Supplementary Material

Table S1. Characterization of the soil samples collected from each of the 3 treatments during the first application (initial conditions).

		Control				SS Dose 1 (Sample 1)				SS Dose 1 (Sample 2)			
		Leachable		Total		Leachable		Total		Leachable		Total	
Parameter	Units	Average	Stdev	Average	Stdev	Average	Stdev	Average	Stdev	Average	Stdev	Average	Stdev
Li	mg/kg	0.02		6.43	0.06	0.019		8.34	0.11	0.02		8.25	0.30
B	mg/kg	0.65		1.57	0.11	1.107		1.96	0.02	1.13		2.03	0.03
Na	g/kg	0.05		0.06	0.00	0.057		0.09	0.00	0.06		0.08	0.00
Mg	g/kg	0.02		0.72	0.01	0.029		0.72	0.00	0.03		0.73	0.00
Al	g/kg	0.001		6.04	0.03	0.001		6.98	0.05	0.001		7.01	0.09
Si	g/kg	<DL		0.10	0.00	0.005		0.17	0.03	0.01		0.17	0.02
K	g/kg	0.07		0.74	0.02	0.089		0.79	0.04	0.09		0.77	0.03
Ca	g/kg	0.70		5.40	0.42	0.717		5.39	0.01	0.72		5.59	0.01
Ti	mg/kg	0.31		29.78	0.57	0.371		31.34	1.68	0.33		32.98	0.60
V	mg/kg	<DL		14.53	0.09	<DL		42.71	0.17	<DL		42.63	1.48
Cr	mg/kg	<DL		22.42	1.40	0.010		23.38	0.18	0.01		23.84	1.43
Mn	mg/kg	<DL		1109.9	7.94	<DL		1230.33	0.70	<DL		1210.5	13.11
Fe	g/kg	0.001		50.09	2.26	0.001		51.14	2.53	0.001		51.12	2.30
Co	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		8.04	0.02	<DL		8.49	0.06	<DL		8.47	0.00
Cu	mg/kg	0.10		7.74	0.14	0.103		7.91	0.07	0.10		7.94	0.03
Zn	mg/kg	0.16		39.01	1.73	0.171		41.18	0.46	0.17		40.95	0.77
As	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	0.08		19.86	1.90	0.108		20.74	1.02	0.11		21.90	0.13
Sr	mg/kg	0.50		11.66	0.29	0.533		12.58	0.14	0.54		12.57	0.30
Y	mg/kg	<DL		20.58	0.52	<DL		25.49	0.32	<DL		26.28	1.42
Mo	mg/kg	0.10		0.06	0.01	0.091		0.06	0.00	0.09		0.06	0.00
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Sb	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Cs	mg/kg	<DL		<DL		<DL		1.92	0.04	<DL		1.94	0.02
Ba	mg/kg	0.11		73.56	0.49	0.133		81.65	0.35	0.13		80.92	0.77
Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	0.02		21.16	1.22	0.017		21.72	0.67	0.02		21.83	2.31
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
F	mg/kg	19.89	0.71			13.97	2.16			18.18	2.09		
Cl	mg/kg	10.58	3.27	<800		21.15	0.66	<800		15.25	5.54	<800	
Br	mg/kg	0.08	0.08			2.93	0.82			2.05	1.40		
SO_4	mg/kg	81.82	1.35	627.67	274.8	295.32	23.24	671.50	30.41	214.33	96.45	648.0	73.54
Phenols	mg/kg	0.02	0.03			<DL				0.14	0.06		
N-NO_3-	mg/kg	28.16	0.63	400.00	16.00	27.40	1.46	700.00	0.00	26.37	0.58	700.0	0.00
N-NH_3	mg/kg	1.49	0.45			3.79	0.75			2.08	0.11		
P	mg/kg	0.58	0.51	109.60	23.99	15.58	8.30	835.04	86.99	12.52	2.97	1339.8	118.98
TOC	mg/kg			2570	60.62			4800	200			4700	0.00
pH				7.54									
EC				357.33	19.63								

Table S2. Characterization of the soil samples collected from each of the 3 treatments during the first application (initial conditions).

		SS Dose 2 (Sample 1)				SS Dose 2 (Sample 2)			
		Leachable		Total		Leachable		Total	
Parameter	Units	Average	Stdev	Average	Stdev	Average	Stdev	Average	Stdev
Li	mg/kg	0.02		8.56	0.06	0.02		8.68	0.08
B	mg/kg	3.71		2.65	0.04	3.81		2.62	0.02
Na	g/kg	0.09		0.10	0.00	0.09		0.11	0.00
Mg	g/kg	0.05		0.74	0.01	0.05		0.79	0.04
Al	g/kg	0.002		7.08	0.01	0.002		7.15	0.00

Si	g/kg	0.02		0.32	0.02	0.02		0.30	0.00
K	g/kg	0.14		0.86	0.01	0.14		0.86	0.00
Ca	g/kg	0.88		5.85	0.01	0.86		5.87	0.01
Ti	mg/kg	1.13		42.97	0.56	1.05		45.23	0.28
V	mg/kg	<DL		44.59	1.23	<DL		47.33	0.44
Cr	mg/kg	0.04		25.59	0.56	0.04		26.64	1.11
Mn	mg/kg	<DL		1243.7	2.08	<DL		1249.25	1.70
Fe	g/kg	0.002		56.48	4.58	0.00		54.05	1.53
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		8.94	0.01	<DL		8.92	0.01
Cu	mg/kg	0.11		13.12	0.16	0.10		13.91	1.17
Zn	mg/kg	0.23		53.63	0.12	0.25		54.05	0.13
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	0.17		23.70	1.53	0.18		24.16	1.54
Sr	mg/kg	0.84		18.07	0.87	0.88		18.50	2.07
Y	mg/kg	<DL		27.35	0.27	<DL		28.32	0.48
Mo	mg/kg	0.16		0.10	0.00	0.16		0.10	0.00
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	<DL		<DL		<DL		<DL	
Cs	mg/kg	<DL		2.03	0.01	<DL		2.04	0.01
Ba	mg/kg	0.24		96.90	1.17	0.23		96.38	0.12
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	0.02		23.20	0.94	0.02		26.74	2.09
U	mg/kg	<DL		<DL		<DL		<DL	
F	mg/kg	12.58	1.02			15.37	0.87		
Cl	mg/kg	46.64	1.44	<800		94.01	76.24	<800	
Br	mg/kg	11.20	0.73			7.40	2.82		
SO_4	mg/kg	869.67	102.4	733.0	165.5	606.17	218.5	700.5	119.50
Phenols	mg/kg	0.54	0.14			0.78	0.48		
N-NO_3-	mg/kg	27.40	0.29	900.0	100.0	26.79	1.17	900	0.00
N-NH_3	mg/kg	5.52	0.64			5.09	0.03		
P	mg/kg	37.93	3.47	2134.5	208.9	23.43	2.29	1589.61	54.62
TOC	mg/kg			5800	600			5900	100

Table S3. Characterization of the soil samples collected from each of the 3 treatments at the first application (final conditions).

		Control				**SS Dose 1**				**SS Dose 2**			
		Leachable		**Total**		**Leachable**		**Total**		**Leachable**		**Total**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.005	0.000	4.46	0.01	0.01	0.000	4.35	0.04	0.01	0.00	4.39	0.14
B	mg/kg	0.947	0.006	0.50	0.00	1.05	0.023	1.03	0.00	1.86	0.063	0.85	0.31
Na	mg/kg	52.406	2.539	73.36	1.96	60.98	0.548	94.39	6.66	75.50	0.347	125.71	1.00
Mg	g/kg	0.026	0.003	0.38	0.00	0.02	0.003	0.45	0.06	0.04	0.002	0.77	0.04
Al	g/kg	0.0003	0.000	6.75	0.30	0.0005	0.00	6.55	0.45	0.00	0.0000	6.50	0.25
Si	g/kg	0.011	0.001	0.88	0.04	0.01	0.001	0.78	0.03	0.01	0.0004	0.68	0.08
K	g/kg	0.058	0.001	0.80	0.05	0.03	0.004	0.63	0.01	0.04	0.001	0.52	0.07
Ca	g/kg	0.324	0.002	4.31	0.20	0.43	0.007	4.77	0.09	0.32	0.006	5.05	0.03
Ti	mg/kg	<DL		9.27	0.34	0.05	0.00	9.51	0.17	0.02	0.001	12.11	0.61
V	mg/kg	0.009	0.001	31.76	2.30	0.01	0.0001	31.34	0.76	0.01	0.001	23.20	0.11
Cr	mg/kg	0.005	0.000	21.82	0.65	0.01	0.0005	19.63	1.20	0.01	0.000	19.11	1.05
Mn	mg/kg	0.496	0.003	874.43	16.47	0.33	0.005	900.81	33.69	1.16	0.005	1004.63	76.09
Fe	mg/kg	0.225	0.006	15,095.5	617.5	0.28	0.025	14,199	188.3	0.50	0.008	13,977	64.27

Co	mg/kg	<DL		14.56	0.24	<DL		16.35	1.06	<DL		17.44	1.30
Ni	mg/kg	<DL		2.28	0.01	<DL		2.26	0.23	<DL		3.60	0.02
Cu	mg/kg	0.410	0.008	11.97	0.72	0.30	0.002	13.96	1.55	0.34	0.005	21.41	0.17
Zn	mg/kg	0.262	0.051	23.27	0.19	0.15	0.007	28.80	3.66	0.28	0.002	66.72	0.41
As	mg/kg	<DL		3.14	0.00	<DL		3.80	0.17	<DL		4.17	0.002
Se	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	0.011	0.001	5.45	0.05	0.01	0.001	5.30	0.03	0.03	0.001	5.63	0.25
Sr	mg/kg	0.411	0.008	8.73	0.03	0.44	0.004	8.42	0.01	0.50	0.020	25.67	0.41
Y	mg/kg	<DL		30.61	2.87	<DL		27.72	2.61	<DL		26.43	0.06
Mo	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		2.44	0.04	<DL		2.56	0.15	<DL		2.94	0.01
Sb	mg/kg	<DL		1.47	0.06	<DL		1.72	0.02	<DL		1.72	0.33
Cs	mg/kg	<DL		0.53	0.08	<DL		0.47	0.09	<DL		0.54	0.03
Ba	mg/kg	0.072	0.001	38.52	2.95	0.10	0.004	42.50	3.05	0.14	0.002	65.77	0.79
Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		14.54	0.50	<DL		16.48	0.36	<DL		37.65	0.64
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL	
F	mg/kg	10.65	0.36			13.91	0.42			9.74	2.45		
Cl	mg/kg	<DL				13.62	19.26			<DL			
N-NO_2-	mg/kg	0.56	0.12			0.55	0.32			0.18	0.26		
N-NO_3-	mg/kg	14.30	5.51			10.17	1.52			8.08	11.42		
N-NO_3- (KCl extraction)	mg/kg	24.23	1.63			24.81	5.71			18.46	6.53		
N-NH_3	mg/kg	0.99	0.36			1.22	0.08			1.44	0.45		
N-NH_3 (KCl extraction)	mg/kg	14.37	3.86			11.20	2.92			9.50	2.40		
TN	g/kg			0.59	0.15			0.81	0.00			1.07	0.40
P-PO_4	mg/kg	2.46	1.00			2.37	0.38			3.93	2.09		
P	g/kg	0.11	0.04	0.35	0.22	0.09	0.00	0.73	0.06	0.16	0.06	1.91	1.31
SO4	mg/kg	295.54	28.81			269.28	68.61			297.50	118.62		
TOC	g/kg			4.86	1.98			8.19	0.00			11.12	4.91
Bulk density	g/cm3			1.151				1.206				1.077	
Porosity	%			48				49				54	

Table S4. Characterization of the tomato samples collected from each of the 3 treatments at the first application (final conditions).

		Control		SS Dose 1		SS Dose 2	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL	
B	mg/kg	12.91	0.36	14.38	0.80	14.12	0.18
Na	mg/kg	109.88	2.48	151.83	2.61	121.22	10.46
Mg	g/kg	1.05	0.06	1.22	0.12	1.19	0.03
Al	g/kg	<DL		<DL		<DL	
Si	g/kg	0.10	0.00	0.10	0.01	0.11	0.00
K	g/kg	25.35	0.51	29.13	3.21	25.73	0.29
Ca	g/kg	0.99	0.00	1.08	0.25	1.21	0.22
Ti	mg/kg	10.61	0.63	11.04	1.19	10.71	0.04
V	mg/kg	0.05	0.01	0.07	0.01	0.07	0.00
Cr	mg/kg	0.31	0.00	0.32	0.00	0.36	0.01
Mn	mg/kg	12.44	2.04	11.99	0.98	14.32	1.72
Fe	mg/kg	37.84	0.08	37.01	1.91	32.27	0.24
Co	mg/kg	<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL	

Cu	mg/kg	7.44	0.69	7.00	0.05	5.42	0.12
Zn	mg/kg	21.87	1.73	19.58	1.05	17.10	0.33
As	mg/kg	<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL	
Rb	mg/kg	40.86	1.49	39.28	5.48	27.13	3.78
Sr	mg/kg	1.55	0.12	1.56	0.06	1.97	0.00
Y	mg/kg	0.24	0.00	0.25	0.04	0.25	0.03
Mo	mg/kg	1.57	0.03	2.56	0.35	1.78	0.03
Cd	mg/kg	<DL		<DL		<DL	
Sn	mg/kg	1.20	0.01	1.11	0.17	1.12	0.17
Sb	mg/kg	0.91	0.00	0.97	0.00	0.97	0.01
Cs	mg/kg	<DL		<DL		<DL	
Ba	mg/kg	0.41	0.01	0.56	0.06	0.34	0.03
Hg	mg/kg	<DL		<DL		<DL	
Pb	mg/kg	<DL		<DL		<DL	
U	mg/kg	<DL		<DL		<DL	
TN	g/kg	21.45	2.04	24.18	2.74	20.16	0.82
TOC	g/kg	547.1	0.32	536.4	10.4	509.8	5.2
Humidity	%	91.5	0.4	91.8	0.4	92.7	0.2

Table S5. Characterization of the leaf samples collected from each of the 3 treatments at the first application (final conditions).

		Control		**SS Dose 1**		**SS Dose 2**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL	
B	mg/kg	98.95	0.99	136.25	4.76	110.76	8.66
Na	mg/kg	723.01	2.58	598.95	22.16	596.04	4.97
Mg	g/kg	6.08	0.21	5.31	0.21	6.09	0.01
Al	g/kg	<DL		<DL		<DL	
Si	g/kg	0.21	0.02	0.26	0.01	0.22	0.01
K	g/kg	24.89	1.44	18.25	0.70	20.21	1.38
Ca	g/kg	45.30	3.67	47.38	0.17	41.11	1.56
Ti	mg/kg	15.47	0.71	13.60	0.45	14.23	0.88
V	mg/kg	0.56	0.01	0.14	0.00	0.08	0.00
Cr	mg/kg	0.97	0.01	0.23	0.01	0.17	0.00
Mn	mg/kg	262.81	13.08	272.65	2.91	236.50	17.11
Fe	mg/kg	51.55	0.20	50.34	1.99	45.33	1.07
Co	mg/kg	<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL	
Cu	mg/kg	10.29	0.19	9.42	0.50	8.27	0.44
Zn	mg/kg	54.81	0.29	34.06	0.93	42.53	2.44
As	mg/kg	<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL	
Rb	mg/kg	19.87	1.15	11.37	0.41	14.38	0.99
Sr	mg/kg	46.05	2.94	46.37	0.80	45.21	2.97
Y	mg/kg	0.55	0.01	0.54	0.02	0.42	0.01
Mo	mg/kg	13.66	1.41	14.67	0.10	10.38	0.93
Cd	mg/kg	<DL		<DL		<DL	
Sn	mg/kg	1.36	0.02	1.28	0.04	1.14	0.02

Sb	mg/kg	2.13	0.01	1.15	0.01	1.02	0.03
Cs	mg/kg	<DL		<DL		<DL	
Ba	mg/kg	15.02	0.81	13.77	0.57	15.04	0.05
Hg	mg/kg	<DL		<DL		<DL	
Pb	mg/kg	<DL		<DL		<DL	
U	mg/kg	<DL		<DL		<DL	
TN	g/kg	24.57	2.85	18.11	0.60	21.69	0.85
TOC	g/kg	391.97	6.19	378.58	18.11	386.25	1.02
Humidity	%	81.6		73.7		78.6	

Table S6. Characterization of the shoots samples collected from each of the 3 treatments at the first application (final conditions).

		Control		**SS Dose 1**		**SS Dose 2**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL	
B	mg/kg	19.89	1.72	19.56	0.22	20.13	0.41
Na	mg/kg	282.60	0.82	363.22	42.79	312.35	7.99
Mg	g/kg	2.03	0.04	1.89	0.02	2.21	0.08
Al	g/kg	<DL		<DL		<DL	
Si	g/kg	0.07	0.00	0.09	0.01	0.08	0.00
K	g/kg	19.20	0.26	19.68	2.02	20.63	0.95
Ca	g/kg	10.09	0.69	9.50	0.46	11.59	0.16
Ti	mg/kg	10.57	0.13	11.39	1.05	11.93	0.48
V	mg/kg	0.08	0.00	0.45	0.00	0.31	0.00
Cr	mg/kg	0.34	0.02	0.86	0.02	1.09	0.03
Mn	mg/kg	77.87	1.13	76.15	0.75	86.36	0.51
Fe	mg/kg	37.78	0.13	34.48	0.56	42.65	0.90
Co	mg/kg	<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL	
Cu	mg/kg	8.94	0.20	9.75	0.59	9.70	0.26
Zn	mg/kg	89.11	11.15	61.82	3.63	86.82	4.44
As	mg/kg	<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL	
Rb	mg/kg	16.59	0.18	14.89	1.57	14.69	0.64
Sr	mg/kg	18.11	0.45	16.23	0.06	21.69	1.90
Y	mg/kg	0.27	0.01	0.30	0.00	0.30	0.00
Mo	mg/kg	<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL	
Sn	mg/kg	1.16	0.05	1.26	0.00	1.28	0.03
Sb	mg/kg	0.87	0.01	1.53	0.03	1.43	0.16
Cs	mg/kg	<DL		<DL		<DL	
Ba	mg/kg	5.52	0.13	4.94	0.03	7.49	0.39
Hg	mg/kg	<DL		<DL		<DL	
Pb	mg/kg	<DL		<DL		<DL	
U	mg/kg	<DL		<DL		<DL	
TN	g/kg	25.72	0.59	26.12	2.06	27.22	0.42
TOC	g/kg	422.97	2.48	436.28	5.06	425.97	2.48
Humidity	%	72.1		73		73.4	

Table S7. Characterization of the roots samples collected from each of the 3 treatments at the first application (final conditions).

		Control		SS Dose 1		SS Dose 2	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.89	0.02	1.92	0.04	1.64	0.09
B	mg/kg	9.60	0.52	15.05	1.10	11.37	0.22
Na	mg/kg	775.41	49.55	478.19	10.04	2793.18	226.91
Mg	g/kg	0.80	0.10	1.04	0.08	1.42	0.16
Al	g/kg	1.11	0.02	1.94	0.02	1.56	0.17
Si	g/kg	0.71	0.00	1.00	0.10	0.95	0.05
K	g/kg	0.77	0.01	0.86	0.18	1.23	0.16
Ca	g/kg	17.83	0.09	15.80	0.22	19.11	2.54
Ti	mg/kg	4.77	0.48	14.22	0.09	10.22	0.85
V	mg/kg	4.05	0.01	7.23	0.09	6.68	0.78
Cr	mg/kg	4.95	0.05	6.17	0.05	6.04	0.02
Mn	mg/kg	117.50	19.82	316.30	35.07	332.31	42.46
Fe	mg/kg	1269.88	240.48	3309.24	301.90	3134.09	150.13
Co	mg/kg	1.88	0.03	4.80	0.19	6.41	0.65
Ni	mg/kg	2.85	0.02	4.71	0.23	5.43	0.79
Cu	mg/kg	30.98	0.58	44.08	5.14	39.32	0.21
Zn	mg/kg	456.68	4.93	230.01	3.08	455.27	28.75
As	mg/kg	1.98	0.01	3.28	0.00	3.38	0.03
Se	mg/kg	<DL		<DL		<DL	
Rb	mg/kg	1.50	0.01	1.89	0.04	3.37	0.43
Sr	mg/kg	35.92	0.99	39.23	0.55	46.06	5.56
Y	mg/kg	4.31	0.01	4.67	0.30	5.60	0.01
Mo	mg/kg	1.60	0.11	2.96	0.12	2.63	0.33
Cd	mg/kg	<DL		<DL		<DL	
Sn	mg/kg	1.51	0.00	1.63	0.04	1.58	0.04
Sb	mg/kg	1.81	0.03	1.67	0.14	3.32	0.02
Cs	mg/kg	<DL		<DL		<DL	
Ba	mg/kg	14.41	0.43	45.70	2.83	37.60	0.32
Hg	mg/kg	<DL		<DL		<DL	
Pb	mg/kg	3.77	2.91	17.20	1.34	16.42	0.09
U	mg/kg	<DL		<DL		<DL	
TN	g/kg	16.32	0.5	12.82	0.78	13.88	0.35
TOC	g/kg	399.10	1.57	398.48	0.25	362.17	6.08
Humidity	%	82.6		79.8		78.5	

Table S8. Characterization of the soil samples collected from each of the 4 treatments during the second application (initial conditions).

		Control				SS Biochar Dose 1				SS Biochar Dose 2				OMW-3-Phase-Biochar			
		Leachable		Total		Leachable		Total		Leachable		Total		Leachable		Total	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.03	0.007	2.89	0.03	0.04	0.002	2.04	0.04	0.01	0.004	2.06	0.01	0.01	0.002	2.63	0.05
B	mg/kg	0.21	0.007	0.07	0.01	0.61	0.01	0.62	0.03	0.87	0.027	0.67	0.04	0.92	0.009	1.32	0.02
Na	g/kg	0.07	0.004	0.14	0.01	0.08	0.004	0.19	0.01	0.08	0.006	0.21	0.03	0.11	0.008	0.27	0.01
Mg	g/kg	0.03	0.007	0.39	0.01	0.03	0.001	0.57	0.04	0.04	0.011	0.88	0.01	0.04	0.007	0.73	0.01
Al	g/kg	0.03	0.004	2.49	0.00	0.03	0.005	2.00	0.07	0.02	0.001	1.88	0.10	0.02	0.003	2.08	0.02
Si	g/kg	0.06	0.005	1.41	0.01	0.06	0.004	0.54	0.04	0.04	0.004	0.76	0.02	0.03	0.006	1.22	0.05
K	g/kg	0.05	0.004	0.57	0.01	0.09	0.01	0.58	0.00	0.11	0.002	0.67	0.01	0.46	0.031	1.35	0.01
Ca	g/kg	0.23	0.009	4.36	0.03	0.22	0.002	5.35	0.27	0.21	0.010	7.78	0.06	0.25	0.041	5.97	0.02
Ti	mg/kg	0.24	0.027	15.51	0.24	0.26	0.03	11.44	2.09	0.22	0.001	20.30	0.46	0.19	0.010	13.41	0.18
V	mg/kg	0.01	0.008	7.68	0.08	0.02	0.01	6.84	0.19	0.01	0.001	6.49	0.15	0.08	0.010	6.53	0.27
Cr	mg/kg	<DL		8.59	0.15	<DL		9.71	0.69	<DL		9.89	0.64	<DL		8.16	0.12
Mn	mg/kg	<DL		53.02	1.80	0.04	0.00	110.89	4.13	<DL		126.94	2.85	<DL		92.89	3.93
Fe	mg/kg	22.54	1.206	5739	81.30	27.49	0.20	5764	30.14	15.28	0.15	6110	4.58	12.61	0.264	4690	289.40
Co	mg/kg	<DL		0.27	0.01	<DL		1.28	0.04	<DL		1.27	0.02	<DL		0.47	0.04
Ni	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cu	mg/kg	0.13	0.013	28.52	0.59	0.15	0.01	33.97	0.79	0.16	0.01	38.39	1.17	0.12	0.002	29.06	1.46
Zn	mg/kg	<DL		27.14	2.24	<DL		44.17	4.15	<DL		82.32	1.24	<DL		14.73	0.15
As	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	0.04	0.003	4.89	0.05	0.09	0.003	4.61	0.01	0.11	0.002	4.60	0.09	0.16	0.005	4.92	0.01
Sr	mg/kg	0.34	0.013	7.85	0.06	0.32	0.004	16.58	0.77	0.31	0.004	29.09	0.39	0.28	0.005	17.55	1.60
Y	mg/kg	0.04	0.001	5.79	0.14	0.04	0.002	5.61	0.35	0.04	0.001	5.61	0.23	0.03	0.00	5.49	0.07
Mo	mg/kg	0.02	0.007	0.54	0.02	0.04	0.01	0.65	0.05	0.06	0.010	0.61	0.01	0.02	0.003	0.33	0.004
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	0.13	0.001	2.81	0.00	0.13	0.00	3.11	0.09	0.13	0.000	3.25	0.08	0.13	0.001	3.33	0.09
Sb	mg/kg	0.15	0.010	3.40	0.36	0.11	0.01	5.61	0.13	0.13	0.005	5.72	0.24	0.09	0.013	2.74	0.01
Cs	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Ba	mg/kg	0.03	0.002	16.20	0.69	0.04	0.00	27.14	0.80	0.01	0.01	44.72	3.37	0.01	0.002	16.65	1.20

Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		5.54	0.09	<DL		7.57	0.40	<DL		9.58	0.07	<DL		4.14	0.04
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
F	mg/kg	12.79	1.90			11.23	2.38			11.86	1.97			17.21	5.33		
Cl	mg/kg	66.08	9.59			56.29	19.08			71.27	19.65			68.03	32.89		
N-NO_2-	mg/kg	0.16	0.27			0.95	0.27			1.85	1.03			<DL			
N-NO_3-	mg/kg	38.69	21.94			38.19	7.42			34.74	7.35			10.52	4.57		
N-NO_3- (KCl ext/ction)	mg/kg	22.46	3.73			25.23	6.15			28.31	8.06			25.85	0.00		
N-NH_3	mg/kg	13.40	7.61			38.94	7.33			88.90	14.97			4.81	4.37		
N-NH_3 (KCl ext/ction)	mg/kg	11.98	2.66			45.32	10.78			114.67	19.34			6.74	0.36		
TN	g/kg			2.02	0.45			2.45	0.88			3.50	0.85			2.21	0.14
P-PO_4	mg/kg	50.05	5.81			52.98	6.59			69.66	23.09			57.03	16.63		
P	mg/kg	134.78	23.57	860	160	76.62	9.37	1330	490	100.27	15.93	3000	660	145.65	45.79	1210	460
SO_4	mg/kg	34.62	4.67			107.13	29.43			198.14	51.39			25.53	9.38		
TOC	g/kg			15.18	2.10			21.23	7.35			30.77	6.82			33.17	8.24
Phenols	mg/kg	6.57	0.55			6.57	1.25			9.51	1.18			7.49	0.27		
pH				7.19				6.81				7.14				8.80	
EC	µS/cm			275.1	3.9			421	16.37			585	9.5			535	4.4

Table S9. Characterization of the soil samples collected from each of the 4 treatments at the second application (final conditions).

		Control				**SS Biochar Dose 1**				**SS Biochar Dose 2**				**OMW-3-Phase-Biochar**			
		Leachable		**Total**		**Leachable**		**Total**		**Leachable**		**Total**		**Leachable**		**Total**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.07	0.009	0.73	0.02	0.05	0.010	1.33	0.02	0.03	0.008	1.02	0.26	0.03	0.00	0.98	0.05
B	mg/kg	0.25	0.016	<DL		0.24	0.005	<DL		0.56	0.057	<DL		1.22	0.01	0.16	0.02
Na	g/kg	0.22	0.018	0.26	0.02	0.20	0.032	0.60	0.01	0.38	0.006	0.48	0.02	0.36	0.05	0.42	0.04
Mg	g/kg	0.02	0.000	0.13	0.00	0.02	0.002	0.31	0.00	0.06	0.011	0.33	0.01	0.04	0.00	0.30	0.00
Al	g/kg	0.07	0.002	1.60	0.15	0.06	0.006	1.71	0.12	0.03	0.001	1.54	0.09	0.04	0.00	1.53	0.13
Si	g/kg	0.10	0.002	0.33	0.03	0.08	0.007	0.48	0.00	0.05	0.002	0.51	0.01	0.05	0.01	0.46	0.01

K	g/kg	0.08	0.003	0.39	0.01	0.06	0.004	0.51	0.01	0.12	0.000	0.50	0.01	0.49	0.12	1.02	0.01
Ca	g/kg	0.11	0.002	1.82	0.01	0.09	0.014	3.67	0.05	0.13	0.002	3.82	0.19	0.09	0.01	3.80	0.06
Ti	mg/kg	0.74	0.036	5.51	0.08	0.48	0.023	7.33	0.24	0.28	0.003	8.63	0.42	0.34	0.05	6.88	0.34
V	mg/kg	0.14	0.012	5.52	0.26	0.10	0.004	5.65	0.39	0.09	0.006	4.91	0.31	0.16	0.01	4.92	0.21
Cr	mg/kg	0.07	0.001	4.70	0.06	0.05	0.006	5.10	0.50	0.03	0.002	4.71	0.02	0.03	0.01	4.33	0.16
Mn	mg/kg	0.21	0.010	62.43	3.98	0.21	0.018	108.11	2.83	0.17	0.001	110.12	5.80	0.21	0.004	88.41	0.57
Fe	g/kg	0.05	0.001	2.79	0.23	0.03	0.001	3.03	0.06	0.02	0.002	3.00	0.10	0.02	0.00	2.35	0.13
Co	mg/kg	<DL		1.13	0.12	<DL		1.41	0.02	<DL		1.55	0.16	<DL		1.21	0.04
Ni	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cu	mg/kg	0.46	0.020	24.11	0.14	0.29	0.050	25.48	0.48	0.27	0.033	23.45	1.90	0.94	0.01	22.74	0.05
Zn	mg/kg	0.55	0.051	13.02	0.00	0.33	0.003	24.55	1.30	0.27	0.006	31.11	0.49	0.40	0.01	12.15	0.45
As	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	0.13	0.016	5.08	0.42	0.11	0.008	5.92	0.08	0.13	0.011	5.36	0.14	0.28	0.01	5.53	0.43
Sr	mg/kg	0.19	0.005	17.78	0.45	0.14	0.004	19.93	1.87	0.32	0.000	17.46	0.48	0.33	0.00	16.12	0.83
Y	mg/kg	0.03	0.001	4.65	0.06	0.03	0.005	4.16	0.10	0.02	0.001	4.06	0.06	0.03	0.01	4.06	0.05
Mo	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sb	mg/kg	0.02	0.000	0.57	0.02	0.02	0.000	0.58	0.01	0.02	0.001	0.67	0.02	0.02	0.00	0.61	0.01
Cs	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Ba	mg/kg	0.13	0.023	11.95	1.05	0.08	0.001	21.42	0.03	0.09	0.003	19.08	0.01	0.08	0.02	10.56	0.09
Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		4.68	0.19	<DL		4.64	0.02	<DL		4.46	0.10	<DL		3.09	0.22
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
F	mg/kg	13.97	1.40			17.99	2.93			7.96	0.52			24.85	3.32		
Cl	mg/kg	364.59	110.70			309.97	66.28			763.29	134.0			594.25	40.53		
N-NO_2-	mg/kg	0.18	0.25			<DL				0.13	0.18			0.48	0.69		
N-NO_3-	mg/kg	18.38	10.96			35.58				82.67	20.44			8.09	10.87		
N-NO_3- (KCl ext/ction)	mg/kg	21.03	9.43			26.67	1.45			53.85	19.58			40.51	2.18		
N-NH_3	mg/kg	1.25	0.68			<DL				8.77	9.88			<DL			

N-NH_3 (KCl ext/ction)	mg/kg	1.87				4.13	1.67			16.90	9.72			5.01	0.83		
TN	g/kg			0.88				1.21				1.50				1.38	
P-PO_4	mg/kg	48.94	4.51			30.56	3.34			48.72	27.95			64.06	19.31		
P	mg/kg	144.77	38.64	1020	10	68.31	2.71	1370	350	72.98	3.56	1460	510	134.94	35.59	1000	100
SO_4	mg/kg	80.57	65.53			98.38	19.12			306.44	83.08			186.42	78.21		
Phenols	mg/kg	5.48	0.71			5.20	0.17			6.30	0.11			10.65	4.77		
TOC	g/kg			14.59				18.12				19.38				33.36	
pH				6.3				6.22				6.17				8.45	
EC	μS/cm			273	6.4			995	7.1			1317	7.1			1226	6.4

Table S10. Characterization of the tomato samples collected from each of the 4 treatments at the second application (final conditions).

		Control		SS Biochar Dose 1		SS Biochar Dose 2		OMW-3-Phase-Biochar	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	8.22	0.18	9.95	0.55	8.32	0.17	8.59	0.56
Na	g/kg	1.60	0.03	1.99	0.10	1.91	0.05	1.94	0.06
Mg	g/kg	1.40	0.03	1.66	0.06	1.46	0.03	1.62	0.18
Al	g/kg	0.16	0.01	0.23	0.01	0.18	0.01	0.17	0.01
Si	g/kg	0.09	0.00	0.10	0.00	0.09	0.00	0.11	0.01
K	g/kg	27.44	0.50	32.83	1.61	29.64	0.66	28.30	1.57
Ca	g/kg	1.11	0.07	0.96	0.12	1.94	0.02	2.65	0.20
Ti	mg/kg	6.38	0.21	5.88	0.22	4.71	0.07	4.94	0.04
V	mg/kg	0.02	0.01	0.03	0.01	0.01	0.00	0.02	0.00
Cr	mg/kg	0.34	0.03	0.27	0.02	0.29	0.03	0.24	0.01
Mn	mg/kg	11.96	1.20	14.82	0.69	12.54	0.18	16.65	0.28
Fe	g/kg	0.04	0.00	0.07	0.01	0.04	0.01	0.03	0.00
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	7.76	1.60	9.75	1.79	7.50	0.04	8.93	0.02
Zn	mg/kg	19.77	2.43	23.53	0.97	21.15	1.03	20.32	2.10
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	15.13	0.25	24.45	0.90	23.27	0.86	16.03	1.73
Sr	mg/kg	2.92	0.10	3.74	0.39	2.64	0.09	2.44	0.47
Y	mg/kg	0.24	0.01	0.28	0.00	0.27	0.01	0.24	0.01
Mo	mg/kg	<DL		<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	0.55	0.01	0.31	0.02	0.46	0.01	0.41	0.03
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	0.42	0.00	0.94	0.13	0.65	0.06	0.73	0.01
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		<DL		<DL		<DL	
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	15.53		13.51		17.27		15.44	
TOC	g/kg	501.63		411.36		560.05		484.84	
TP	g/kg	3.90	0.08	3.42	0.04	2.80	0.12	2.53	0.07
Moisture	%	90.5		89.1		90.5		90.6	

Table S11. Characterization of the leaf samples collected from each of the 4 treatments at the second application (final conditions).

		Control		SS Biochar Dose 1		SS Biochar Dose 2		OMW-3-Phase Biochar	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.94	0.16	0.53	0.03	0.25	0.05	0.39	0.11
B	mg/kg	115.16	1.09	90.19	13.85	95.49	4.16	136.75	3.89
Na	g/kg	3.50	0.50	2.84	0.43	2.44	0.28	2.41	0.61

Mg	g/kg	8.23	0.29	12.65	0.51	10.88	0.81	9.29	0.33
Al	g/kg	0.14	0.01	0.19	0.01	0.12	0.00	0.13	0.03
Si	g/kg	0.16	0.01	0.19	0.02	0.21	0.00	0.21	0.01
K	g/kg	10.90	0.41	10.97	0.63	12.35	0.42	20.39	4.02
Ca	g/kg	45.58	3.85	55.07	0.57	54.97	8.26	50.43	6.10
Ti	mg/kg	7.25	0.42	7.28	0.03	8.93	0.01	5.76	0.91
V	mg/kg	0.36	0.00	0.33	0.01	0.36	0.04	0.34	0.06
Cr	mg/kg	1.00	0.05	1.14	0.01	1.17	0.01	1.02	0.42
Mn	mg/kg	343.54	19.46	267.32	7.11	195.25	1.06	152.90	12.87
Fe	g/kg	0.18	0.02	0.20	0.01	0.17	0.01	0.17	0.00
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	16.46	2.96	10.09	2.48	14.28	1.94	11.70	2.38
Zn	mg/kg	26.58	0.39	27.35	4.91	31.52	0.30	19.49	9.91
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	0.92	0.01	1.97	0.12	2.16	0.16	1.07	0.07
Rb	mg/kg	5.28	1.17	4.71	0.04	9.88	1.60	12.41	1.89
Sr	mg/kg	120.30	15.94	146.53	6.63	133.55	31.04	127.05	4.45
Y	mg/kg	0.76	0.05	0.91	0.12	0.83	0.08	0.97	0.04
Mo	mg/kg	<DL		<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	0.66	0.04	0.76	0.00	0.84	0.02	0.76	0.06
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	13.17	0.80	19.33	0.18	26.34	3.30	17.03	2.07
Hg	mg/kg	0.33	0.04	0.29	0.01	0.16	0.04	0.10	0.004
Pb	mg/kg	<DL		<DL		<DL		<DL	
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	14.54		12.54		21.76		15.27	
TOC	g/kg	419.98		353.74		395.26		398.48	
TP	g/kg	3.67	0.14	2.64	1.54	2.92	1.31	2.74	0.55
Moisture	%	74.9	11.8	78.9	8.2	85.0	0.6	81.1	2.1

Table S12. Characterization of the shoot samples collected from each of the 4 treatments at the second application (final conditions).

		Control		**SS Biochar Dose 1**		**SS Biochar Dose 2**		**OMW-3-Phase Biochar**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	14.53	1.44	22.91	0.56	15.10	2.37	17.78	0.96
Na	g/kg	4.84	0.32	4.78	0.00	2.69	0.18	3.50	0.05
Mg	g/kg	4.42	1.42	14.39	1.59	6.36	1.24	6.80	2.40
Al	g/kg	0.03	0.01	0.05	0.00	0.03	0.01	0.03	0.00
Si	g/kg	0.09	0.01	0.10	0.02	0.10	0.02	0.11	0.01
K	g/kg	19.01	1.14	18.67	1.44	31.06	0.55	35.30	3.58
Ca	g/kg	9.95	0.24	21.64	2.07	15.50	1.96	14.37	1.99
Ti	mg/kg	5.72	0.86	2.36	0.22	5.30	0.80	6.60	0.05
V	mg/kg	0.05	0.01	0.11	0.01	0.07	0.01	0.08	0.00
Cr	mg/kg	0.67	0.02	0.33	0.01	0.55	0.01	0.32	0.01

Mn	mg/kg	69.14	1.87	130.63	6.68	44.49	12.93	50.03	6.27
Fe	g/kg	0.07	0.01	0.11	0.00	0.07	0.01	0.07	0.01
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	12.10	0.92	21.76	2.46	15.21	1.74	14.75	0.24
Zn	mg/kg	151.84	5.59	242.61	8.38	97.13	6.54	205.10	4.51
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	0.33	0.00	1.99	0.15	0.75	0.01	0.43	0.47
Rb	mg/kg	8.93	1.28	11.01	1.23	24.40	11.08	17.49	1.47
Sr	mg/kg	41.06	7.60	82.65	6.49	52.13	8.14	51.87	7.52
Y	mg/kg	0.34	0.02	0.48	0.01	0.38	0.05	0.36	0.00
Mo	mg/kg	<DL		<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	0.69	0.09	0.55	0.05	0.50	0.00	0.49	0.10
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	3.97	0.59	20.22	4.70	11.44	3.20	7.17	0.42
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		<DL		<DL		<DL	
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	15.40		13.20		16.43		13.38	
TOC	g/kg	405.38		367.31		415.15		387.55	
TP	g/kg	3.51	0.68	1.08	0.003	3.03	0.55	3.87	2.58
Moisture	%	50.4	1.0	47.7	6.8	53.0	2.7	36.2	7.2

Table S13. Characterization of the root samples collected from each of the 4 treatments at the second application (final conditions).

		Control		**SS Biochar Dose 1**		**SS Biochar Dose 2**		**OMW-3-Phase-Biochar**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.05	0.01	<DL		0.22	0.02	<DL	
B	mg/kg	14.38	3.33	11.17	0.19	13.04	0.81	11.91	1.99
Na	g/kg	6.12	0.41	7.47	0.94	5.79	0.27	5.16	0.30
Mg	g/kg	2.50	0.48	2.03	0.09	2.93	0.10	2.21	0.26
Al	g/kg	0.28	0.02	0.13	0.00	0.44	0.02	0.32	0.00
Si	g/kg	0.27	0.01	0.14	0.00	0.53	0.00	0.26	0.01
K	g/kg	16.50	1.21	11.00	0.80	13.95	0.33	13.55	1.30
Ca	g/kg	12.69	1.61	14.18	0.15	16.34	0.03	15.75	0.63
Ti	mg/kg	7.11	1.36	4.38	0.57	9.02	0.23	4.05	0.06
V	mg/kg	1.02	0.03	0.60	0.06	1.09	0.07	1.12	0.01
Cr	mg/kg	0.88	0.05	1.01	0.11	1.98	0.08	1.25	0.01
Mn	mg/kg	90.62	5.29	49.58	3.07	58.65	2.84	40.88	5.27
Fe	g/kg	0.30	0.01	0.17	0.01	0.71	0.11	0.31	0.01
Co	mg/kg	<DL		<DL		0.04	0.00	<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	28.69	0.40	17.44	2.28	21.24	0.78	15.03	1.50
Zn	mg/kg	344.47	38.24	597.62	22.14	199.71	3.53	114.08	4.79
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	

Rb	mg/kg	9.18	1.82	6.59	0.46	9.03	0.30	10.23	1.22
Sr	mg/kg	53.86	9.21	50.79	1.63	66.18	1.06	63.99	10.69
Y	mg/kg	1.18	0.24	0.71	0.03	0.97	0.03	0.75	0.08
Mo	mg/kg	<DL		<DL		<DL		<DL	
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	0.61	0.12	0.74	0.01	0.74	0.13	0.68	0.05
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	7.79	1.51	8.14	0.79	17.06	1.99	6.50	1.31
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	0.36	0.30	<DL		1.00	0.01	<DL	
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	14.06		15.07		20.33		14.06	
TOC	g/kg	453.33		441.03		421.48		430.10	
TP	g/kg	3.28	0.19	2.33	0.01	2.92	006	1.44	0.01
Moisture	%	44.5		63.6		58.9		53.0	

Table S14. Characterization of the soil samples collected from each of the 4 treatments during the third application (initial conditions).

		Control				SS Biochar				Sawdust Biochar				Compost Biochar			
		Leachable		Total		Leachable		Total		Leachable		Total		Leachable		Total	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		0.44	0.07	<DL		0.52	0.01	<DL		0.44	0.01	<DL		0.44	0.04
B	mg/kg	<DL		0.12	0.01	0.28	0.00	<DL		0.20	0.02	<DL		<DL		0.52	0.005
Na	mg/kg	35.65	3.53	92.71	9.69	37.27	3.44	103.45	8.17	38.36	0.86	101.10	4.78	218.58	3.02	404.12	3.16
Mg	mg/kg	11.63	2.16	450.44	31.79	31.09	0.52	998.36	0.80	17.28	2.34	476.52	4.91	29.55	0.52	766.90	19.56
Al	mg/kg	<DL		6051.47	3.20	<DL		6504.03	364.69	<DL		6030.36	36.61	<DL		5974.35	25.22
Si	mg/kg	<DL		25.16	0.06	<DL		<DL		<DL		<DL		21.60	0.00	<DL	
K	mg/kg	9.09	0.36	406.65	15.97	11.19	0.44	454.64	34.28	11.85	0.48	471.44	24.66	116.99	3.12	941.77	1.08
Ca	mg/kg	451.90	34.89	8720.24	145.58	759.73	6.77	138,33.2	779.74	512.68	46.85	9872.54	987.45	703.90	7.11	15,402.2	97.15
Ti	mg/kg	<DL		0.67	0.02	<DL		5.04	0.02	<DL		<DL		<DL		2.48	0.01
V	mg/kg	0.01	0.00	30.47	0.61	0.01	0.00	31.51	0.17	0.01	0.00	32.93	3.06	0.02	0.00	29.27	0.07
Cr	mg/kg	0.01	0.00	36.20	0.96	0.02	0.00	30.89	0.73	<DL	0.00	28.03	1.83	0.01	0.00	27.81	0.17
Mn	mg/kg	0.09	0.00	1000.27	14.87	0.04	0.01	980.41	0.65	0.02	0.00	829.00	25.41	0.04	0.00	886.08	7.18
Fe	mg/kg	3.10	0.06	19,462.31	247.19	0.68	0.00	19,469.1	566.78	0.66	0.00	18,467.2	547.72	0.71	0.00	16,691.7	795.30
Co	mg/kg	<DL		18.36	0.62	<DL		19.31	0.39	<DL		17.32	1.23	<DL		16.59	0.54
Ni	mg/kg	<DL		9.38	0.56	0.02	0.01	10.33	0.81	<DL		8.81	1.13	<DL		10.89	0.21
Cu	mg/kg	0.06	0.00	13.05	1.05	0.36	0.00	22.75	3.00	0.06	0.00	13.93	0.35	0.10	0.001	38.62	1.64
Zn	mg/kg	<DL		22.88	1.17	<DL		48.11	0.39	<DL		23.44	1.63	<DL		54.27	0.04
As	mg/kg	0.00	0.00	4.05	0.01	0.01	0.00	5.69	0.29	<DL		4.07	0.12	0.01	0.00	4.86	0.04
Se	mg/kg	<DL		2.30	0.21	<DL		2.78	0.22	<DL		2.64	0.20	<DL		2.20	0.01
Rb	mg/kg	0.01	0.00	7.59	0.47	0.01	0.00	7.59	0.41	0.01	0.00	8.17	0.67	0.06	0.00	7.26	0.55
Sr	mg/kg	0.17	0.00	4.21	0.03	0.68	0.00	15.50	0.23	0.24	0.03	6.78	0.12	1.08	0.09	21.47	0.17
Y	mg/kg	<DL		13.29	0.26	<DL		13.39	0.64	<DL		14.41	0.54	0.00	0.00	12.27	0.73
Mo	mg/kg	0.07	0.00	1.04	0.01	0.14	0.01	0.32	0.00	0.03	0.00	0.03	0.00	0.36	0.00	0.22	0.02
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sb	mg/kg	0.01	0.00	0.27	0.01	0.01	0.00	0.25	0.01	0.01	0.00	0.22	0.00	0.02	0.00	0.26	0.003
Cs	mg/kg	<DL		0.66	0.08	<DL		0.68	0.02	<DL		0.75	0.09	<DL		0.59	0.11
Ba	mg/kg	0.02	0.00	44.35	2.22	0.05	0.01	61.68	1.03	0.01	0.01	45.45	3.97	0.15	0.00	50.21	1.81

Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		30.80	3.23	<DL		56.01	0.49	<DL		32.71	2.72	<DL		54.64	1.67
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cl	mg/kg	<20				<20				<20				<20			
N-NO_3-(KCl ext/ction)	mg/kg	15.52	5.07			16.72	1.69			17.02	2.11			16.42	0.42		
N-NH_3 (KCl ext/ction)	mg/kg	3.24	1.11			7.56	2.22			6.73	0.35			5.30	1.53		
TN	g/kg			0.32	0.02			0.47	0.06			0.31	0.01			0.46	0.07
P	mg/kg	3.83	0.34	210	30	30.26	11.27	1190	170	5.15	0.51	170	40	50.69	3.56	620	370
SO_4	mg/kg	<200				<200				<200				<200			
TOC	g/kg			3.89	0.05			4.70	0.40			9.09	0.00			6.19	0.70
Phenols	mg/kg	1.69	0.13			13.06	0.93			1.44	0.14			3.23	0.10		
pH		7.64				7.65				7.23				7.61			
EC	µS/cm	204	13			682	214			204	25			973	46		

Table S15. Characterization of the soil samples collected from each of the 4 treatments at the third application (final conditions).

		Control				**SS Biochar**				**Sawdust Biochar**				**Compost Biochar**			
		Leachable		**Total**		**Leachable**		**Total**		**Leachable**		**Total**		**Leachable**		**Total**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.11	0.01	12.87	0.26	0.02	0.00	8.67	0.53	0.05	0.005	10.85	1.54	0.05	0.00	9.72	1.13
B	mg/kg	0.33	0.01	0.98	0.07	0.36	0.05	0.46	0.01	0.46	0.01	0.95	0.36	0.34	0.04	0.61	0.004
Na	g/kg	0.11	0.00	0.18	0.02	0.09	0.01	0.16	0.00	0.10	0.001	0.15	0.08	0.24	0.02	0.38	0.01
Mg	g/kg	0.02	0.01	0.70	0.01	0.06	0.01	0.89	0.03	0.03	0.00	0.45	0.06	0.04	0.00	0.69	0.05
Al	g/kg	0.03	0.01	11.46	1.85	<DL		9.22	0.37	0.02	0.00	9.49	0.41	0.02	0.01	9.82	0.55
Si	g/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
K	g/kg	0.40	0.01	0.47	0.04	0.01	0.00	0.22	0.03	0.23	0.01	0.26	0.04	0.02	0.00	0.28	0.02
Ca	g/kg	0.05	0.00	3.78	0.47	0.68	0.07	3.31	0.28	0.07	0.01	0.26	0.004	0.28	0.00	3.52	0.47
Ti	mg/kg	0.29	0.01	5.83	0.08	0.12	0.02	4.83	0.21	0.22	0.00	8.47	0.14	0.18	0.02	5.68	0.19
V	mg/kg	0.18	0.01	45.75	6.96	0.11	0.01	37.29	4.92	0.13	0.01	30.65	1.17	0.12	0.01	42.89	3.94
Cr	mg/kg	0.11	0.02	25.65	4.62	0.09	0.01	28.50	0.73	0.10	0.01	22.32	1.42	0.13	0.01	23.18	1.98

Mn	mg/kg	10.03	0.29	1703.49	102.63	0.57	0.01	1013.48	139.03	2.78	0.06	1237.32	65.89	1.51	0.04	1125.94	110.63
Fe	mg/kg	10.23	1.05	13,307.36	34.28	3.40	0.03	10,434.30	1165.18	7.91	0.11	12,159.23	318.20	8.79	0.21	11,505.19	806.35
Co	mg/kg	0.04	0.01	36.91	1.61	0.02	0.00	12.41	1.46	0.06	0.01	18.49	0.22	0.02	0.00	12.82	2.01
Ni	mg/kg	0.10	0.00	11.37	1.46	<DL		7.44	0.15	0.10	0.00	7.64	0.20	<DL		8.11	0.65
Cu	mg/kg	0.83	0.00	20.02	2.07	0.62	0.08	17.24	0.30	0.64	0.01	19.01	0.70	0.12	0.00	18.09	2.60
Zn	mg/kg	0.20	0.00	15.51	0.45	<DL		18.19	1.00	0.17	0.00	15.74	0.36	<DL		14.47	0.56
As	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	0.08	0.01	8.82	1.45	<DL		7.70	0.02	0.06	0.00	7.32	0.05	<DL		8.04	0.67
Sr	mg/kg	0.48	0.00	8.01	0.48	0.62	0.02	7.64	0.61	0.50	0.12	6.31	0.57	0.93	0.03	7.96	0.02
Y	mg/kg	0.08	0.00	43.35	4.72	0.07	0.00	33.69	1.85	0.08	0.00	34.53	3.87	0.07	0.00	39.36	4.09
Mo	mg/kg	0.09	0.00	0.75	0.11	0.16	0.00	0.54	0.07	0.08	0.01	0.80	0.09	0.08	0.01	0.63	0.07
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sb	mg/kg	0.14	0.03	1.07	0.14	0.10	0.003	0.77	0.04	0.11	0.01	1.55	0.29	0.10	0.001	1.02	0.00
Cs	mg/kg	<DL		0.55	0.05	<DL		0.70	0.02	<DL		0.18	0.01	<DL		0.59	0.07
Ba	mg/kg	0.11	0.004	121.50	7.49	0.10	0.00	67.87	3.88	0.12	0.02	67.12	0.40	0.10	0.004	66.65	5.42
Hg	mg/kg	0.01	0.00	<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		22.32	1.08	<DL		14.98	0.28	<DL		19.48	1.45	0.08	0.004	14.68	2.35
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cl	mg/kg	68.2	61.9			8.7	5.3			10.8	8.2			6.8	2.6		
N-NO_3-(KCl ext/ction)	mg/kg	125.65	62.32			198.51	39.06			125.06	29.91			204.39	37.39		
N-NH_3 (KCl ext/ction)	mg/kg	6.43	1.74		5.65	0.21				5.80	1.11			3.49	0.35		
TN	g/kg			0.51	0.17			0.56	0.09			0.38	0.06			0.64	0.16
P	mg/kg	13.00	8.39	250	160	20.01	5.25	440	290	25.23	24.32	270	80	16.42	1.02	190	40
SO_4	mg/kg	276.73	257.42			1004.8	531.6			153.81	83.58			569.85	50.15		
Phenols	mg/kg	2.73	0.52			2.82	0.25			2.04	0.51			1.94	1.19		
TOC	g/kg			4.48	1.10			4.70	1.98			5.48	1.76			4.93	2.13
pH		7.46				7.56				7.56				7.53			
EC	µS/cm	519	69			939	105			521	124			1077	332		
Moisture	%	20.16	1.12			18.67	0.13			18.87	1.18			18.83	1.00		

Table S16. Characterization of the tomato samples collected from each of the 4 treatments at the third application (final conditions).

		Control		SS Biochar		Sawdust Biochar		Compost Biochar	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	13.12	0.91	12.07	0.58	12.76	1.34	11.42	0.32
Na	g/kg	0.42	0.09	0.32	0.01	0.42	0.08	0.58	0.14
Mg	g/kg	2.11	0.11	1.94	0.20	2.18	0.25	1.75	0.07
Al	g/kg	0.25	0.06	0.16	0.01	0.33	0.01	0.21	0.01
Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	19.36	0.13	18.51	1.06	19.51	0.22	17.81	0.63
Ca	g/kg	<DL		0.88	0.00	0.83	0.17	0.52	0.02
Ti	mg/kg	11.27	0.32	11.21	0.53	11.56	1.48	10.62	0.10
V	mg/kg	0.90	0.18	0.94	0.11	0.83	0.05	0.79	0.12
Cr	mg/kg	0.89	0.25	1.10	0.18	0.96	0.08	0.86	0.12
Mn	mg/kg	11.61	2.12	10.07	0.35	11.16	1.18	8.51	0.13
Fe	g/kg	47.89	10.52	40.23	6.48	54.64	2.31	38.04	0.57
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	8.03	0.80	7.65	0.01	7.94	0.66	6.97	1.17
Zn	mg/kg	15.41	1.66	22.88	1.08	16.31	1.22	21.31	1.47
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	59.17	3.10	60.80	0.84	67.35	3.28	37.67	6.51
Sr	mg/kg	2.72	0.77	2.97	0.10	2.78	0.37	2.64	0.03
Y	mg/kg	0.61	0.14	0.63	0.08	0.52	0.02	0.51	0.07
Mo	mg/kg	2.27	0.08	1.78	0.28	2.01	0.05	2.11	0.14
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	0.81	0.07	0.68	0.03	1.34	0.04	0.58	0.10
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	1.91	0.03	1.23	0.05	1.22	0.19	0.93	0.12
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		<DL		0.05	0.01	<DL	
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	17.44	1.29	15.94	4.91	15.65	0.52	12.59	5.49
TOC	g/kg	495.41	7.57	511.35	1.82	486.37	20.66	500.12	6.66
TP	g/kg	3.06	0.09	3.14	0.41	2.91	0.30	2.75	0.13
Moisture	%	93.13	0.04	93.25	0.16	93.47	0.08	92.39	0.08

Table S17. Characterization of the leaf samples collected from each of the 4 treatments at the third application (final conditions).

		Control		SS Biochar		Sawdust Biochar		Compost Biochar	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	99.42	6.94	94.72	7.31	95.45	1.16	90.34	6.93
Na	g/kg	1.60	0.54	1.88	0.08	1.34	0.47	1.65	0.07
Mg	g/kg	5.61	0.07	6.12	0.81	4.63	0.06	5.15	0.09
Al	g/kg	<DL		<DL		<DL		<DL	

Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	12.06	0.46	9.87	0.81	9.67	0.10	12.18	1.33
Ca	g/kg	100.96	9.13	110.77	3.78	95.19	8.11	116.01	3.51
Ti	mg/kg	11.36	0.43	9.14	1.17	8.14	0.78	9.49	0.07
V	mg/kg	1.23	0.07	1.34	0.01	1.26	0.01	1.27	0.18
Cr	mg/kg	1.61	0.40	1.29	0.03	1.26	0.07	1.36	0.27
Mn	mg/kg	145.94	1.62	62.37	7.23	135.25	6.79	154.02	4.43
Fe	g/kg	75.89	6.34	63.89	3.90	72.00	11.99	72.52	0.43
Co	mg/kg	0.27	0.00	0.23	0.01	0.36	0.00	0.25	0.04
Ni	mg/kg	0.28	0.00	0.60	0.52	0.61	0.06	0.79	0.02
Cu	mg/kg	9.52	0.44	8.71	0.60	7.48	0.38	8.32	1.97
Zn	mg/kg	28.29	0.63	9.88	0.09	19.40	0.43	13.17	0.20
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	8.05	1.79	5.87	0.87	7.94	1.53	9.69	0.37
Sr	mg/kg	91.56	0.70	84.12	0.80	81.67	6.17	117.92	19.91
Y	mg/kg	1.88	0.04	1.27	0.08	1.27	0.18	1.05	0.22
Mo	mg/kg	9.43	0.30	11.22	0.22	6.86	1.13	10.87	1.18
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	1.03	0.19	0.98	0.04	0.99	0.02	0.96	0.11
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	40.74	0.76	28.79	3.10	36.16	4.34	36.46	2.23
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	0.22	0.03	<DL		<DL		0.08	0.01
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	18.09	2.09	17.61	5.74	20.52	3.50	21.61	0.87
TOC	g/kg	455.02	30.04	446.51	5.14	457.85	3.33	442.07	3.56
TP	g/kg	2.98	0.78	2.36	0.49	2.65	1.07	3.10	1.64
Moisture	%	79.98	1.98	79.53	1.65	79.77	0.11	80.74	1.21

Table S18. Characterization of the shoot samples collected from each of the 4 treatments at the third application (final conditions).

		Control		**SS Biochar**		**Sawdust Biochar**		**Compost Biochar**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	27.31	1.64	24.04	3.23	24.40	0.60	23.79	0.74
Na	g/kg	2.80	0.19	2.98	0.36	2.25	0.21	3.16	0.32
Mg	g/kg	4.46	0.22	5.92	0.03	5.69	0.50	6.72	0.03
Al	g/kg	<DL		<DL		<DL		<DL	
Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	19.20	1.35	15.92	0.07	17.57	1.21	19.21	2.82
Ca	g/kg	25.79	0.80	32.54	0.17	34.52	2.13	43.36	4.06
Ti	mg/kg	10.85	0.23	10.54	0.16	11.44	0.14	10.92	0.54
V	mg/kg	1.46	0.16	1.31	0.04	1.26	0.05	1.36	0.14
Cr	mg/kg	1.74	0.17	1.28	0.02	1.31	0.01	1.50	0.17
Mn	mg/kg	41.90	0.67	39.47	1.06	46.27	2.17	41.45	1.88
Fe	mg/kg	80.16	1.43	53.48	1.46	76.54	3.27	84.21	1.94
Co	mg/kg	0.20	0.04	0.24	0.04	0.40	0.01	0.22	0.01

Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	25.47	0.52	35.72	1.36	13.93	2.68	20.57	0.51
Zn	mg/kg	63.65	7.11	86.29	1.96	88.67	0.30	86.85	0.04
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	12.82	1.61	12.64	2.09	14.15	0.41	12.91	0.42
Sr	mg/kg	47.58	2.30	60.61	4.64	53.17	0.28	84.37	2.99
Y	mg/kg	0.97	0.12	0.86	0.06	0.83	0.02	0.86	0.11
Mo	mg/kg	3.61	0.50	3.18	0.16	3.04	0.01	3.43	0.69
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		<DL		<DL		<DL	
Sb	mg/kg	1.47	0.11	1.32	0.15	1.43	0.27	1.40	0.22
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	23.90	0.75	19.67	3.75	26.51	1.55	25.56	10.44
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	1.61	0.19	0.09	0.02	0.01	0.00	0.13	0.01
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	7.54	0.70	10.66	0.80	9.77	2.80	9.89	1.38
TOC	g/kg	457.91	15.21	449.99	0.38	466.41	4.39	427.89	25.42
TP	g/kg	2.34	0.05	2.42	0.70	2.58	0.28	2.40	0.45
Moisture	%	82.51	1.44	82.72	1.71	82.34	1.56	82.30	1.34

Table S19. Characterization of the root samples collected from each of the 4 treatments at the third application (final conditions).

		Control		**SS Biochar**		**Sawdust Biochar**		**Compost Biochar**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.23		0.37		0.65		2.34	
B	mg/kg	6.27		6.67		7.83		5.01	
Na	g/kg	0.65		0.28		0.45		0.36	
Mg	g/kg	0.49		0.52		0.80		1.21	
Al	g/kg	0.36		0.58		0.89		2.99	
Si	g/kg	<DL		<DL		<DL		0.25	
K	g/kg	0.85		1.05		1.75		1.60	
Ca	g/kg	0.86		0.58		1.07		1.28	
Ti	mg/kg	13.78		17.99		30.87		119.03	
V	mg/kg	3.71		5.24		8.11		12.66	
Cr	mg/kg	0.96		1.40		1.68		8.73	
Mn	mg/kg	127.62		112.98		188.06		274.57	
Fe	mg/kg	377.05		606.80		867.86		2376.79	
Co	mg/kg	1.09		0.93		1.13		2.64	
Ni	mg/kg	<DL		0.72		0.51		4.90	
Cu	mg/kg	7.35		7.55		10.54		13.87	
Zn	mg/kg	22.94		30.69		51.47		203.24	
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	0.04		0.53		0.72		3.84	
Sr	mg/kg	11.99		9.21		16.62		20.10	
Y	mg/kg	1.92		2.03		3.01		4.58	
Mo	mg/kg	3.33		1.87		3.37		2.72	

Cd	mg/kg	<DL	<DL	<DL	<DL
Sn	mg/kg	3.28	1.57	3.67	1.95
Sb	mg/kg	0.76	0.50	0.85	0.93
Cs	mg/kg	<DL	<DL	<DL	<DL
Ba	mg/kg	9.45	14.75	17.78	58.15
Hg	mg/kg	<DL	<DL	<DL	<DL
Pb	mg/kg	4.82	1.68	6.04	4.95
U	mg/kg	<DL	<DL	<DL	<DL
TN	g/kg	7.69	7.76	7.84	9.61
TOC	g/kg	419.00	409.50	408.00	320.50
TP	g/kg	0.23	0.18	0.35	0.32
Moisture	%	33.04	31.70	26.61	49.47

Table S20. Characterization of the soil samples collected from each of the 4 treatments during the fourth application (initial conditions).

		Control				SS Biochar				OMW-2-Phase Biochar				Compost Biochar			
		Leachable		Total		Leachable		Total		Leachable		Total		Leachable		Total	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.04	0.004	4.67	0.45	<DL		2.25	0.12	0.05	0.00	2.94	0.02	<DL		3.52	0.16
B	mg/kg	0.34	0.04	0.98	0.03	1.68	0.17	2.06	0.04	0.82	0.02	1.75	0.05	1.95	0.01	3.84	0.04
Na	g/kg	0.09	0.01	0.13	0.00	0.11	0.00	0.19	0.02	0.09	0.01	0.19	0.01	0.18	0.00	0.55	0.08
Mg	g/kg	0.03	0.01	0.47	0.00	0.66	0.01	2.28	0.13	0.02	0.00	0.52	0.06	0.11	0.01	1.42	0.00
Al	g/kg	0.05	0.00	3.73	0.10	<DL		3.13	0.04	0.07	0.005	3.69	0.53	<DL		4.53	0.07
Si	g/kg	<DL		0.59	0.03	<DL		0.03	0.00	<DL		0.20	0.01	<DL		<DL	
K	g/kg	0.12	0.02	0.90	0.01	0.26	0.03	0.79	0.02	0.12	0.01	1.58	0.14	0.29	0.01	1.52	0.02
Ca	g/kg	0.08	0.05	0.14	0.01	0.40	0.04	2.31	0.22	0.02	0.01	0.23	0.02	0.09	0.00	2.92	0.03
Ti	mg/kg	1.29	0.11	63.36	3.93	0.26	0.01	64.49	5.04	1.97	0.20	48.94	2.08	0.20	0.01	69.88	12.44
V	mg/kg	0.17	0.00	8.58	0.23	0.14	0.01	6.89	0.25	0.22	0.02	8.73	0.10	0.17	0.00	8.51	0.77
Cr	mg/kg	0.05	0.01	14.47	1.39	0.03	0.00	12.82	1.22	0.07	0.02	12.18	1.50	<DL		16.64	3.25
Mn	mg/kg	0.66	0.01	111.41	4.19	0.30	0.03	88.58	3.68	0.28	0.01	91.30	7.33	0.17	0.00	106.22	16.81
Fe	mg/kg	19.24	1.27	4402.63	50.85	0.41	0.01	4750.99	139.44	26.06	0.99	4689.97	301.03	1.02	0.14	4592.58	427.48
Co	mg/kg	<DL		2.19	0.11	<DL		1.65	0.07	<DL		1.94	0.02	<DL		1.72	0.29
Ni	mg/kg	<DL		3.51	0.07	0.10	0.00	4.93	0.01	<DL		4.08	0.01	<DL		6.83	0.01
Cu	mg/kg	0.30	0.00	10.82	0.82	0.88	0.10	25.03	1.18	0.29	0.01	13.07	1.89	<DL		37.02	6.57
Zn	mg/kg	0.51	0.04	18.18	2.22	<DL		80.50	7.13	<DL		20.17	1.12	<DL		92.86	5.14
As	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		1.23	0.19	<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	0.03	0.01	5.81	0.11	0.06	0.01	4.09	0.10	0.08	0.00	5.13	0.15	0.05	0.00	5.04	0.87
Sr	mg/kg	2.93	0.08	11.66	2.24	3.71	0.18	32.03	2.86	2.38	0.07	11.22	0.22	1.68	0.09	51.01	5.11
Y	mg/kg	0.09	0.00	6.05	0.78	0.08	0.00	5.28	1.62	0.09	0.00	4.59	0.55	0.08	0.00	4.70	0.48
Mo	mg/kg	0.04	0.01	4.71	0.34	0.72	0.05	1.46	0.02	0.06	0.003	3.42	0.01	0.27	0.01	1.63	0.23
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	0.05	0.00	0.26	0.04	0.05	0.01	0.74	0.06	0.05	0.00	0.33	0.004	0.02	0.00	0.88	0.02
Sb	mg/kg	0.03	0.00	1.25	1.33	0.04	0.00	0.24	0.07	0.03	0.00	0.37	0.003	0.05	0.00	0.38	0.03
Cs	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Ba	mg/kg	0.49	0.03	18.04	0.86	0.32	0.03	76.46	2.22	0.06	0.00	16.27	1.63	0.03	0.00	52.40	1.95

Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	0.02	0.00	7.88	1.63	<DL		19.57	10.77	0.02	0.01	8.48	0.66	<DL		38.00	27.33
U	mg/kg			<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cl	mg/kg	129.7	2.9			91.1	38.9			143.1	57.3			180.4	53.2		
N-NO_3-(KCl ext/ction)	mg/kg	12.67	1.05			25.71	14.23			18.26	0.53			12.30	2.64		
N-NH_3 (KCl ext/ction)	mg/kg	2.11	0.35			20.97	6.18			3.44	0.28			3.73	0.56		
TN	g/kg			1.55	0.25			2.03	0.27			1.77	0.07			2.17	0.52
P-PO_4	mg/kg																
P	mg/kg	61.30	2.80	540	80	187.91	7.80	3030	240	89.52	6.78	570	30	87.18	7.37	1620	80
SO_4	mg/kg	<20				4132.2	29.5			<20				38.7	26.4		
TOC	g/kg			16.58	3.11			17.44	1.58			20.43	2.63			21.74	5.82
Phenols	mg/kg	4.67	0.13			23.53	6.58			6.9	0.48			4.12	1.39		
pH		6.82				7.93				7.52				7.66			
EC	μS/cm	266	40			1247	478			449	179			485	58		

Table S21. Characterization of the soil samples collected from each of the 4 treatments at the fourth application (final conditions).

		Control				**SS Biochar**				**OMW-2-Phase Biochar**				**Compost Biochar**			
		Leachable		**Total**		**Leachable**		**Total**		**Leachable**		**Total**		**Leachable**		**Total**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		6.07	0.02	0.55	0.01	5.76	0.02	1.28	0.06	6.34	0.16	0.79	0.00	5.88	0.06
B	mg/kg	0.20	0.01	0.78	0.00	0.07	0.00	1.30	0.09	0.84	0.01	0.99	0.00	0.32	0.00	0.55	0.01
Na	g/kg	0.17	0.01	0.30	0.01	0.11	0.01	0.17	0.01	0.18	0.00	0.25	0.00	0.18	0.00	0.35	0.005
Mg	g/kg	0.06	0.00	0.36	0.00	0.09	0.01	1.46	0.00	0.05	0.01	0.44	0.01	0.07	0.01	0.75	0.00
Al	g/kg	0.03	0.00	1.85	0.01	0.28	0.00	2.32	0.00	0.59	0.01	2.23	0.03	0.37	0.00	2.42	0.03
Si	g/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
K	g/kg	0.05	0.00	0.42	0.003	0.05	0.01	0.41	0.00	0.48	0.01	0.50	0.01	0.10	0.01	0.56	0.02
Ca	g/kg	0.10	0.00	0.76	0.003	0.18	0.00	6.54	0.58	0.16	0.01	1.20	0.04	0.14	0.00	4.63	0.43
Ti	mg/kg	<DL		4.31	0.01	0.83	0.00	7.17	0.01	1.61	0.01	3.43	0.04	1.16	0.00	8.21	0.22
V	mg/kg	0.50	0.01	6.88	0.08	0.67	0.02	6.75	0.005	0.92	0.02	6.98	0.08	0.78	0.00	6.29	0.00
Cr	mg/kg	0.48	0.00	9.02	0.22	0.68	0.05	10.60	0.39	1.00	0.00	9.16	0.14	0.82	0.003	10.48	0.03
Mn	mg/kg	0.32	0.03	94.96	6.15	0.75	0.02	75.89	0.48	1.01	0.02	92.07	2.02	1.13	0.01	92.17	0.19

Fe	g/kg	0.04	0.01	4.03	0.01	0.17	0.00	4.69	0.22	0.30	0.02	4.48	0.04	0.22	0.003	4.19	0.01
Co	mg/kg	<DL		2.02	0.03	<DL		1.41	0.01	<DL		1.40	0.01	<DL		1.87	0.02
Ni	mg/kg	<DL		1.76	0.02	<DL		5.41	0.04	<DL		4.24	0.02	<DL		3.39	0.02
Cu	mg/kg	0.23	0.01	12.88	0.71	0.55	0.01	40.61	0.35	0.76	0.00	23.03	0.87	0.62	0.00	38.18	0.97
Zn	mg/kg	<DL		6.55	0.00	<DL		45.72	0.24	<DL		18.03	1.25	<DL		53.55	1.35
As	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Rb	mg/kg	<DL		1.74	0.00	<DL		1.73	0.01	<DL		1.96	0.05	<DL		1.56	0.00
Sr	mg/kg	0.54	0.01	4.88	0.04	0.71	0.01	35.80	0.14	0.51	0.01	5.59	0.12	0.62	0.00	29.47	1.63
Y	mg/kg	0.16	0.00	1.60	0.02	0.17	0.00	1.66	0.03	0.19	0.00	1.77	0.03	0.18	0.00	1.67	0.03
Mo	mg/kg	0.33	0.00	0.84	0.00	0.19	0.00	0.50	0.00	0.14	0.01	0.44	0.04	0.24	0.00	0.75	0.004
Cd	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Sn	mg/kg	<DL		0.10	0.00	<DL		0.63	0.01	<DL		1.32	0.004	<DL		1.22	0.00
Sb	mg/kg	0.06	0.00	0.40	0.01	0.04	0.003	0.32	0.02	0.04	0.00	0.27	0.02	0.05	0.01	0.48	0.02
Cs	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Ba	mg/kg	0.03	0.00	12.20	0.18	0.27	0.01	38.30	0.01	0.55	0.01	13.28	0.14	0.38	0.01	28.71	2.21
Hg	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Pb	mg/kg	<DL		7.96	0.02	<DL		15.78	1.22	<DL		9.57	0.42	<DL		24.68	1.80
U	mg/kg	<DL		<DL		<DL		<DL		<DL		<DL		<DL		<DL	
Cl	mg/kg	<20		1144.4	493.5	<20		523.9	37.4	<20		714.0	503.9	<20		1089.6	71.1
N-NO_3-(KCl ext/ction)	mg/kg	17.87	1.80			32.54	4.51			28.07	18.03			24.89	9.92		
N-NH_3 (KCl ext/ction)	mg/kg	2.80	0.14			3.76	1.01			2.75	0.14			2.36	0.14		
TN	g/kg			1.28	0.08			1.48	0.33			1.68	0.14			1.31	0.07
P	mg/kg	64.35	6.61	400	40	146.44	7.46	3830	1540	94.31	15.76	620	120	113.85	19.32	1220	70
SO_4	mg/kg	<200		541.5	83.2	<200		403.5	11.7	<200		550.1	147.9	<200		499.3	92.5
Phenols	mg/kg	3.5	0.34			3.47	0.38			1.75	1.77			2.05	0.35		
TOC	g/kg			15.29	0.61			15.95	3.69			31.86	2.05			17.50	0.22
pH		7.19				7.89				7.72				7.76			
EC	µS/cm	414	110			428	16			369	140			647	316		

Table S22. Characterization of the tomato samples collected from each of the 4 treatments at the fourth application (final conditions).

		Control		SS Biochar		OMW-2-Phase Biochar		Compost Biochar	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	10.60	0.31	11.51	0.53	12.37	0.28	11.77	0.05
Na	g/kg	1.22	0.06	1.33	0.01	1.22	0.01	1.52	0.00
Mg	g/kg	2.32	0.02	2.01	0.13	2.26	0.05	1.73	0.01
Al	g/kg	0.28	0.00	<DL		<DL		0.90	0.01
Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	45.74	0.11	47.45	0.01	45.16	1.24	50.60	0.35
Ca	g/kg	0.56	0.03	1.11	0.00	1.18	0.07	1.78	0.05
Ti	mg/kg	7.43	0.12	8.78	0.11	8.55	0.25	6.81	0.21
V	mg/kg	1.07	0.01	2.51	0.08	1.43	0.03	1.29	0.01
Cr	mg/kg	1.31	0.07	1.85	0.00	1.94	0.03	1.47	0.02
Mn	mg/kg	23.29	0.07	26.43	0.06	27.21	0.22	21.48	0.33
Fe	g/kg	0.07	0.01	0.08	0.01	0.05	0.01	0.13	0.00
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	15.36	0.42	18.33	0.16	17.37	0.49	13.21	0.08
Zn	mg/kg	69.74	2.40	113.64	3.12	163.56	1.37	92.76	3.42
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	6.01	0.02	7.50	0.02	7.19	0.20	7.73	0.02
Sr	mg/kg	1.61	0.01	3.93	0.01	3.30	0.05	3.59	0.01
Y	mg/kg	0.40	0.00	0.57	0.02	0.62	0.01	0.49	0.00
Mo	mg/kg	0.65	0.05	1.22	0.01	1.05	0.01	0.80	0.004
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	0.17	0.00	0.26	0.00	0.18	0.00	0.24	0.01
Sb	mg/kg	0.24	0.00	0.38	0.01	0.45	0.00	0.32	0.00
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	1.35	0.01	7.02	0.02	3.08	0.02	2.76	0.04
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	0.23	0.01	9.46	0.03	0.63	0.01	0.72	0.00
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	23.24	4.17	21.90	8.21	18.08	4.65	14.66	0.43
TOC	g/kg	518.65	47.65	527.51	10.57	519.11	6.02	506.81	1.63
TP	g/kg	5.71	1.10	4.18	0.22	5.34	0.86	4.55	0.22
Moisture	%	94.8	1.2	94.2	0.3	94.0	0.2	95.1	1.0

Table S23. Characterization of the leaf samples collected from each of the 4 treatments at the fourth application (final conditions).

		Control		SS Biochar		OMW-2-Phase Biochar		Compost Biochar	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		0.44	0.03	<DL		0.48	0.01
B	mg/kg	28.70	0.04	30.58	0.26	32.42	0.21	33.36	0.12
Na	g/kg	2.01	0.00	2.67	0.04	2.41	0.05	3.41	0.09

Mg	g/kg	4.63	0.04	4.74	0.01	4.31	0.02	5.16	0.04
Al	g/kg	<DL		0.05	0.00	0.08	0.00	0.03	0.01
Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	33.72	0.34	30.76	0.07	34.89	0.12	33.55	0.50
Ca	g/kg	19.22	0.31	20.86	0.82	23.40	0.39	31.19	1.55
Ti	mg/kg	9.39	0.01	8.69	0.08	4.76	0.02	6.72	0.02
V	mg/kg	1.91	0.004	1.14	0.01	1.50	0.01	2.65	0.02
Cr	mg/kg	2.33	0.01	2.77	0.01	2.72	0.01	2.73	0.01
Mn	mg/kg	85.50	1.19	104.50	1.19	77.92	2.13	129.67	0.44
Fe	g/kg	0.14	0.00	0.21	0.01	0.25	0.01	0.21	0.00
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	18.12	0.00	18.52	0.24	20.31	0.01	19.30	0.02
Zn	mg/kg	42.06	1.30	23.34	0.50	31.75	0.54	28.85	0.19
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	6.51	0.01	5.56	0.01	5.61	0.02	5.38	0.00
Sr	mg/kg	63.52	0.62	44.82	0.22	47.54	0.43	64.97	0.10
Y	mg/kg	0.75	0.05	0.56	0.02	0.58	0.003	0.88	0.01
Mo	mg/kg	0.74	0.01	1.22	0.02	1.05	0.01	2.12	0.02
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	0.11	0.004	0.08	0.004	1.23	0.02	0.16	0.00
Sb	mg/kg	0.31	0.01	0.15	0.01	0.28	0.00	0.42	0.005
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	16.35	0.42	12.97	0.37	17.60	0.15	11.41	0.12
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	0.73	0.01	1.03	0.01	1.02	0.00	1.07	0.02
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	30.01	2.95	27.13	14.80	31.29	19.72	28.13	10.23
TOC	g/kg	522.73	10.33	470.58	16.67	471.90	13.74	539.01	26.02
TP	g/kg	3.44	1.63	3.59	0.15	4.69	0.10	3.85	0.66
Moisture	%	84.1	1.0	83.2	0.2	83.7	0.2	83.8	0.5

Table S24. Characterization of the shoot samples collected from each of the 4 treatments at the fourth application (final conditions).

		Control		**SS Biochar**		**OMW-2-Phase Biochar**		**Compost Biochar**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	<DL		<DL		<DL		<DL	
B	mg/kg	11.08	0.06	15.56	0.23	13.95	0.03	18.44	0.47
Na	g/kg	2.07	0.00	3.67	0.02	3.35	0.02	3.78	0.15
Mg	g/kg	4.15	0.06	7.82	0.03	8.38	0.08	6.63	0.02
Al	g/kg	<DL		<DL		<DL		<DL	
Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	30.68	1.52	42.02	0.57	45.96	0.01	39.21	0.13
Ca	g/kg	11.60	0.18	15.94	0.03	13.21	0.16	14.05	0.01
Ti	mg/kg	4.67	0.06	3.51	0.02	8.50	0.01	7.41	0.02
V	mg/kg	1.97	0.01	1.96	0.00	2.16	0.01	1.83	0.00
Cr	mg/kg	3.02	0.00	3.11	0.01	3.27	0.04	2.60	0.04

Mn	mg/kg	60.59	2.77	66.72	3.61	69.85	4.09	81.73	3.38
Fe	g/kg	0.09	0.00	0.08	0.00	0.09	0.00	0.09	0.00
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	17.69	0.40	20.40	0.34	25.20	0.17	20.70	0.31
Zn	mg/kg	95.34	1.37	152.20	8.41	163.52	6.24	114.21	0.38
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	
Rb	mg/kg	3.76	0.07	5.50	0.02	5.26	0.18	4.13	0.00
Sr	mg/kg	41.95	2.40	57.81	0.74	60.71	0.21	50.13	1.11
Y	mg/kg	0.84	0.06	0.82	0.01	0.94	0.01	0.63	0.00
Mo	mg/kg	0.84	0.01	1.32	0.01	1.27	0.01	1.22	0.02
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	0.15	0.00	0.14	0.00	0.15	0.00	0.13	0.002
Sb	mg/kg	0.42	0.01	0.38	0.00	0.48	0.01	0.48	0.00
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	14.51	0.29	12.89	0.07	18.44	0.09	11.64	0.38
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	1.28	0.01	1.84	0.03	1.05	0.01	1.04	0.04
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	8.17	0.45	8.24	1.00	7.68	0.12	7.91	0.57
TOC	g/kg	462.30	45.38	446.26	4.80	421.94	20.33	440.68	16.91
TP	g/kg	2.86	0.48	2.64	0.52	3.92	0.74	3.17	1.35
Moisture	%	84.6	0.3	86.5	1.2	88.3	2.2	84.5	0.8

Table S25. Characterization of the root samples collected from each of the 4 treatments at the fourth application (final conditions).

		Control		**SS Biochar**		**OMW-2-Phase Biochar**		**Compost Biochar**	
Parameter	**Units**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**	**Average**	**Stdev**
Li	mg/kg	0.65	0.04	1.21	0.04	0.59	0.06	0.89	0.02
B	mg/kg	11.33	0.12	12.35	0.31	10.62	0.41	12.39	0.09
Na	g/kg	3.70	0.07	5.18	0.04	3.70	0.27	6.55	0.06
Mg	g/kg	2.97	0.04	3.41	0.02	2.59	0.02	3.09	0.05
Al	g/kg	0.16	0.00	0.44	0.03	0.33	0.01	0.41	0.001
Si	g/kg	<DL		<DL		<DL		<DL	
K	g/kg	18.93	0.05	27.37	1.17	21.49	0.15	22.72	0.37
Ca	g/kg	24.36	0.30	23.36	0.81	24.77	0.13	20.52	0.55
Ti	mg/kg	3.10	0.12	8.08	0.00	9.71	0.01	6.07	0.01
V	mg/kg	1.96	0.01	2.93	0.00	3.13	0.01	3.70	0.01
Cr	mg/kg	3.59	0.02	4.42	0.18	5.09	0.09	5.38	0.34
Mn	mg/kg	48.64	1.50	57.88	0.88	54.02	0.79	75.74	0.65
Fe	g/kg	0.49	0.01	0.74	0.01	0.64	0.01	0.72	0.01
Co	mg/kg	<DL		<DL		<DL		<DL	
Ni	mg/kg	<DL		<DL		<DL		<DL	
Cu	mg/kg	12.64	0.04	19.63	0.28	19.53	0.04	23.40	1.06
Zn	mg/kg	108.44	4.09	107.74	3.03	112.19	3.01	143.79	0.71
As	mg/kg	<DL		<DL		<DL		<DL	
Se	mg/kg	<DL		<DL		<DL		<DL	

Rb	mg/kg	3.49	0.01	4.49	0.07	3.58	0.03	3.70	0.00
Sr	mg/kg	76.60	0.60	79.40	0.08	76.36	0.72	77.80	1.28
Y	mg/kg	0.77	0.04	1.01	0.005	1.09	0.11	1.22	0.01
Mo	mg/kg	0.95	0.01	1.58	0.01	1.09	0.00	1.86	0.01
Cd	mg/kg	<DL		<DL		<DL		<DL	
Sn	mg/kg	0.19	0.00	0.16	0.00	0.17	0.00	0.18	0.01
Sb	mg/kg	0.58	0.01	0.60	0.01	0.66	0.005	0.77	0.01
Cs	mg/kg	<DL		<DL		<DL		<DL	
Ba	mg/kg	11.56	0.29	13.04	0.18	14.31	0.30	10.54	0.57
Hg	mg/kg	<DL		<DL		<DL		<DL	
Pb	mg/kg	2.49	0.07	2.88	0.03	2.82	0.03	2.84	0.03
U	mg/kg	<DL		<DL		<DL		<DL	
TN	g/kg	8.01	0.14	8.94	0.98	10.33	4.10	9.72	0.94
TOC	g/kg	474.66	41.39	442.81	21.39	462.99	2.28	483.86	53.91
TP	g/kg	1.72	0.15	2.63	0.75	2.05	0.88	2.85	0.61
Moisture	%	73.2	0.8	73.7	4.9	74.1	3.9	71.7	0.7