

Table S1. The location, plow-layer depth, duration of rice straw (RS) or cow dung compost (CDC) application, rice cultivars, and soil type in the study fields

Field number [†]	Field name	GPS location		Plow layer [‡] (cm)	Application duration (years)	Rice cultivar 2017 / 2018	Soil type [§]
RS treatment							
1	RSM1	N 38°52'41.2"	E 140°15'20.7"	19.6	43	Haenuki / Haenuki	Gley L.
2	RSH1	N 38°51'03.4"	E 140°16'26.3"	21.5	41	Tsuyahime / Tsuyahime	Wet A.
3	RSI2	N 38°50'43.9"	E 140°16'50.7"	18.6	41	SD1 / Tsuyahime	Wet A.
4	RSMa5	N 38°51'57.3"	E 140°17'59.1"	16.2	41	Haenuki / Yumeaoba	Non-a. A.
5	RSN4	N 38°55'04.8"	E 140°15'53.1"	16.8	10	Koshihikari / Koshihikari	Reg. A.
6	RSN15	N 38°55'08.0"	E 140°16'37.3"	17.7	41	Haenuki / Haenuki	Gley L.
7	RSN2	N 38°57'24.2"	E 140°17'19.7"	15.7	14	Dewasansan / Dewasansan	Reg. A.
8	RSN19	N 38°57'41.2"	E 140°17'05.9"	16.8	14	Hitomebore / Hitomebore	Gley L.
9	RSN13	N 38°58'17.0"	E 140°20'32.7"	21.1	41	Haenuki / Fukuhibiki	Gley L.
10	RSN5	N 38°58'00.0"	E 140°24'57.2"	21.5	41	Himenomochi / Himenomochi	Gray L.
CDC treatment							
1	CDM1.1	N 38°52'49.1"	E 140°15'14.0"	18.3	41	Haenuki / Haenuki	Gray L.
2	CDH3	N 38°51'07.5"	E 140°16'08.4"	17.0	38	Tsuyahime / Tsuyahime	Wet A.
3	CDI4	N 38°50'45.3"	E 140°17'00.4"	15.8	6	SD1 / Yukiwakamaru	Wet A.
4	CDMa3	N 38°52'02.8"	E 140°17'59.2"	16.3	52	Haenuki / Haenuki	Non-a. A.
5	CDN4	N 38°55'04.0"	E 140°15'52.9"	16.8	10	Koshihikari / Koshihikari	Reg. A.
6	CDN13	N 38°55'08.0"	E 140°16'36.2"	19.2	30	Hitomebore / Haenuki	Gley L.
7	CDN2	N 38°57'25.7"	E 140°17'18.9"	16.2	10	Hitomebore / Hitomebore	Reg. A.
8	CDN19	N 38°57'39.9"	E 140°17'05.4"	17.4	10	Hitomebore / Hitomebore	Gley L.
9	CDN7	N 38°58'16.8"	E 140°20'07.0"	15.8	4	Haenuki / Haenuki	Gley L.
10	CDN3	N 38°57'59.7"	E 140°24'59.6"	17.8	6	Fukuhibiki / Yumeaoba	Gray L.

[†]RS and CDC treatments sharing the same field number represent a field pair.

[‡]The average of 2017 and 2018.

[§]Non-a. A., Non-allophanic Andosols; Wet A., Wet-Andosols; Reg. A., Regosolic Andosols; Gley L., Gley Lowland soils; Gray L., Gray Lowland soils.

Table S2. The nutrient compositions of the rice straw (RS) and cow dung compost (CDC) used in the field study

Treatment	Application rate (t ha ⁻¹)	Total carbon content (g C kg ⁻¹)	Total nitrogen content (g N kg ⁻¹)	Total phosphorus content (g P kg ⁻¹)	Total potassium content (g K kg ⁻¹)
2017					
RS (<i>n</i> = 8)	5.4 ± 1.4	400.3 ± 8.3	5.3 ± 0.7	1.3 ± 0.6	13.9 ± 1.6
CDC (<i>n</i> = 8)	4.4 ± 0.9	408.4 ± 18.8	11.9 ± 2.3	5.2 ± 5.1	15.4 ± 13.2
<i>P</i> (<i>t</i> -test)	0.11	0.29	< 0.01	0.07	0.76
2018					
RS (<i>n</i> = 10)	5.5 ± 1.0	414.6 ± 11.7	5.4 ± 0.8	1.4 ± 0.5	14.2 ± 1.3
CDC (<i>n</i> = 10)	4.1 ± 1.1	403.1 ± 35.6	13.3 ± 1.0	4.8 ± 1.3	13.2 ± 7.9
<i>P</i> (<i>t</i> -test)	< 0.01	0.33	< 0.01	< 0.01	0.70

Values are mean ± SD. The *P* value is the probability level of a two-tailed Welch's *t*-test. All data are reported on a dry matter basis.