

Supplementary materials:

Table S1: Field observations used in the meta-analysis to evaluate the mean CH₄ and N₂O emissions, area-scaled GWP, rice yield, and yield-scaled GWP of rice variety (Abbreviations: japonica (J), Indica (I); Growth duration after transplant (GDAT))

No.	Rice variety	J/I	GDAT	n	f	o	CH ₄ (kg CO ₂ eq ha ⁻¹)	N ₂ O(kg CO ₂ eq ha ⁻¹)	Area-scaled GWP (kg CO ₂ eq ha ⁻¹)	Yield (Mg ha ⁻¹)	Yield-scaled GWP (kg CO ₂ eq Mg ⁻¹)	Refs.
1	Zhefu7hao	I	71	3	5	4	1921.0	268.0	2189.0	5.337	410.2	Shi et al 2011a
2	Zhefu7hao	I	71	3	5	4	2277.0	161.0	2438.0	4.802	507.7	Shi et al 2011a
3	Zhefu7hao	I	71	3	5	4	1976.0	250.0	2226.0	3.605	617.5	Shi et al 2011a
4	Zhefu7hao	I	71	3	5	4	1955.0	250.0	2205.0	5.245	420.4	Shi et al 2011a
5	Jiayuzao17	I	77	3	5	5	1256.6	1146.7	2403.3	7.083	339.3	Shi et al 2011b
6	Jiayuzao17	I	77	3	5	5	3811.5	441.9	4253.4	7.058	602.6	Shi et al 2011b
7	Jiayuzao17	I	77	3	5	5	2069.8	695.8	2765.5	6.966	397.0	Shi et al 2011b
8	Jiayuzao17	I	77	3	5	5	3931.6	309.6	4241.2	6.850	619.1	Shi et al 2011b
9	Jiayuzao17	I	77	3	5	5	1875.7	506.5	2382.3	6.925	344.0	Shi et al 2011b
10	Xiang 24	I	77	3	2	3	4541.3	50.7	4592.0	5.465	840.3	Shang et al. 2011
11	Xiang 24	I	77	3	2	3	4535.0	49.2	4584.2	3.420	1340.4	Shang et al. 2011
12	Xiang 24	I	77	3	2	3	5846.3	19.4	5865.7	6.750	869.0	Shang et al. 2011
13	Xiang 45	I	77	3	2	3	5262.5	32.8	5295.3	4.560	1161.3	Shang et al. 2011
14	Xiang 45	I	77	3	2	3	5332.5	62.6	5395.1	2.010	2684.1	Shang et al. 2011
15	Xiang 45	I	77	3	2	3	7335.0	62.6	7397.6	5.270	1403.7	Shang et al. 2011
16	Zhuliangyou211	I	78	3	5	1	1777.0	43.0	1820.0	6.151	295.9	Fu et al. 2012
17	Luliangyou819	I	78	3	5	1	1720.0	21.0	1741.0	6.133	283.9	Fu et al. 2012
18	Tyou705	I	78	3	5	1	1925.0	15.0	1940.0	5.651	343.3	Fu et al. 2012
19	Jingyou402	I	78	3	5	1	1638.0	10.0	1648.0	6.707	245.7	Fu et al. 2012
20	Xiangzaoxian17	I	78	3	5	1	1802.0	25.0	1827.0	6.262	291.8	Fu et al. 2012
21	Xiangzaoxian24	I	78	3	5	1	1729.0	29.0	1758.0	6.522	269.5	Fu et al. 2012
22	Xiangzaoxian45	I	78	3	5	1	1839.0	44.0	1883.0	6.411	293.7	Fu et al. 2012

23	Xiangzaoxian32	I	80	3	5	3	13003.2	304.6	13307.8	5.385	2471.3	Qin et al. 2006a, Qin et al. 2006b
24	Xiangzaoxian32	I	80	3	5	3	11419.2	310.7	11729.9	5.745	2041.8	Qin et al. 2006a, Qin et al. 2006b
25	Xiangzaoxian32	I	80	3	5	3	4958.4	434.0	5392.4	5.400	998.6	Qin et al. 2006a, Qin et al. 2006b
26	Jingyou 207	I	86	3	2	3	12162.5	77.5	12240.0	4.815	2542.1	Shang et al. 2011
27	Jingyou 207	I	86	3	2	3	11970.0	59.6	12029.6	4.310	2791.1	Shang et al. 2011
28	Jingyou 207	I	86	3	2	3	13537.5	22.4	13559.9	5.725	2368.5	Shang et al. 2011
29	Tyou 207	I	86	3	2	3	12500.0	113.2	12613.2	4.700	2683.7	Shang et al. 2011
30	Tyou 207	I	86	3	2	3	10242.5	32.8	10275.3	2.800	3669.8	Shang et al. 2011
31	Tyou 207	I	86	3	2	3	13380.0	89.4	13469.4	4.750	2835.7	Shang et al. 2011
32	Yueyou360	I	87	3	5	5	2651.8	235.4	2887.1	7.641	377.8	Shi et al 2011b
33	Yueyou360	I	87	3	5	5	5742.0	174.5	5916.5	7.650	773.4	Shi et al 2011b
34	Yueyou360	I	87	3	5	5	1832.2	223.1	2055.3	7.567	271.6	Shi et al 2011b
35	Yueyou360	I	87	3	5	5	9500.4	185.0	9685.4	7.767	1247.0	Shi et al 2011b
36	Yueyou360	I	87	3	5	5	3716.6	518.1	4234.7	8.033	527.2	Shi et al 2011b
37	Yueyou360	I	88	3	5	4	4762.0	124.0	4886.0	8.353	584.9	Shi et al 2011a
38	Yueyou360	I	88	3	5	4	4254.0	172.0	4426.0	7.732	572.4	Shi et al 2011a
39	Yueyou360	I	88	3	5	4	5734.0	86.0	5820.0	6.869	847.3	Shi et al 2011a
40	Yueyou360	I	88	3	5	4	4080.0	259.0	4339.0	9.134	475.0	Shi et al 2011a
41	Xinxiangyou80	I	88	3	5	3	24662.4	381.1	25043.5	5.250	4770.2	Qin et al. 2006a, Qin et al. 2006b
42	Xinxiangyou80	I	88	3	5	3	9782.4	192.9	9975.3	5.550	1797.3	Qin et al. 2006a, Qin et al. 2006b
43	Xinxiangyou80	I	88	3	5	3	4929.6	224.9	5154.5	5.295	973.5	Qin et al. 2006a, Qin et al. 2006b
44	Luliangyou996	I	88	3	5	5	5132.5	24.734	5157.2	3.4	1516.8	Shi et al. 2012
45	Luliangyou996	I	88	3	5	5	3855	60.196	3915.2	5.95	658.0	Shi et al. 2012
46	Luliangyou996	I	90	3	5	5	4772.5	54.236	4826.7	7.17	673.2	Shi et al. 2012
47	Luliangyou996	I	90	3	5	5	5032.5	47.084	5079.6	7.5	677.3	Shi et al. 2012
48	Luliangyou996	I	90	3	5	5	5972.5	61.388	6033.9	7.37	818.7	Shi et al. 2012
49	Fengyuanyou299	I	91	3	5	1	4520.0	56.0	4576.0	7.683	595.6	Fu et al. 2012

50	Weiyu227	I	91	3	5	1	4188.0	53.0	4241.0	7.053	601.3	Fu et al. 2012
51	Yueyou9113	I	91	3	5	1	4105.0	79.0	4184.0	7.193	581.7	Fu et al. 2012
52	Yuzhuxiang	I	91	3	5	1	4109.0	72.0	4181.0	6.885	607.3	Fu et al. 2012
53	Xiangwanxian13	I	91	3	5	1	6356.0	81.0	6437.0	7.455	863.4	Fu et al. 2012
54	Xiangwanxian12	I	91	3	5	1	4935.0	49.0	4984.0	6.895	722.8	Fu et al. 2012
55	Yuzhenxiang	I	91	3	5	1	4700.0	55.0	4755.0	6.265	759.0	Fu et al. 2012
56	Cliangyou396	I	95	3	5	5	5667.5	31.29	5698.8	5.5	1036.1	Shi et al. 2012
57	Cliangyou396	I	95	3	5	5	4907.5	51.852	4959.4	6.52	760.6	Shi et al. 2012
58	Cliangyou396	I	95	3	5	5	5542.5	68.54	5611.0	7.62	736.4	Shi et al. 2012
59	Cliangyou396	I	95	3	5	5	5212.5	72.414	5284.9	9.52	555.1	Shi et al. 2012
60	Cliangyou396	I	95	3	5	5	9197.5	67.348	9264.8	8.61	1076.1	Shi et al. 2012
61	Liangyoupeijiu	I	100	3	3	2	5035.8	658.75	5694.6	6.586	864.6	Yuan et al. 2009
62	Liangyoupeijiu	I	102	3	3	2	5702.5	536.4	6238.9	7.490	833.0	Yuan et al. 2009
63	Suyou5356	J	105	3	5	12	569.4	7.1	576.5	7.42	77.7	Ma et al. 2007
64	Suyou5356	J	105	3	5	12	826.8	13.2	840.0	7.69	109.2	Ma et al. 2007
65	Suyou5356	J	105	3	5	12	998.4	7.3	1005.7	7.18	140.1	Ma et al. 2007
66	Suyou5356	J	105	3	5	12	1255.8	11.0	1266.8	7.24	175.0	Ma et al. 2007
67	Suyou5356	J	105	3	5	12	1723.8	2.7	1726.5	7.04	245.2	Ma et al. 2007
68	Suyou5356	J	105	3	5	12	2028.0	4.7	2032.7	6.68	304.3	Ma et al. 2007
69	Suyou5356	J	105	3	5	12	5633.9	56.4	5690.3	7.38	771.0	Ma et al. 2007
70	Suyou5356	J	105	3	5	12	5865.3	130.2	5995.5	8.08	742.0	Ma et al. 2007
71	Suyou5356	J	105	3	5	12	3766.6	53.6	3820.1	7.35	519.7	Ma et al. 2007
72	Suyou5356	J	105	3	5	12	5083.3	133.4	5216.6	7.49	696.5	Ma et al. 2007
73	Suyou5356	J	105	3	5	12	17372.5	17.2	17389.7	7.03	2473.6	Ma et al. 2007
74	Suyou5356	J	105	3	5	12	21841.3	23.1	21864.4	6.61	3307.8	Ma et al. 2007
75	Taifuxuan	J	112	3	5	4	7996.8	52.1	8048.9	5.976	1346.9	Cai et al. 1997
76	Taifuxuan	J	112	3	5	4	20630.4	50.5	20680.9	6.021	3434.8	Cai et al. 1997

77	Taifuxuan	J	112	3	5	4	9004.8	292.4	9297.2	7.262	1280.3	Cai et al. 1997
78	Taifuxuan	J	112	3	5	4	19152.0	184.2	19336.2	6.919	2794.7	Cai et al. 1997
79	Wuyujing	J	119	3	5	2	1142.0	396.3	1538.3	8.130	189.2	Zou et al. 2009
80	Wuyujing	J	119	3	5	2	1451.0	667.52	2118.5	8.910	237.8	Zou et al. 2009
81	Wuyunjing7	J	120	3	5	6	3167.5	53.64	3221.1	4.400	732.1	Qin et al. 2010
82	Wuyunjing7	J	120	3	5	6	1525.0	92.38	1617.4	4.670	346.3	Qin et al. 2010
83	Wuyunjing7	J	120	3	5	6	1247.5	116.22	1363.7	4.750	287.1	Qin et al. 2010
84	Kenjiangdao	J	120	3	5	4	3928.6	561.2	4489.8	6.6128	679.0	Chen et al. 2007; Wang et al. 2008
85	Kenjiangdao	J	120	3	5	4	3889.5	532.7	4422.1	6.8692	643.8	Chen et al. 2007; Wang et al. 2008
86	Kenjiangdao	J	120	3	5	4	5495.0	751.5	6246.5	4.9304	1266.9	Chen et al. 2007; Wang et al. 2008
87	Kenjiangdao	J	120	3	5	4	4381.8	1293.7	5675.5	5.5902	1015.3	Chen et al. 2007; Wang et al. 2008
88	Wuyunjing7	J	122	3	5	6	2632.5	14.9	2647.4	5.480	483.1	Qin et al. 2010
89	Wuyunjing7	J	122	3	5	6	1235.0	268.2	1503.2	6.200	242.5	Qin et al. 2010
90	Wuyunjing7	J	122	3	5	6	922.5	387.4	1309.9	6.510	201.2	Qin et al. 2010
91	Changyou1hao	J	123	3	5	2	4384.0	1034.1	5418.1	9.633	562.5	Zhang et al. 2009
92	Changyou1hao	J	123	3	5	2	5076.0	1236.7	6312.7	9.561	660.3	Zhang et al. 2009
93	Wuyunjing7	J	123	3	3	3	1732.5	593	2325.5	9.100	255.5	Zhang et al. 2010b
94	Wuyunjing7	J	123	3	3	3	1680.0	354.6	2034.6	9.900	205.5	Zhang et al. 2010b
95	Wuyunjing7	J	123	3	3	3	2675.0	292	2967.0	10.200	290.9	Zhang et al. 2010b
96	Huajing3	J	123	3	5	2	1084.8	1162.2	2247.0	7.920	283.7	Li et al. 2009b
97	suijing3hao	J	125	3	5	3	622.5	165.5	788.0	6.376	123.6	Yue et al., 2003*; Yue et al., 2005
98	suijing3hao	J	125	3	5	3	720.0	67.8	787.8	6.333	124.4	Yue et al., 2003*; Yue et al., 2005
99	suijing3hao	J	125	3	5	3	420.0	231.7	651.7	6.320	103.1	Yue et al., 2003*; Yue et al., 2005
100	Nanjing44	J	126	3	5	5	557.3	286.4	843.7	9.905	85.2	Sun et al. 2012
101	Nanjing44	J	126	3	5	5	2611.8	72.9	2684.6	9.596	279.8	Sun et al. 2012
102	Nanjing44	J	126	3	5	5	4049.3	46.8	4096.0	9.205	445.0	Sun et al. 2012
103	Nanjing44	J	126	3	5	5	654.0	59.7	713.7	10.322	69.1	Sun et al. 2012

104	Nanjing44	J	126	3	5	5	534.8	74.4	609.1	10.147	60.0	Sun et al. 2012
105	Huajing3	J	126	3	5	1	1725.0	336.4	2061.4	5.260	391.9	Ma et al. 2009
106	Liangyoupeiuiu	I	128	3	5	4	8560.0	224.75	8784.8	6.790	1293.8	Ahmad et al., 2009; Li et al. 2009
107	Liangyoupeiuiu	I	128	3	5	4	11022.5	174.94	11197.4	6.663	1680.6	Ahmad et al., 2009; Li et al. 2009
108	Liangyoupeiuiu	I	128	3	5	4	12920.0	2210.3	15130.3	9.541	1585.8	Ahmad et al., 2009; Li et al. 2009
109	Liangyoupeiuiu	I	128	3	5	4	16490.0	1671.78	18161.8	9.524	1906.9	Ahmad et al., 2009; Li et al. 2009
110	Liangyoupeiuiu	I	128	3	5	2	12920.0	2210.3	15130.3	9.541	1585.8	Dai et al. 2009; Ahmad et al., 2009; Li et al. 2009
111	Liangyoupeiuiu	I	128	3	5	2	16490.0	1671.78	18161.8	9.524	1906.9	Dai et al. 2009; Ahmad et al., 2009; Li et al. 2009
112	Suyou5363	J	131	3	5	1	1612.5	92.5	1705.0	6.960	245.0	Ma et al. 2009
113	Huajing3	J	139	3	5	2	792.3	1546.6	2338.9	5.460	428.4	Li et al. 2009b
114	Kongyu131	J	145	3	2	1	7660.8	59.9	7720.7	8.970	860.7	Mu et al. 2011
115	Longjing18	J	145	3	2	1	13659.0	39.0	13698.0	8.412	1628.4	Mu et al. 2011
116	Kenjiandao6	J	145	3	2	1	11810.4	40.9	11851.3	8.902	1331.3	Mu et al. 2011
117	Changyou1hao	J	156	3	5	4	10816.3	554.28	11370.5	10.181	1116.8	Zhang et al. 2010a
118	Changyou1hao	J	156	3	5	4	4384.0	1034.06	5418.1	9.633	562.4	Zhang et al. 2010a
119	Changyou1hao	J	156	3	5	4	10059.0	771.82	10830.8	9.780	1107.4	Zhang et al. 2010a
120	Changyou1hao	J	156	3	5	4	5076.0	1236.7	6312.7	9.561	660.3	Zhang et al. 2010a

* Yield data were obtained from these papers. (Similarly hereinafter)

Table S2: Field observations used in the meta-analysis to determine the impacts of N fertilization on CH₄ and N₂O emissions, area-scaled GWP, rice yield, and yield-scaled GWP

No.	Rice variety	N	n	f	Response ratio					Refs.
					CH ₄	N ₂ O	Area-scaled GWP	Yield	Yield-scaled GWP	
1	Zhefu7hao	52.5	3	5	0.63	2.00	0.68	2.06	0.33	Shi et al 2011a
2	Yueyou360	67.5	3	5	3.67	1.37	3.58	1.25	2.89	Shi et al 2011a
3	Xiang24	81.3	3	5	1.16	39.70	1.17	1.63	0.76	Shang et al. 2011
4	Xiang 45	81.3	3	5	1.23	1.26	1.23	1.77	0.78	Shang et al. 2011
5	Taifuxuan	100	3	5	0.49	1.25	0.50	1.15	0.44	Cai et al. 1997
6	Jingyou27	101.7	3	5	1.24	4.46	1.25	1.25	1.03	Shang et al. 2011
7	Tyou207	101.7	3	5	0.93	2.93	0.94	1.37	0.70	Shang et al. 2011
8	Zhefu7hao	105	3	2	0.73	1.29	0.75	2.75	0.27	Shi et al 2011a
9	Luliangyou996	120	3	5	0.93	2.19	0.94	2.11	0.44	Shi et al. 2012
10	Jiayuzao17	132	3	5	2.44	3.35	2.49	2.07	1.21	Shi et al 2011b
11	Jiayuzao17	132	3	5	1.16	5.48	1.40	2.07	0.67	Shi et al 2011b
12	Yueyou360	135	3	5	2.72	2.75	2.72	1.40	1.95	Shi et al 2011a
13	Cliangyou396	135	3	5	0.92	2.31	0.93	1.73	0.54	Shi et al. 2012
14	Yueyou360	144	3	5	4.75	4.78	4.75	2.01	2.37	Shi et al 2011b
15	Yueyou360	144	3	5	1.86	13.37	2.08	2.06	1.00	Shi et al 2011b
16	Jiayuzao17	148.5	3	5	2.36	4.78	2.49	2.13	1.18	Shi et al 2011b
17	Jiayuzao17	148.5	3	5	1.28	7.53	1.62	2.10	0.78	Shi et al 2011b
18	Zhefu7hao	150	3	2	0.61	2.14	0.67	3.04	0.22	Shi et al 2011a
19	Kenjiangdao	150	3	5	0.90	1.84	0.96	1.45	0.67	Chen et al. 2007; Wang et al. 2008
20	Luliangyou996	150	3	5	0.96	2.46	0.96	1.96	0.49	Shi et al. 2012
21	Yueyou360	162	3	5	2.87	4.50	2.90	1.99	1.47	Shi et al 2011b
22	Yueyou360	162	3	5	0.92	5.76	1.01	1.96	0.52	Shi et al 2011b
23	Jiayuzao17	165	3	5	0.78	12.41	1.41	2.13	0.66	Shi et al 2011b
24	Cliangyou396	165	3	5	1.24	1.90	1.25	1.38	0.89	Shi et al. 2012
25	Zhefu7hao	178	3	5	0.62	2.00	0.68	2.98	0.23	Shi et al 2011a

26	Yueyou360	180	3	5	3.04	1.98	3.00	1.51	1.99	Shi et al 2011a
27	Yueyou360	180	3	5	1.33	6.08	1.42	1.96	0.72	Shi et al 2011b
28	Luliangyou996	180	3	5	0.98	1.90	0.98	2.21	0.45	Shi et al. 2012
29	Cliangyou396	195	3	3	0.98	2.19	0.98	1.39	0.71	Shi et al. 2012
30	suyou5356	200	3	2	0.80	3.87	0.81	1.18	0.71	Ma et al. 2007
31	Wuyunjing	200	3	5	0.90	3.22	1.14	2.40	0.47	Zou et al. 2009
32	Yueyou360	210	3	5	2.61	4.14	2.67	1.65	1.62	Shi et al 2011a
33	Liangyoupeijiu	210	3	5	1.50	9.71	1.67	1.42	1.17	Dai et al. 2009; Ahmad et al., 2009;Li et al. 2009
34	Kenjiangdao	250	3	5	0.79	2.56	0.90	1.55	0.57	Chen et al. 2007; Wang et al. 2008
35	suyou5356	270	3	5	0.99	8.48	1.00	1.20	0.90	Ma et al. 2007
36	Wuyunjing7	300	3	2	0.90	2.18	1.00	1.04	0.96	Zhang et al. 2010b
37	Taifuxuan	300	3	5	0.89	5.83	0.98	1.37	0.72	Cai et al. 1997

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