

Supplementary Table S1. Details of field treatments applied under puddled transplanted rice-wheat cropping system.

Treatment	Treatment acronym
T1. Wheat was sown following conventional tillage without paddy straw	CTW (-R)
T2. Zero till wheat sown with Happy Seeder with paddy straw	ZTW (+R)
T3. Wheat was sown following conventional tillage after incorporating paddy straw with disc harrow	CTW (+R)
T4. Zero till wheat sown with Happy Seeder with 100% rice straw as mulch	ZTW (+WR)
T5. Wheat was sown with zero till drill after partial burning of rice straw (Farmer practice)	ZTW (RB)

R: Rice residue, WR: wheat and rice straw, RB: Rice residue burnt.

Supplementary Table S2. Effect of different straw management practices on soil bulk density (g cm^{-3}), soil organic carbon (SOC), total organic carbon (TOC) and various carbon fractions of soil sampled at three successive depths at harvest of wheat in rice-wheat cropping system.

Treatments	Bulk Density (g cm^{-3})		
	Depth		
	0-15 cm	15-30 cm	30-45 cm
CTW (-R)	1.39b	1.53b	1.65c
ZTW (+R)	1.32a	1.47a	1.56a
CTW (+R)	1.33a	1.50ab	1.61b
ZTW (+WR)	1.32a	1.47a	1.55a
ZTW (RB)	1.38b	1.52b	1.65c
Soil organic carbon (g kg^{-1})			
CTW (-R)	4.54d	3.68c	3.09c
ZTW (+R)	6.22b	4.35a	3.39a
CTW (+R)	5.67c	4.15ab	3.26b
ZTW (+WR)	6.84a	4.42a	3.48a
ZTW (RB)	4.82d	3.82bc	3.19c
Total organic carbon (g kg^{-1})			
CTW (-R)	7.86e	5.82d	4.38c
ZTW (+R)	9.91b	6.94a	4.85a
CTW (+R)	9.23c	6.58b	4.65b
ZTW (+WR)	10.75a	7.05a	4.95a
ZTW (RB)	8.23d	6.01c	4.52b
Very labile SOC (g kg^{-1})			
CTW (-R)	1.63e	1.38	0.82
ZTW (+R)	2.49b	1.55	0.92
CTW (+R)	2.22c	1.43	0.85
ZTW (+WR)	2.80a	1.54	0.97
ZTW (RB)	1.56d	1.30	0.84
Labile SOC (g kg^{-1})			
CTW (-R)	1.32e	1.16	1.07
ZTW (+R)	1.75b	1.37	1.24
CTW (+R)	1.62c	1.28	1.08
ZTW (+WR)	1.87a	1.37	1.11
ZTW (RB)	1.40d	1.25	1.08
Less labile SOC (g kg^{-1})			
CTW (-R)	1.59e	1.22	1.21
ZTW (+R)	1.98b	1.43	1.33
CTW (+R)	1.84c	1.45	1.32
ZTW (+WR)	2.14a	1.40	1.42
ZTW (RB)	1.74d	1.27	1.26
Non labile SOC (g kg^{-1})			
CTW (-R)	3.32d	2.14c	1.29
ZTW (+R)	3.69b	2.59a	1.46
CTW (+R)	3.56c	2.43b	1.39
ZTW (+WR)	3.91a	2.63a	1.47
ZTW (RB)	3.41d	2.19c	1.33

Figures in a column followed by the same alphabets do not differ significantly at $p \leq 0.05$ as analysed through Duncan's multiple range test (DMRT).