

Supplementary Information Cover Sheet

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TABLE S1.– Major anion concentrations, $\Delta^{17}\text{O}_{\text{NO}_3^-}$, $\delta^{18}\text{O}_{\text{NO}_3^-}$ and $\delta^{15}\text{N}_{\text{NO}_3^-}$ values for soil samples, soil leachates, and water samples. Organic content, moisture content, and carbonate are given for soil samples.

Sample Site	Location	Depth (cm)	Moisture Content (%)	CaCO ₃ (%)	NO ₃ ⁻ (mg/L)	$\delta^{15}\text{N}$	$\delta^{18}\text{O}$	$\Delta^{17}\text{O}$
Roadcuts adjacent to unirrigated farmland								
RC2-1	46.141 N, 120.0257 W	0 to 15	20	0.0	3.47	N/A	N/A	/
RC2-1		15 to 30	3	6.5	6.66	3.7	4.3	-0.12
RC2-1		30 to 45	4	5.5	3.35	13.6	12.9	-0.31
RC2-1		45 to 60	3	2.3	1.48	4.6	10.8	/
RC2-1		60 to 75	4	3.3	1.03	0.2	12.9	/
RC2-1		75 to 90	8	0.2	1.23	1.0	6.3	/
RC2-1		90 to 105	7	15.2	2.79	2.7	6.3	2.31
RC2-1		105 to 120	8	1.7	2.99	6.4	5.3	1.76
RC1-1	46.118 N, 120.026 W	0 to 15	24	3.6	3.16	8.0	5.7	0.33
RC1-1		15 to 30	17	1.8	6.36	1.8	7.9	-0.16
RC1-1		30 to 45	13	12.3	3.30	9.0	8.2	0.42
RC1-1		45 to 60	16	13.6	2.39	5.5	9.4	0.80
RC1-1		60 to 75	16	12.0	10.61	4.6	9.2	2.24
RC1-1		75 to 90	13	7.8	3.88	3.6	11.9	2.14
RC1-1		90 to 105	17	5.6	2.91	25.4	17.5	2.05
Roadcut adjacent to natural setting								
IN-1	46.323 N, 120.119 W	0 to 25	1	ND	0.62	N/A	N/A	/
IN-1		25 to 68	4	0.3	ND	N/A	N/A	/
IN-1		68 to 163	6	11.1	2.37	-3.2	9	/

Sample Site	Location	Depth (cm)	Moisture Content (%)	CaCO ₃ (%)	NO ₃ ⁻ (mg/L)	δ ¹⁵ N	δ ¹⁸ O	Δ ¹⁷ O
Apple Orchard								
I-1	46.316 N, 119.895 W	0 to 32	17	ND	1.04	/	/	/
I-1		32 to 64	15	ND	0.31	/	/	/
I-1		64 to 96	11	ND	0.34	/	/	/
IN-3	46.323 N, 120.119 W	0 to 27	18	ND	ND	N/A	N/A	/
IN-3		27 to 64	15	0.1	0.48	N/A	N/A	/
IN-3		64 to 96	16	2.0	0.85	N/A	N/A	/
Six meters downgradient of IN-3								
IN-4	46.324 N, 120.119	0-15	21	2.1	0.48	N/A	N/A	/
IN-4		15-30	18	3.0	0.72	N/A	N/A	/
IN-4		30-45	15	2.8	9.30	5.2	1.9	-0.8
IN-4		45-60	18	3.7	9.49	8.1	3.5	-1.1
IN-4		60-75	14	3.0	4.67	5.4	4.2	-2.1
IN-4		75-90	13	2.6	1.52	1.2	4.8	/
Rangeland soils								
N1	46.440 N, 119.944 W	0 to 10	4	ND	1.07	/	/	/
N1		10 to 20	5	ND	0.90	/	/	/
N1		16 to 26	6	ND	1.03	/	/	/
N1		26 to 36	6	ND	0.91	/	/	/
N1		36 to 51	6	ND	1.04	/	/	/
N1		40 to 60	7	ND	1.76	/	/	/
N1		58 to 74	8	ND	0.72	/	/	/
N1		72 to 91	4	ND	1.42	/	/	/

Sample Site	Location	Depth (cm)	Moisture Content (%)	CaCO ₃ (%)	NO ₃ ⁻ (mg/L)	δ ¹⁵ N	δ ¹⁸ O	Δ ¹⁷ O
N2	46.483 N, 119.880 W	0 to 36	7	ND	1.26	/	/	/
N2		36 to 72	10	ND	ND	/	/	/
N2		72 to 98	11	ND	ND	/	/	/
N3	46.131 N, 120.002 W	0 to 36	7	ND	ND	/	/	/
N3		36 to 72	7	0.2	0.56	/	/	/
N3		72 to 108	7	0.6	0.65	/	/	/
N4	46.126 N, 120.023 W	0 to 36	4	ND	2.20	/	/	/
N4		36 to 72	4	0.2	0.73	/	/	/
N4		73 to 81	4	0.1	0.73	/	/	/
Agricultural drains								
Sulfur Creek Wasteway	46.302 N, 119.993 W	N/A	/	/	5.42	10.1	-1.9	0.06
Marion Drain	46.331 N, 120.200 W	N/A	/	/	8.49	7.1	-4.2	0.78