Supplementary Material

Table S1. Measurements of the pig slurry monitoring.

NH_4-N	COD_t	COD_s	pH	EC	TA	TS	VS
mg/L	mg/L	mg/L	-	mS/cm	mmol/L	g/kg	g/kg
2198	9125	6050	8.02	23.50	169	-	-
2040	9520	5215	7.81	23.40	312	13.50	9.30
2460	15,020	5172	7.80	25.50	358	-	-
2916	12,125	8610	7.80	29.20	532	-	-
2260	16,250	7150	7.81	25.20	254	-	-
2260	15,300	6280	7.80	25.30	315	17.68	8.91
2162	12,600	5050	7.76	22.80	290	-	-
2105	9325	6440	7.88	22.50	275	13.53	6.99
2200	11,800	5010	7.75	16.00	280	-	-
2280	11,700	8160	7.75	16.86	310	-	-
2080	10,650	2750	7.92	20.26	235	13.56	5.76
2200	11,500	3080	7.67	17.37	288	-	-
2070	13,825	3270	7.67	18.94	272	-	-
2310	20,800	4250	7.65	19.10	355	-	-
2625	16,300	5910	7.76	18.24	166	-	-
1880	13,600	7800	7.80	17.78	266	16.30	8.74
1980	10,550	3050	7.71	17.37	305	-	-
1908	6775	3450	7.93	16.44	258	11.34	4.55
1870	7725	3375	7.83	19.51	224	-	-
2270	11,630	6420	7.88	20.25	330	-	-
2580	12,225	7680	7.85	22.80	287	16.74	7.73
2140	29,750	5400	7.80	25.50	366	-	-
2650	12,925	-	7.82	25.10	285	-	-
2720	-	-	7.89	26.20	305	-	-
2570	11,100	-	7.87	23.20	281	-	-
2500	-	-	7.85	23.20	357	-	-
2650	16,980	5276	7.88	25.20	278	-	-
2900	-	-	8.08	28.25	275	-	-
2700	12,650	4092	8.08	29.25	233	-	-
2340	-	-	7.92	28.00	263	-	-

Table S2. Measurements in the PN reactor over the course of operation.

Day of operation	NH_4-N	NO_2-N	NO_3-N	pH	T	TSS	VSS
d	mg/L	mg/L	mg/L	-	°C	g/L	g/L
1	580.00	27.00	13.90	8.17	21.0	8.6	6.0
3	605.00	149.00	10.10	7.94	25.5	8.9	5.7
6	745.00	504.00	13.20	7.92	25.1	8.0	5.3
10	302.50	851.00	22.90	6.97	26.3	7.4	5.1
13	255.00	958.00	51.20	6.75	25.1	6.0	4.7
16	284.50	1000.00	51.20	6.68	25.0	5.7	4.4
20	460.00	886.00	58.60	7.29	25.7	5.5	4.2
24	283.00	1060.00	68.10	6.57	25.3	9.2	6.7
27	112.00	721.00	45.70	6.97	25.1	11.7	9.1
30	17.10	622.00	39.90	7.12	25.7	14.6	11.5
35	14.70	0.46	9.43	8.13	24.5	14.4	11.0

Day of operation	NH_4-N	NO_2-N	NO_3-N	pH	T	TSS	VSS
d	mg/L	mg/L	mg/L	-	°C	g/L	g/L
37	19.35	4.08	12.60	8.01	25.2	13.9	10.8
42	5.35	0.72	11.20	8.17	24.8	13.4	10.3
45	640.00	2.08	16.70	8.35	24.5	13.0	10.0
51	504.00	0.61	13.20	8.47	24.2	12.4	9.8
55	497.50	0.56	15.30	8.57	25.4	12.0	9.1
58	996.00	0.49	14.62	8.57	24.7	11.7	8.8
63	1116.00	0.50	18.12	8.65	24.5	11.2	8.4
66	619.00	0.31	12.45	8.7	24.2	11.0	8.1
72	64.10	223.00	15.80	7.55	24.3	10.2	7.5
77	1.98	224.40	20.55	7.4	24.5	9.7	7.1
80	118.00	5.26	7.72	8.14	24.8	9.5	6.7
83	192.20	0.20	4.41	8.15	24.8	8.9	6.4
87	69.40	80.00	11.65	7.82	24.5	8.6	6.0
91	5.86	231.00	10.06	7.12	24.4	7.4	5.5
94	24.90	319.50	13.80	6.67	24.7	7.2	5.2
98	49.40	318.00	20.20	6.7	24.6	6.3	4.8
104	92.20	277.50	24.40	7.85	24.8	6.6	4.7
108	83.10	83.00	1.05	7.88	25.0	6.8	4.7
111	53.90	117.00	12.30	7.73	24.8	6.9	4.6
114	67.20	76.20	9.68	8.03	24.8	7.4	5.3
119	15.00	147.00	8.90	7.7	24.8	8.7	6.4
125	5.23	114.00	65.10	7.75	24.7	10.9	7.8
128	9.07	9.60	43.80	7.93	24.7	11.4	8.4
133	303.00	7.00	5.20	8.86	25.3	10.5	7.7
136	348.00	0.56	5.05	8.36	25.3	9.9	7.3
139	126.00	160.00	7.77	7.96	25.2	9.4	6.9
143	136.00	28.00	6.10	8.17	24.7	8.7	6.4
146	186.80	47.40	5.70	8.1	24.8	8.1	6.0
149	3.89	152.00	25.00	7.82	24.8	7.7	5.6
154	14.60	214.00	9.19	7.65	25.1	8.3	6.1
157	7.29	227.50	43.30	6.79	25.1	8.7	6.5
160	18.40	195.50	93.50	6.66	24.9	9.5	6.8
163	35.10	209.00	96.00	6.62	25.0	9.8	7.1
167	6.54	84.50	83.40	7.35	25.3	10.2	7.6
173	216.00	1.05	6.00	8.3	24.8	11.3	8.2
184	0.86	0.50	97.40	7.92	25.2	12.6	9.4
188	111.00	54.40	113.40	7.86	25.1	11.6	8.6
191	52.00	31.60	14.60	7.77	25.0	10.5	7.9
195	12.50	1.25	261.50	6.84	24.8	9.6	7.0
199	21.60	6.28	295.00	6.76	24.8	8.1	6.1
202	159.20	12.80	168.20	8.09	25.0	7.2	5.5
205	220.00	14.60	97.40	8.25	25.0	6.4	4.8
209	212.00	29.80	81.20	8.23	24.9	5.2	3.9
213	242.50	50.20	33.30	8.26	25.0	4.0	3.1
216	83.00	29.00	146.50	8	24.8	3.1	2.4
219	372.00	0.50	7.10	8.65	24.9	2.2	1.7
223	47.80	382.00	21.00	6.81	25.0	1.6	1.3
226	351.00	75.90	9.01	8.62	25.0	1.2	0.9
231	464.00	7.10	8.34	8.51	25.0	1.0	0.7
234	346.00	8.00	8.00	8.75	25.1	0.8	0.6
237	416.00	17.80	6.94	8.47	25.1	0.7	0.5
241	50.10	360.00	11.45	6.77	25.1	0.5	0.3
245	98.00	189.00	12.15	7.56	25.2	0.4	0.2
248	120.60	118.80	29.20	7.92	25.1	0.4	0.2

Day of operation	NH_4-N	NO_2-N	NO_3-N	pH	T	TSS	VSS
d	mg/L	mg/L	mg/L	-	°C	g/L	g/L
251	145.00	5.89	89.40	8.3	25.0	0.4	0.3
254	71.80	10.60	183.80	7.1	25.1	0.4	0.3
258	40.00	161.00	44.20	6.53	24.7	0.5	0.4
262	42.40	136.20	48.60	6.58	24.8	0.5	0.4
265	32.20	4.45	170.60	6.33	24.8	0.6	0.4
269	39.60	0.66	200.00	6.06	24.9	0.6	0.5
272	36.60	1.12	190.20	6.33	25.1	0.6	0.5
276	95.60	45.50	208.00	6.75	24.9	0.7	0.6
280	165.00	101.60	122.80	7.76	25.2	0.7	0.6
283	121.40	162.80	7.56	7.28	24.8	0.7	0.6
286	168.80	176.60	42.40	7.76	25.0	0.7	0.6
289	304.00	114.60	18.64	8.2	24.8	0.7	0.6
293	248.00	222.00	19.40	7.92	24.9	0.8	0.6
296	147.58	162.00	50.50	8.25	24.9	0.8	0.7
300	164.80	354.00	11.90	6.88	25.0	0.8	0.7
303	162.00	296.00	31.20	7.5	25.3	0.6	0.5
307	184.40	306.00	23.60	7.45	25.1	0.7	0.6
310	344.00	260.00	22.20	8.15	25.2	0.7	0.6
314	575.00	167.00	55.00	8.45	24.8	0.6	0.5
317	186.60	506.00	21.40	6.38	24.8	0.6	0.5
321	172.40	496.00	30.45	6.72	25.1	0.6	0.5
324	690.00	90.30	34.30	8.36	28.1	0.5	0.5
328	595.00	105.00	31.75	8.48	25.6	0.6	0.6
332	401.00	155.00	43.35	8.35	25.1	0.6	0.5
338	594.00	116.20	17.00	8.61	25.8	0.7	0.6
341	436.00	270.50	81.50	8.37	25.2	0.7	0.6
345	644.00	180.00	28.20	8.85	25.2	0.7	0.5

Table S3. PN reactor performance over the course of the operation.

Day of operation	Feed NH_4-N	VLR	NH_4-N turnover	NO_2-N production
d	mg/L	kgN/m³/d	kgN/m³/d	kgN/m³/d
1	1710	0.43	0.28	0.01
3	1710	0.43	0.28	0.04
6	1160	0.29	0.10	0.13
10	1580	0.20	0.16	0.11
13	1470	0.18	0.15	0.12
16	1570	0.20	0.16	0.13
20	1710	0.21	0.16	0.11
24	2260	0.28	0.25	0.13
27	1670	0.21	0.20	0.09
30	1320	0.17	0.16	0.08
35	1570	0.20	0.19	0.00
37	1390	0.26	0.26	0.00
42	1460	0.28	0.27	0.00
45	1920	0.36	0.24	0.00
51	1875	0.35	0.26	0.00
55	2115	0.40	0.30	0.00
58	2008	0.38	0.19	0.00
63	2473	0.31	0.17	0.00
66	1890	0.24	0.16	0.00
72	-	-	-	-

Day of operation	Feed NH_4-N	VLR	NH_4-N turnover	NO_2-N production
d	mg/L	kgN/m³/d	kgN/m³/d	kgN/m³/d
77	-	-	-	-
80	615	0.15	0.12	0.00
83	565	0.14	0.09	0.00
87	555	0.14	0.12	0.02
91	502	0.13	0.12	0.06
94	454	0.11	0.11	0.08
98	502	0.13	0.11	0.08
104	477	0.12	0.10	0.07
108	503	0.13	0.11	0.02
111	725	0.18	0.17	0.03
114	424	0.11	0.09	0.02
119	663	0.17	0.16	0.04
125	575	0.14	0.14	0.03
128	640	0.16	0.16	0.00
133	610	0.15	0.08	0.00
136	510	-	-	-
139	570	-	-	-
143	544	0.14	0.10	0.01
146	613	0.15	0.11	0.01
149	606	0.15	0.15	0.04
154	530	0.13	0.13	0.05
157	548	0.14	0.14	0.06
160	502	0.13	0.12	0.05
163	550	0.14	0.13	0.05
167	540	0.14	0.13	0.02
173	534	-	-	-
184	562	0.14	0.14	0.00
188	558	0.14	0.11	0.01
191	550	0.10	0.09	0.01
195	450	0.12	0.12	0.00
199	534	0.20	0.19	0.00
202	600	0.16	0.12	0.00
205	718	0.27	0.19	0.01
209	690	0.26	0.18	0.01
213	720	0.27	0.18	0.02
216	803	0.33	0.30	0.01
219	670	0.00	0.00	0.00
223	612	0.25	0.23	0.16
226	482	0.20	0.05	0.03
231	484	-	-	-
234	500	0.21	0.06	0.00
237	472	0.00	0.00	0.00
241	500	0.21	0.19	0.15
245	234	0.11	0.06	0.09
248	228	0.10	0.05	0.05
251	232	-	-	-
254	226	0.10	0.07	0.00
258	231	0.10	0.09	0.07
262	232	0.11	0.09	0.06

Day of operation	Feed NH_4-N	VLR	NH_4-N turnover	NO_2-N production
d	mg/L	kgN/m³/d	kgN/m³/d	kgN/m³/d
265	215	0.10	0.08	0.00
269	218	0.10	0.08	0.00
272	220	0.10	0.08	0.00
276	223	0.10	0.06	0.02
280	394	0.18	0.10	0.05
283	390	0.18	0.12	0.07
286	336	0.15	0.08	0.08
289	452	0.21	0.07	0.05
293	520	0.24	0.12	0.10
296	590	0.27	0.20	0.07
300	554	0.25	0.18	0.16
303	554	0.25	0.18	0.13
307	492	0.22	0.14	0.14
310	616	0.28	0.12	0.12
314	781	-	-	-
317	900	0.41	0.32	0.23
321	910	0.41	0.33	0.23
324	1074	0.49	0.17	0.04
328	1014	0.46	0.19	0.05
332	745	0.20	0.09	0.04
338	600	0.27	0.00	0.05
341	980	-	-	-
345	1075	0.49	0.20	0.08