N/A		1.21	N/A		9.00	N/A		4.26	N/A		6.57	N/A		
SO4 - S (PO4 Extr.)	mg/kg	25	70.6	22.4		23.3	9.33		14.4	1.63		31.8	3.95		9.28	1.37		
Bases																		

K NH4OAc	mg/kg	67	94.7	6.45	106.0	10.8	660.0	27.6	221.0	18.0	203.0	17.7
Ca NH4OAc	mg/kg	59	902.0	74.0	1150.0	132.0	1460.0	74.6	1070.0	85.7	3470.0	582.0
Mg NH4OAc	mg/kg	60	191.0	12.9	60.2	5.73	348.0	13.1	189.0	12.6	270.0	20.9
Na NH4OAc	mg/kg	52	40.1	4.24	14.5	2.59	26.2	3.54	28.0	2.82	34.3	4.10
Bray Extractable K	mg/kg	3	89.3	N/A	75.2	N/A	489.0	N/A	206.0	N/A	174.0	N/A
K- Bicarb.	mg/kg	3	78.0	N/A	86.0	N/A	514.0	N/A	190.0	N/A	150.0	N/A
K - Modified Morgan	mg/kg	5	72.0	N/A	102.0	N/A	636.0	N/A	192.0	N/A	168.0	N/A
K - True Morgan	mg/kg	4	74.5	N/A	76.5	N/A	467.0	N/A	160.0	N/A	123.0	N/A
Ca Modified Morgan	mg/kg	4	909.0	N/A	1130.0	N/A	1460.0	N/A	890.0	N/A	6300.0	N/A
Aluminum KCL Extr.	mg/kg	6	168.0	18.4	27.2	N/A	2.10	N/A	3.17	1.28	1.80	N/A

Mehlich-1 Multi Element

Scoop Soil Mass	g	5	5.00	N/A	5.00	N/A	5.00	N/A	5.00	N/A	5.00	N/A
P	mg/kg	8	19.6	1.56	9.09	0.31	246.0	21.4	14.3	1.37	25.6	4.12
K	mg/kg	9	66.1	1.87	57.5	4.25	465.0	25.7	173.0	14.0	109.0	13.2
Ca	mg/kg	10	989.0	51.9	944.0	51.5	1750.0	65.7	1070.0	31.7	5130.0	656.0
Mg	mg/kg	10	159.0	10.4	49.8	3.93	331.0	10.2	182.0	8.60	268.0	18.5
Mn	mg/kg	7	13.4	1.12	27.1	0.85	14.1	0.57	59.0	3.83	10.7	2.47
Zn	mg/kg	8	0.94	0.034	1.10	0.055	19.2	1.03	1.52	0.030	0.57	0.47

Mehlich-3 Multi-Element

Scoop Soil Mass	g	27	2.23	0.085	1.63	0.15	2.01	0.082	2.31	0.13	2.46	0.050
Assumed Density	g/cm3	22	1.14	0.056	0.85	0.11	1.03	0.068	1.18	0.070	1.23	0.050
Volume of Scoop	cm3	0	2.00	N/A	2.00	N/A	2.00	N/A	2.00	N/A	2.00	N/A
Extractant Volume mL	mL	0	20.0	N/A	20.0	N/A	20.0	N/A	20.0	N/A	20.0	N/A
P Colorimetric	mg/kg	11	31.1	1.00	17.8	1.20	91.1	1.83	24.0	1.05	28.8	1.02
P ICP-AES	mg/kg	56	32.8	1.95	20.2	1.63	99.6	3.01	25.4	2.18	32.9	2.27
K	mg/kg	55	101.0	7.40	93.0	7.90	686.0	28.6	245.0	15.3	228.0	17.0
Ca	mg/kg	54	1080.0	81.4	1110.0	88.7	1730.0	63.1	1220.0	91.5	5200.0	355.0
Mg	mg/kg	55	217.0	14.4	61.9	4.30	406.0	17.5	224.0	16.5	358.0	24.0
Na	mg/kg	48	46.3	3.46	15.1	1.92	30.6	1.97	33.0	3.01	40.2	3.25
S	mg/kg	48	102.0	7.11	30.6	2.61	21.8	1.09	43.1	2.81	22.9	1.39
Al	mg/kg	38	749.0	41.9	1190.0	87.4	414.0	15.4	779.0	50.2	169.0	23.6
Zn	mg/kg	46	1.29	0.11	1.70	0.080	22.9	1.05	1.69	0.11	2.96	0.20
Mn	mg/kg	47	25.0	2.30	63.2	4.60	40.8	3.61	68.0	4.06	61.6	4.70
Fe	mg/kg	49	148.0	15.4	165.0	16.6	96.6	9.70	436.0	40.1	23.0	3.10
Cu	mg/kg	48	1.70	0.13	2.26	0.16	1.86	0.11	1.11	0.15	0.85	0.072
B	mg/kg	35	0.22	0.050	0.26	0.050	0.83	0.060	0.51	0.13	0.72	0.075

Micronutrients

Zn - DTPA	mg/kg	54	0.84	0.070	0.72	0.090	9.13	0.59	0.86	0.11	1.20	0.13
Mn - DTPA	mg/kg	47	13.8	0.92	22.7	3.70	3.34	0.60	44.1	3.60	8.02	0.88
Fe - DTPA	mg/kg	54	45.6	6.63	37.0	4.52	14.0	1.75	182.0	18.3	3.70	0.73
Cu - DTPA	mg/kg	50	1.60	0.11	1.27	0.100	0.80	0.070	1.25	0.090	0.40	0.054
Zn - HCl	mg/kg											
Mn-H3PO4	mg/kg	6	11.5	0.30	32.1	3.02	9.88	0.59	40.3	2.99	10.0	2.20
Cl - Ca(NO3)2 Extr.	mg/kg	12	8.95	0.71	10.6	1.05	6.50	1.21	15.4	0.93	23.8	1.13
B - Hot Wat.	mg/kg	10	0.17	0.035	0.20	0.060	0.54	0.080	0.24	0.050	0.33	0.060
B - DTPA/Sorbitol	mg/kg	13	0.12	0.020	0.10	0.026	0.42	0.030	0.26	0.020	0.49	0.030

N & C

Total N - Kjeldahl	%	6	0.031	0.020	0.14	0.020	0.10	0.020	0.089	0.020	0.040	0.020
Total N - combustion	%	39	0.033	0.020	0.14	0.020	0.083	0.020	0.086	0.020	0.036	0.020
TOC - combustion	%	30	0.24	0.020	1.25	0.030	0.64	0.023	0.94	0.038	0.29	0.025
Total C - combustion	%	45	0.28	0.025	1.28	0.026	0.66	0.020	0.95	0.036	0.47	0.020
OM - Walkley-Black	%	21	0.42	0.096	2.13	0.091	1.23	0.13	1.90	0.15	0.59	0.11
OM - LOI (% Wt loss)	%	64	1.21	0.080	3.46	0.087	1.60	0.060	2.15	0.060	0.75	0.070

Miscellaneous

CaCO3 Content	%	14	0.39	0.21	0.30	0.13	0.40	0.20	0.23	0.13	1.90	0.28
CEC - Cation Displacement	cmol/kg	11	9.60	1.34	16.4	4.99	12.2	1.24	9.95	0.95	8.93	1.27
CEC - Estimation	cmol/kg	12	12.4	1.55	11.8	1.51	13.8	1.20	11.0	0.70	26.1	3.40
Soil Density (Scoop)	g/cc	13	1.31	0.060	0.99	0.065	1.23	0.065	1.42	0.055	1.44	0.029
Particle Size Analysis - Hydrometer												
Sand 2000 - 50 um	%	34	71.0	2.20	13.2	2.80	57.3	2.04	73.6	2.50	78.3	2.15
Silt 50 - 2 um	%	35	8.98	1.59	52.3	4.48	36.6	2.98	10.7	1.87	10.8	2.00
Clay 2 - 0 um	%	33	19.6	1.35	34.2	2.60	6.20	2.21	14.3	1.77	11.0	1.20
Particle Size Analysis - Pipette												
Sand 2000 - 50 um	%	7	72.6	3.40	12.0	4.00	60.4	5.00	74.8	1.70	81.1	3.55
Silt 50 - 2 um	%	6	9.80	0.80	54.0	3.45	33.8	5.35	10.8	0.90	9.30	1.00
Clay 2 - 0 um	%	7	18.2	2.02	35.0	1.95	4.50	2.25	13.0	0.90	8.00	3.00
Soil Health												
Autoclave-Citrate Extractable (ACE) protein	mg/g	5	0.99	N/A	3.15	N/A	2.72	N/A	4.81	N/A	1.17	N/A
Microbial CO2 respiration (1 day incubation-ST)	mg/g	6	0.072	0.020	0.039	0.020	0.028	0.020	0.069	0.021	0.030	0.020
Microbial CO2 respiration (4 day incubation-ST)	mg/g	4	0.41	N/A	0.27	N/A	0.15	N/A	0.50	N/A	0.18	N/A
Microbial enzyme activity - As	mg PNP/kg soil t	1	6.85	N/A	65.3	N/A	21.6	N/A	17.3	N/A	29.2	N/A
Microbial enzyme activity - Beta Glucosidase (E)	mg PNP/kg soil t	1	20.4	N/A	72.5	N/A	93.4	N/A	96.4	N/A	73.1	N/A
Microbial enzyme activity - NAG	mg PNP/kg soil h											
Microbial enzyme activity - Pase	mg PNP/kg soil t	1	174.0	N/A	306.0	N/A	177.0	N/A	381.0	N/A	167.0	N/A
PMN 7 day anaerobic	mg/kg	2	2.20	N/A	29.2	N/A	6.65	N/A	56.8	N/A	14.8	N/A
Reactive carbon - permanganate oxidizable (PC)	mg/kg	8	80.0	21.8	259.0	32.5	218.0	20.0	408.0	58.5	119.0	16.8

Water	Water 2026-301			Water 2026-302			Water 2026-303				
Analysis - Modus Code	Units	n	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result
pH & EC											
pH		26	7.72	0.15		8.10	0.16		8.10	0.16	
EC	dS/m	25	0.58	0.020		0.46	0.020		0.41	0.020	
Cations											
Ca	mmol/L	28	2.07	0.083		2.41	0.091		2.29	0.10	
Mg	mmol/L	27	1.46	0.054		1.37	0.053		1.33	0.042	
Na	mmol/L	28	2.05	0.068		0.83	0.032		0.63	0.023	
K	mmol/L	26	0.55	0.020		0.27	0.020		0.15	0.020	
NH4-N	mmol/L	7	0.011	0.020		0.003	N/A		0.002	N/A	
Sum Cations	mmol/L	12	6.09	0.24		4.78	0.15		4.35	0.087	
SAR	---	12	1.51	0.030		0.60	0.020		0.47	0.020	
Adj-SAR	---	4	2.84	N/A		1.14	N/A		0.90	N/A	
Anions											
HCO3	mmol/L	16	3.40	0.090		3.26	0.10		3.18	0.063	
CO3	mmol/L	3	0.00	N/A		0.19	N/A		0.14	N/A	
Cl	mmol/L	20	0.19	0.035		0.19	0.031		0.20	0.030	
NO3	mmol/L	17	1.59	0.079		0.80	0.028		0.42	0.020	
SO4	mmol/L	22	2.99	0.11		1.39	0.088		0.99	0.081	
Sum Anions	mmol/L	12	7.95	0.76		5.49	0.38		4.64	0.30	
Cation-Anion Difference	---	4	0.37	N/A		0.092	N/A		0.14	N/A	
Miscellaneous											
Boron	mg/L	15	0.030	0.020		0.020	0.020		0.020	0.020	
PO4-P Phosphorus - Spec	mg/L	3	1.33	N/A		0.052	N/A		0.019	N/A	
Phosphorus - ICP (Total)	mg/L	9	1.92	0.045		0.099	0.020		0.016	N/A	
TKN	mg/L	2	106.0	N/A		61.5	N/A		38.5	N/A	
Nitrogen Combustion (Total)	mg/L										
Total Organic Carbon	mg/L	1	87.0	N/A		32.6	N/A		21.5	N/A	

Environmental	Soil 2026-101			Soil 2026-102			Soil 2026-103			Soil 2026-104			Soil 2026-105				
Soil Analyses - Modus Code	Units	n	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result	Median	MAD	Lab Result
Metals																	
Ag	mg/kg																
Al	mg/kg	7	6640.0	390.0		20000.0	813.0		10100.0	811.0		6390.0	430.0		5790.0	692.0	
As	mg/kg	6	7.55	0.56		13.3	1.05		25.0	0.92		4.82	0.32		3.02	0.10	
Ba	mg/kg	4	110.0	N/A		82.2	N/A		98.8	N/A		58.0	N/A		103.0	N/A	
Be	mg/kg																
Bi	mg/kg																
B	mg/kg	5	4.39	N/A		3.82	N/A		5.23	N/A		3.65	N/A		3.06	0.85	
Ca	mg/kg	7	1880.0	290.0		1660.0	132.0		4740.0	94.9		1410.0	112.0		8430.0	372.0	
Cd	mg/kg	4	0.19	N/A		0.28	0.060		0.31	N/A		0.13	N/A		0.12	N/A	
Co	mg/kg	7	7.59	0.21		24.1	0.78		9.83	1.53		4.43	0.52		2.60	0.31	
Cr	mg/kg	8	13.6	1.74		22.9	2.59		11.1	1.16		15.7	N/A		5.19	1.25	
Cu	mg/kg	8	9.04	2.04		20.6	1.68		14.4	2.68		6.35	0.67		5.23	0.69	
Fe	mg/kg	6	24200.0	1140.0		27300.0	2210.0		27000.0	535.0		13600.0	273.0		7690.0	438.0	
K	mg/kg	6	1560.0	52.4		1680.0	402.0		3120.0	62.6		1010.0	52.7		1400.0	112.0	
Li	mg/kg																
Mg	mg/kg	7	982.0	48.8		2320.0	110.0		5290.0	105.0		763.0	37.2		2400.0	47.9	
Mn	mg/kg	6	195.0	7.56		1050.0	21.0		414.0	8.30		148.0	10.0		193.0	10.6	
Mo	mg/kg	5	1.56	N/A		11.0	N/A		0.20	N/A		0.51	N/A		0.24	N/A	
Na	mg/kg	7	329.0	24.5		85.1	35.7		310.0	30.2		124.0	51.4		90.4	27.6	
Ni	mg/kg	8	10.6	1.68		23.9	3.14		9.06	1.15		7.94	0.96		4.39	0.72	
P	mg/kg	6	547.0	10.9		544.0	10.9		1020.0	20.5		292.0	5.78		237.0	4.70	
Pb	mg/kg	9	7.38	0.89		16.9	1.87		24.0	6.85		6.56	0.73		6.30	0.67	
S	mg/kg	7	1960.0	49.7		226.0	4.51		154.0	7.00		491.0	60.2		116.0	6.66	
Sb	mg/kg					6.35	N/A		0.94	N/A							
Se	mg/kg	3	1.70	N/A		5.22	N/A		0.92	N/A		0.65	N/A		0.85	N/A	
Sn	mg/kg																
Sr	mg/kg	2	120.0	N/A		13.0	N/A		31.6	N/A		37.6	N/A		34.1	N/A	
V	mg/kg	2	26.7	N/A		69.8	N/A		45.4	N/A		22.1	N/A		11.1	N/A	
Zn	mg/kg	6	31.1	0.88		98.5	12.7		104.0	2.07		18.4	1.01		24.7	0.49	
Hg (US-EPA 7470 or 7471)	mg/kg	1	0.012	N/A		0.053	N/A		0.022	N/A		0.010	N/A		0.008	N/A	

n = Number of labs submitting results

MAD = Median Average Deviation

N/A = Not applicable as there are too few labs submitting data for this test to run statistics

H = High - Outside 2.5* +/- MAD VH = Very High - Outside 4* +/- MAD

L = Low - Outside 2.5* +/- MAD VL = Very Low - Outside 4* +/- MAD

✓ = Passing