

Supplement Table 1

Supplement Table 1: Supplemental watering flows and volumes to field bioretention mesocosms

Date	Time	Time watered in plots (seconds)	Watering rate (total seconds to fill 11 or 12 L bucket)	Bucket used to estimate flowrate (L)	Volume watered in plots (L)	Notes
5/24/2018	2:00 PM	20	24.74	12	10	
5/25/2018	1:30 PM	20	21	12	11	
5/26/2018	6:30 PM	10	22.26	11	5	
5/27/2018	6:30 AM	10	23	12	5	
5/27/2018	6:30 PM	10	23.14	12	5	
5/28/2018	9:15 AM	10	22	12	5	
5/28/2018	3:00 PM	5	23.43	12	3	
6/1/2018	10:00 AM	10	30.56	12	4	
6/4/2018	9:30 AM	8	22.19	12	4	
6/5/2018	1:45 PM	12	24.32	12	6	
6/7/2018	1:15 PM	10	22.58	11	5	
6/14/2018	11:00 AM	10	22.58	11	5	
6/15/2018	9:30 AM	10	23.13	11	5	
6/29/2018	10:00 AM	10	19.21	12	6	
7/12/2018	12:30 PM	20	23.13	11	10	
7/23/2018	12:00 PM	20	25.63	12	9	
7/26/2018	3:00 PM	5	22.75	12	3	
7/30/2018	11:20 AM	10	42.76	18.93	4	5-gallon bucket
8/6/2018	11:00 AM	20	52.13	11	4	
8/13/2018	9:00 AM	20	42.3	11	5	
9/10/2018	12:30 PM	20	21.04	11	10	

Supplement Table 2

Supplement Table 2: Rainfall simulation flows and volumes to laboratory columns

Event	Date	Trt	Column ID	Volume of bucket (L)	Time to fill bucket (s)	Flow rate (L/s)	Column watering time (s)	Inflow volume (L)	Outflow volume (L)
1	8/29/2018	M20:S80	1	2	25	0.0681	20	1.7	0.55
1	8/29/2018	M20:S70:R10	2	2	25	0.0681	16	1.7	0.49
1	8/29/2018	M20:S70:C10	3	2	25	0.0681	25	1.7	1.22
1	8/29/2018	M20:S70:5R:5C	4	2	25	0.0681	13	1.7	0.26
1	8/29/2018	M40:S60	5	2	25	0.0681	24	1.7	1.00
1	8/29/2018	M40:S50:R10	6	2	25	0.0681	23	1.7	0.99
1	8/29/2018	M40:S50:C10	7	2	25	0.0681	24	1.7	1.01
1	8/29/2018	M40:S50:5R:5C	8	2	25	0.0681	25	1.7	1.05
1	8/29/2018	M40:S30:30R	9	2	25	0.0681	18	1.7	0.34
1	8/29/2018	M40:S30:30C	10	2	25	0.0681	25	1.7	0.75
1	8/29/2018	M40:S30:15R:15C	11	2	25	0.0681	16	1.7	0.30
2	9/13/2018	M20:S80	1	1	20	0.0729	20	1.5	0.95
2	9/13/2018	M20:S70:R10	2	1	20	0.0729	20	1.5	0.89
2	9/13/2018	M20:S70:C10	3	1	20	0.0729	20	1.5	0.92
2	9/13/2018	M20:S70:5R:5C	4	1	20	0.0729	20	1.5	0.88
2	9/13/2018	M40:S60	5	1	20	0.0729	20	1.5	1.01
2	9/13/2018	M40:S50:R10	6	1	20	0.0729	20	1.5	0.86
2	9/13/2018	M40:S50:C10	7	1	20	0.0729	20	1.5	0.78
2	9/13/2018	M40:S50:5R:5C	8	1	20	0.0729	20	1.5	0.88
2	9/13/2018	M40:S30:30R	9	1	20	0.0729	20	1.5	0.93
2	9/13/2018	M40:S30:30C	10	1	20	0.0729	20	1.5	0.86
2	9/13/2018	M40:S30:15R:15C	11	1	20	0.0729	20	1.5	0.78
3	9/17/2018	M20:S80	1	1	20	0.0637	20	1.3	0.78
3	9/17/2018	M20:S70:R10	2	1	20	0.0637	20	1.3	1.11
3	9/17/2018	M20:S70:C10	3	1	20	0.0637	20	1.3	1.04
3	9/17/2018	M20:S70:5R:5C	4	1	20	0.0637	20	1.3	1.00
3	9/17/2018	M40:S60	5	1	20	0.0637	20	1.3	1.08
3	9/17/2018	M40:S50:R10	6	1	20	0.0637	20	1.3	1.15
3	9/17/2018	M40:S50:C10	7	1	20	0.0637	20	1.3	1.06
3	9/17/2018	M40:S50:5R:5C	8	1	20	0.0637	20	1.3	1.12
3	9/17/2018	M40:S30:30R	9	1	20	0.0637	20	1.3	1.14
3	9/17/2018	M40:S30:30C	10	1	20	0.0637	20	1.3	0.93
3	9/17/2018	M40:S30:15R:15C	11	1	20	0.0637	20	1.3	1.06
4	9/24/2018	M20:S80	1	1	20	0.0608	20	1.2	0.81
4	9/24/2018	M20:S70:R10	2	1	20	0.0608	20	1.2	0.86
4	9/24/2018	M20:S70:C10	3	1	20	0.0608	20	1.2	0.88
4	9/24/2018	M20:S70:5R:5C	4	1	20	0.0608	20	1.2	0.88
4	9/24/2018	M40:S60	5	1	20	0.0608	20	1.2	0.96
4	9/24/2018	M40:S50:R10	6	1	20	0.0608	20	1.2	0.85

4	9/24/2018	M40:S50:C10	7	1	20	0.0608	20	1.2	0.81
4	9/24/2018	M40:S50:5R:5C	8	1	20	0.0608	20	1.2	0.91
4	9/24/2018	M40:S30:30R	9	1	20	0.0608	20	1.2	0.84
4	9/24/2018	M40:S30:30C	10	1	20	0.0608	20	1.2	0.79
4	9/24/2018	M40:S30:15R:15C	11	1	20	0.0608	20	1.2	0.82
5	10/1/2018	M20:S80	1	2	34	0.0605	20	2.1	0.77
5	10/1/2018	M20:S70:R10	2	2	34	0.0605	20	2.1	0.87
5	10/1/2018	M20:S70:C10	3	2	34	0.0605	20	2.1	0.81
5	10/1/2018	M20:S70:5R:5C	4	2	34	0.0605	20	2.1	0.86
5	10/1/2018	M40:S60	5	2	34	0.0605	20	2.1	0.93
5	10/1/2018	M40:S50:R10	6	2	34	0.0605	20	2.1	0.84
5	10/1/2018	M40:S50:C10	7	2	34	0.0605	20	2.1	0.80
5	10/1/2018	M40:S50:5R:5C	8	2	34	0.0605	20	2.1	0.79
5	10/1/2018	M40:S30:30R	9	2	34	0.0605	20	2.1	0.81
5	10/1/2018	M40:S30:30C	10	2	34	0.0605	20	2.1	0.69
5	10/1/2018	M40:S30:15R:15C	11	2	34	0.0605	20	2.1	0.78
6	10/10/2018	M20:S80	1	1	20	0.0566	20	1.1	0.87
6	10/10/2018	M20:S70:R10	2	1	20	0.0566	20	1.1	0.81
6	10/10/2018	M20:S70:C10	3	1	20	0.0566	20	1.1	0.81
6	10/10/2018	M20:S70:5R:5C	4	1	20	0.0566	20	1.1	0.92
6	10/10/2018	M40:S60	5	1	20	0.0566	20	1.1	0.85
6	10/10/2018	M40:S50:R10	6	1	20	0.0566	20	1.1	0.91
6	10/10/2018	M40:S50:C10	7	1	20	0.0566	20	1.1	0.82
6	10/10/2018	M40:S50:5R:5C	8	1	20	0.0566	20	1.1	0.85
6	10/10/2018	M40:S30:30R	9	1	20	0.0566	20	1.1	0.83
6	10/10/2018	M40:S30:30C	10	1	20	0.0566	20	1.1	0.78
6	10/10/2018	M40:S30:15R:15C	11	1	20	0.0566	20	1.1	0.78
7	10/17/2018	M20:S80	1	1	20	0.0575	20	1.2	0.84
7	10/17/2018	M20:S70:R10	2	1	20	0.0575	20	1.2	0.76
7	10/17/2018	M20:S70:C10	3	1	20	0.0575	20	1.2	0.79
7	10/17/2018	M20:S70:5R:5C	4	1	20	0.0575	20	1.2	0.86
7	10/17/2018	M40:S60	5	1	20	0.0575	20	1.2	0.87
7	10/17/2018	M40:S50:R10	6	1	20	0.0575	20	1.2	0.77
7	10/17/2018	M40:S50:C10	7	1	20	0.0575	20	1.2	0.79
7	10/17/2018	M40:S50:5R:5C	8	1	20	0.0575	20	1.2	0.81
7	10/17/2018	M40:S30:30R	9	1	20	0.0575	20	1.2	0.79
7	10/17/2018	M40:S30:30C	10	1	20	0.0575	20	1.2	0.78
7	10/17/2018	M40:S30:15R:15C	11	1	20	0.0575	20	1.2	0.79
8	10/22/2018	M20:S80	1	1	21	0.0613	20	1.3	0.99
8	10/22/2018	M20:S70:R10	2	1	21	0.0613	20	1.3	1.00
8	10/22/2018	M20:S70:C10	3	1	21	0.0613	20	1.3	1.00
8	10/22/2018	M20:S70:5R:5C	4	1	21	0.0613	20	1.3	0.92
8	10/22/2018	M40:S60	5	1	21	0.0613	20	1.3	0.91
8	10/22/2018	M40:S50:R10	6	1	21	0.0613	20	1.3	1.09
8	10/22/2018	M40:S50:C10	7	1	21	0.0613	20	1.3	0.99
8	10/22/2018	M40:S50:5R:5C	8	1	21	0.0613	20	1.3	1.01

8	10/22/2018	M40:S30:30R	9	1	21	0.0613	20	1.3	0.94
8	10/22/2018	M40:S30:30C	10	1	21	0.0613	20	1.3	1.03
8	10/22/2018	M40:S30:15R:15C	11	1	21	0.0613	20	1.3	0.95
9	10/29/2018	M20:S80	1	1	20	0.0613	20	1.2	0.84
9	10/29/2018	M20:S70:R10	2	1	20	0.0613	20	1.2	0.87
9	10/29/2018	M20:S70:C10	3	1	20	0.0613	20	1.2	0.87
9	10/29/2018	M20:S70:5R:5C	4	1	20	0.0613	20	1.2	0.92
9	10/29/2018	M40:S60	5	1	20	0.0613	20	1.2	0.94
9	10/29/2018	M40:S50:R10	6	1	20	0.0613	20	1.2	0.73
9	10/29/2018	M40:S50:C10	7	1	20	0.0613	20	1.2	0.91
9	10/29/2018	M40:S50:5R:5C	8	1	20	0.0613	20	1.2	0.84
9	10/29/2018	M40:S30:30R	9	1	20	0.0613	20	1.2	0.87
9	10/29/2018	M40:S30:30C	10	1	20	0.0613	20	1.2	0.85
9	10/29/2018	M40:S30:15R:15C	11	1	20	0.0613	20	1.2	0.87
10	11/6/2018	M20:S80	1	1	15	0.0592	20	0.9	0.91
10	11/6/2018	M20:S70:R10	2	1	15	0.0592	20	0.9	0.91
10	11/6/2018	M20:S70:C10	3	1	15	0.0592	20	0.9	0.84
10	11/6/2018	M20:S70:5R:5C	4	1	15	0.0592	20	0.9	0.75
10	11/6/2018	M40:S60	5	1	15	0.0592	20	0.9	0.85
10	11/6/2018	M40:S50:R10	6	1	15	0.0592	20	0.9	0.89
10	11/6/2018	M40:S50:C10	7	1	15	0.0592	20	0.9	0.88
10	11/6/2018	M40:S50:5R:5C	8	1	15	0.0592	20	0.9	0.94
10	11/6/2018	M40:S30:30R	9	1	15	0.0592	20	0.9	0.89
10	11/6/2018	M40:S30:30C	10	1	15	0.0592	20	0.9	0.88
10	11/6/2018	M40:S30:15R:15C	11	1	15	0.0592	20	0.9	0.83
11	11/13/2018	M20:S80	1	1	12	0.0613	20	0.8	0.89
11	11/13/2018	M20:S70:R10	2	1	12	0.0613	20	0.8	0.79
11	11/13/2018	M20:S70:C10	3	1	12	0.0613	20	0.8	0.91
11	11/13/2018	M20:S70:5R:5C	4	1	12	0.0613	20	0.8	0.89
11	11/13/2018	M40:S60	5	1	12	0.0613	20	0.8	0.91
11	11/13/2018	M40:S50:R10	6	1	12	0.0613	20	0.8	0.89
11	11/13/2018	M40:S50:C10	7	1	12	0.0613	20	0.8	0.90
11	11/13/2018	M40:S50:5R:5C	8	1	12	0.0613	20	0.8	0.96
11	11/13/2018	M40:S30:30R	9	1	12	0.0613	20	0.8	0.87
11	11/13/2018	M40:S30:30C	10	1	12	0.0613	20	0.8	0.86
11	11/13/2018	M40:S30:15R:15C	11	1	12	0.0613	20	0.8	0.81
12	11/20/2018	M20:S80	1	1	21	0.0638	20	1.3	0.93
12	11/20/2018	M20:S70:R10	2	1	21	0.0638	20	1.3	0.87
12	11/20/2018	M20:S70:C10	3	1	21	0.0638	20	1.3	0.84
12	11/20/2018	M20:S70:5R:5C	4	1	21	0.0638	20	1.3	0.97
12	11/20/2018	M40:S60	5	1	21	0.0638	20	1.3	0.95
12	11/20/2018	M40:S50:R10	6	1	21	0.0638	20	1.3	0.86
12	11/20/2018	M40:S50:C10	7	1	21	0.0638	20	1.3	0.90
12	11/20/2018	M40:S50:5R:5C	8	1	21	0.0638	20	1.3	0.96
12	11/20/2018	M40:S30:30R	9	1	21	0.0638	20	1.3	0.84
12	11/20/2018	M40:S30:30C	10	1	21	0.0638	20	1.3	0.92

12	11/20/2018	M40:S30:15R:15C	11	1	21	0.0638	20	1.3	0.89
13	11/27/2018	M20:S80	1	1	15	0.0596	20	0.9	0.85
13	11/27/2018	M20:S70:R10	2	1	15	0.0596	20	0.9	0.84
13	11/27/2018	M20:S70:C10	3	1	15	0.0596	20	0.9	0.86
13	11/27/2018	M20:S70:5R:5C	4	1	15	0.0596	20	0.9	0.88
13	11/27/2018	M40:S60	5	1	15	0.0596	20	0.9	0.85
13	11/27/2018	M40:S50:R10	6	1	15	0.0596	20	0.9	0.81
13	11/27/2018	M40:S50:C10	7	1	15	0.0596	20	0.9	0.83
13	11/27/2018	M40:S50:5R:5C	8	1	15	0.0596	20	0.9	0.81
13	11/27/2018	M40:S30:30R	9	1	15	0.0596	20	0.9	0.75
13	11/27/2018	M40:S30:30C	10	1	15	0.0596	20	0.9	0.77
13	11/27/2018	M40:S30:15R:15C	11	1	15	0.0596	20	0.9	0.81
14	12/4/2018	M20:S80	1	1	14	0.0595	20	0.8	0.87
14	12/4/2018	M20:S70:R10	2	1	14	0.0595	20	0.8	0.93
14	12/4/2018	M20:S70:C10	3	1	14	0.0595	20	0.8	0.91
14	12/4/2018	M20:S70:5R:5C	4	1	14	0.0595	20	0.8	0.90
14	12/4/2018	M40:S60	5	1	14	0.0595	20	0.8	0.89
14	12/4/2018	M40:S50:R10	6	1	14	0.0595	20	0.8	0.83
14	12/4/2018	M40:S50:C10	7	1	14	0.0595	20	0.8	0.88
14	12/4/2018	M40:S50:5R:5C	8	1	14	0.0595	20	0.8	0.89
14	12/4/2018	M40:S30:30R	9	1	14	0.0595	20	0.8	0.79
14	12/4/2018	M40:S30:30C	10	1	14	0.0595	20	0.8	0.74
14	12/4/2018	M40:S30:15R:15C	11	1	14	0.0595	20	0.8	0.80

Supplement Text 1: Multiple linear regression model statistics

Laboratory experiment: Multiple linear regression model statistics with nutrient leachate concentrations as dependent variable, and compost volumes, spent lime/Ca-WTR, coir, and WTR:coir ratio volumes as independent variables.

Leachate PO_4^{3-} concentrations (dependent variable)

RSquare 0.609099
RSquare Adj 0.598605
Root Mean Square Error 1.111694
Mean of Response 1.954781
Observations (or Sum Wgts) 154

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-0.209105	0.321575	-0.65	0.5165
Compost	0.0937624	0.01034	9.07	<.0001*
WTR	-0.149797	0.012992	-11.53	<.0001*
Coir	-0.007467	0.012992	-0.57	0.5663
(WTR-6.81818)*(Coir-6.81818)	-0.007798	0.001583	-4.92	<.0001*

Leachate NH_4^+ concentrations (dependent variable)

RSquare 0.065222
RSquare Adj 0.039612
Root Mean Square Error 5.87194
Mean of Response -0.47568
Observations (or Sum Wgts) 151

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	-5.663898	1.728218	-3.28	0.0013*
Compost	0.1589747	0.05544	2.87	0.0048*
WTR	-0.009117	0.069292	-0.13	0.8955
Coir	0.0014372	0.069591	0.02	0.9836
(WTR-6.95364)*(Coir-6.88742)	-0.000882	0.008367	-0.11	0.9162

Leachate NO_3^- concentrations (dependent variable)

RSquare 0.33207
RSquare Adj 0.314139
Root Mean Square Error 0.97394
Mean of Response 3.980407
Observations (or Sum Wgts) 154

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	1.8214563	0.281728	6.47	<.0001*
Compost	0.0642355	0.009059	7.09	<.0001*
WTR	0.0204991	0.011382	1.80	0.0737
Coir	-0.011551	0.011382	-1.01	0.3118
(WTR-6.81818)*(Coir-6.81818)	0.0002005	0.001387	0.14	0.8853