

Table S1. Analysis of groundwater (GW) and treated wastewater (TWW) samples with replicates (a, b). Units in mg L⁻¹ unless noted otherwise.

	GW1a	GW1b	GW2a	GW2b	GW3a	GW3b	GW4a	GW4b	GW5a	GW5b
pH	7.68	7.78	7.28	7.18	7.51	7.43	7.83	7.66	7.42	8.89
T °C	17.1	17.1	19.8	19.4	22.7	20.9	24.5	22.7	31.1	28.1
TDS	770	720	705	732	780	782	650	655	178	842
HCO3	202.5	244.0	203.7	214.7	228.1	140.3	262.3	139.1	140.3	233.0
Cl	160.7	100.4	79.5	81.6	79.5	59.8	78.7	84.4	91.3	79.8
NO3	38.9	34.2	39.9	42.5	40.3	0.0	38.0	39.1	31.3	32.2
PO4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO4	157.0	168.4	133.4	136.9	130.0	95.9	131.2	140.9	152.9	131.3
Na	62.6	69.2	125.7	152.0	154.0	157.1	93.7	147.0	131.7	144.2
K	9.3	2.3	6.8	6.2	5.7	5.7	4.8	6.0	8.4	5.9
Ca	60.2	43.2	92.0	101.0	94.1	102.1	58.6	97.7	90.9	71.1
Mg	3.8	4.7	8.1	7.6	8.3	8.3	12.9	12.5	13.5	8.4
As	0.009	0.011	0.036	0.033	0.036	0.036	0.056	0.054	0.057	0.042
Cd	< DL	< DL	< DL	< DL	< DL	< DL	< DL	< DL	< DL	< DL
Pb	< DL	< DL	0.001	0.001	0.001	0.001	< DL	< DL	< DL	< DL

[illegible]

Table S2. As, Cd and Pb content in root, grain, leaves and stems (in mg kg⁻¹ dry weight) of plants irrigated with groundwater (GW) or treated wastewater (TWW).

Plant	Irrigation	Plant Part	As	Cd	Pb
barley1	GW	root	4.66	0.93	6.77
barley1	GW	grain	0.00	0.03	0.00
barley1	GW	leaves	2.83	0.11	0.86
barley1	GW	stem	0.62	0.16	0.17
barley2	GW	root	2.90	0.75	7.55
barley2	GW	grain	0.00	0.00	0.02
barley2	GW	leaves	3.07	0.08	1.04
barley2	GW	stem	0.38	0.03	0.04
barley3	GW	root	4.24	0.83	9.80
barley3	GW	grain	0.21	0.01	0.13
barley3	GW	leaves	2.00	0.20	2.09
barley3	GW	stem	0.48	0.13	0.66
barley4	GW	root	4.45	0.69	18.88
barley4	GW	grain	0.28	0.01	0.11
barley4	GW	leaves	1.86	0.21	1.55
barley4	GW	stem	0.34	0.19	0.04
barley5	GW	root	3.59	0.60	16.86
barley5	GW	grain	0.38	0.01	0.26
barley5	GW	leaves	1.72	0.16	1.17
barley5	GW	stem	0.48	0.15	0.71
barley6	GW	root	2.48	0.24	11.02
barley6	GW	grain	0.31	0.00	0.31
barley6	GW	leaves	2.97	0.11	1.62
barley6	GW	stem	1.83	0.21	4.49
barley7	GW	root	0.79	0.13	2.33
barley7	GW	grain	0.10	0.01	0.09
barley7	GW	leaves	2.62	0.11	2.19
barley7	GW	stem	0.59	0.08	0.40
barley8	GW	root	3.69	0.76	13.39
barley8	GW	grain	0.17	0.02	0.26
barley8	GW	leaves	1.76	0.35	4.49
barley8	GW	stem	0.72	0.13	2.51
barley9	GW	root	2.03	0.63	7.28
barley9	GW	grain	0.21	0.01	0.04
barley9	GW	leaves	1.97	0.34	5.20
barley9	GW	stem	0.79	0.21	2.69
barley10	GW	root	2.55	0.77	7.99
barley10	GW	grain	0.24	0.01	0.08
barley10	GW	leaves	1.97	0.26	2.71
barley10	GW	stem	0.34	0.16	0.44

barley11	GW	root	3.10	0.63	15.48
barley11	GW	grain	0.41	0.01	0.31
barley11	GW	leaves	2.59	0.19	2.55
barley11	GW	stem	0.52	0.13	0.46
barley12	GW	root	2.76	0.83	6.46
barley12	GW	grain	0.17	0.00	0.00
barley12	GW	leaves	1.86	0.18	1.80
barley12	GW	stem	0.31	0.13	0.22

Plant	Irrigation	Plant Part	As	Cd	Pb
barley1	TWW	root	2.90	0.65	13.00
barley1	TWW	grain	0.38	0.02	0.04
barley1	TWW	leaves	1.55	0.25	2.31
barley1	TWW	stem	0.03	0.18	0.44
barley2	TWW	root	3.90	0.99	6.06
barley2	TWW	grain	0.48	0.01	0.00
barley2	TWW	leaves	2.00	0.22	1.22
barley2	TWW	stem	0.59	0.21	0.13
barley3	TWW	root	2.76	0.93	9.91
barley3	TWW	grain	0.34	0.02	0.00
barley3	TWW	leaves	3.21	0.28	0.39
barley3	TWW	stem	0.90	0.25	0.00
barley4	TWW	root	2.69	1.06	10.68
barley4	TWW	grain	0.14	0.07	0.73
barley4	TWW	leaves	2.45	0.30	1.57
barley4	TWW	stem	0.66	0.22	0.37
barley5	TWW	root	2.97	0.61	10.62
barley5	TWW	grain	0.62	0.01	0.00
barley5	TWW	leaves	1.52	0.24	1.73
barley5	TWW	stem	0.45	0.19	0.51
barley6	TWW	root	2.97	1.31	8.44
barley6	TWW	grain	0.28	0.02	0.17
barley6	TWW	leaves	1.79	0.33	2.53
barley6	TWW	stem	0.31	0.22	0.62
barley7	TWW	root	2.21	1.53	9.46
barley7	TWW	grain	0.41	0.01	0.09
barley7	TWW	leaves	1.97	0.29	2.24
barley7	TWW	stem	0.38	0.16	0.00
barley8	TWW	root	1.21	0.25	3.75
barley8	TWW	grain	0.24	0.01	0.02
barley8	TWW	leaves	2.90	0.24	2.22
barley8	TWW	stem	0.38	0.11	0.02
barley9	TWW	root	2.45	1.01	11.55
barley9	TWW	grain	0.28	0.03	0.00

barley9	TWW	leaves	1.28	0.29	2.42
barley9	TWW	stem	0.52	0.17	0.00
barley10	TWW	root	2.41	0.80	7.29
barley10	TWW	grain	0.00	0.02	0.00
barley10	TWW	leaves	1.90	0.17	1.88
barley10	TWW	stem	0.00	0.20	0.00
barley11	TWW	root	1.93	0.50	14.39
barley11	TWW	grain	0.00	0.00	0.00
barley11	TWW	leaves	1.45	0.15	1.20
barley11	TWW	stem	0.76	0.13	0.15
barley12	TWW	root	2.07	0.39	13.02
barley12	TWW	grain	0.00	0.01	0.00
barley12	TWW	leaves	1.69	0.31	2.48
barley12	TWW	stem	0.17	0.12	0.00

Plant	Irrigation	Plant Part	As	Cd	Pb
oats1	GW	root	4.00	0.34	11.63
oats1	GW	grain	0.00	0.01	0.23
oats1	GW	leaves	1.45	0.13	1.25
oats1	GW	stem	0.21	0.07	0.54
oats2	GW	root	3.17	0.30	11.79
oats2	GW	grain	0.00	0.05	0.40
oats2	GW	leaves	2.00	0.18	2.85
oats2	GW	stem	0.14	0.10	1.20
oats3	GW	root	3.93	0.31	10.93
oats3	GW	grain	0.00	0.00	0.12
oats3	GW	leaves	1.38	0.13	2.24
oats3	GW	stem	0.10	0.10	0.62
oats4	GW	root	2.34	0.21	12.28
oats4	GW	grain	0.00	0.01	0.18
oats4	GW	leaves	1.59	0.21	1.64
oats4	GW	stem	0.31	0.13	0.76
oats5	GW	root	5.59	0.30	22.92
oats5	GW	grain	0.00	0.08	0.37
oats5	GW	leaves	1.86	0.42	2.19
oats5	GW	stem	0.17	0.08	0.48
oats6	GW	root	4.55	0.41	17.88
oats6	GW	grain	0.00	0.01	0.15
oats6	GW	leaves	1.69	0.13	2.30
oats6	GW	stem	0.00	0.09	0.34
oats7	GW	root	4.41	0.34	14.59
oats7	GW	grain	0.00	0.01	0.37
oats7	GW	leaves	1.93	0.19	3.73
oats7	GW	stem	4.83	0.09	0.89

oats8	GW	root	0.00	0.33	15.60
oats8	GW	grain	2.31	0.01	0.21
oats8	GW	leaves	0.52	0.21	5.46
oats8	GW	stem	2.76	0.13	1.22
oats9	GW	root	0.00	0.50	6.83
oats9	GW	grain	1.62	0.01	0.00
oats9	GW	leaves	0.38	0.10	2.05
oats9	GW	stem	2.97	0.13	0.70
oats10	GW	root	0.00	0.52	3.73
oats10	GW	grain	0.90	0.03	0.15
oats10	GW	leaves	0.28	0.17	1.06
oats10	GW	stem	3.45	0.20	0.29
oats11	GW	root	0.00	0.45	10.78
oats11	GW	grain	1.28	0.00	0.21
oats11	GW	leaves	0.00	0.13	0.78
oats11	GW	stem	2.93	0.10	0.29
oats12	GW	root	2.54	0.36	12.63
oats12	GW	grain	1.62	0.11	0.66
oats12	GW	leaves	1.19	0.18	2.32
oats12	GW	stem	0.55	0.02	0.22

Plant	Irrigation	Plant Part	As	Cd	Pb
oats1	TWW	root	0.00	0.38	10.37
oats1	TWW	grain	1.48	0.02	0.18
oats1	TWW	leaves	0.00	0.19	1.22
oats1	TWW	stem	5.38	0.12	0.15
oats2	TWW	root	0.00	0.41	9.61
oats2	TWW	grain	3.21	0.01	0.01
oats2	TWW	leaves	3.21	0.17	1.33
oats2	TWW	stem	0.34	0.08	0.32
oats3	TWW	root	5.03	0.51	1.13
oats3	TWW	grain	0.00	0.02	0.19
oats3	TWW	leaves	1.41	0.27	8.44
oats3	TWW	stem	0.00	0.11	1.31
oats4	TWW	root	3.59	0.30	1.08
oats4	TWW	grain	0.00	0.01	0.13
oats4	TWW	leaves	1.90	0.20	6.30
oats4	TWW	stem	0.28	0.11	0.00
oats5	TWW	root	2.38	0.44	1.06
oats5	TWW	grain	0.00	0.03	0.13
oats5	TWW	leaves	1.38	0.16	3.53
oats5	TWW	stem	0.00	0.09	0.89
oats6	TWW	root	3.24	0.44	0.73
oats6	TWW	grain	0.00	0.00	0.13

oats6	TWW	leaves	1.28	0.31	4.48
oats6	TWW	stem	0.00	0.17	0.06
oats7	TWW	root	2.52	0.45	1.42
oats7	TWW	grain	0.00	0.05	0.33
oats7	TWW	leaves	1.17	0.20	1.72
oats7	TWW	stem	0.00	0.14	0.00
oats8	TWW	root	2.79	0.44	0.86
oats8	TWW	grain	0.00	0.00	0.20
oats8	TWW	leaves	1.45	0.27	4.44
oats8	TWW	stem	0.00	0.15	0.02
oats9	TWW	root	3.14	0.43	1.33
oats9	TWW	grain	0.00	0.01	0.20
oats9	TWW	leaves	1.52	0.23	4.99
oats9	TWW	stem	0.00	0.17	0.06
oats10	TWW	root	2.34	0.50	1.00
oats10	TWW	grain	0.00	0.01	0.46
oats10	TWW	leaves	2.10	0.15	2.44
oats10	TWW	stem	0.00	0.11	0.00
oats11	TWW	root	1.55	0.40	3.17
oats11	TWW	grain	0.00	0.00	0.20
oats11	TWW	leaves	1.21	0.19	1.83
oats11	TWW	stem	0.52	0.10	0.00
oats12	TWW	root	1.10	0.39	1.79
oats12	TWW	grain	0.00	0.02	0.37
oats12	TWW	leaves	1.28	0.16	0.12
oats12	TWW	stem	0.00	0.10	0.31