Table S1. Effects of cropping systems and soil depth on soil physical properties

Treatment	Depth	>500um	100-500 um	100-50 μm	50-30 μm	Macro-porosity
RWR	0-15 cm	2.10±0.93b	4.18±2.22abc	0.93±0.70b	0.41±0.28a	7.62±0.46def
	15-30 cm	1.39±0.80a	1.65±1.64abc	0.79±0.10abc	0.42±0.16a	4.25±1.12ab
OGV1	0-15 cm	2.81±0.65b	5.49±2.55abc	2.09±0.99b	0.73±0.41a	11.12±3.34bcd
	15-30 cm	1.42±0.82a	3.18 ±0.32bc	0.85±0.61abc	0.45±0.17a	5.91±0.44ab
OGV9	0-15 cm	4.71±1.32ab	7.49±0.70 ab	3.50±1.04ab	0.32±0.11a	16.02±1.29ab
	15-30 cm	0.54±0.75a	0.76±0.58bc*	1.06±0.16ab	0.41±0.17a	2.77±1.45b*
OGV14	0-15 cm	4.28±1.03ab	3.85±0.71bc	6.71±4.16a	0.41±0.29a	15.24±4.01abc
	15-30 cm	1.05±1.09a	0.66±0.28bc	1.14±0.11bc	0.34±0.14a	3.20±1.28ab*
OGV18	0-15 cm	9.07±4.37a	8.70±3.26a	2.43±1.55ab	0.70±0.24a	20.91±2.31a
	15-30 cm	3.03±2.16a*	0.98±1.52bc*	0.77±0.15abc	0.43±0.18a	5.22±3.80ab*
OFV1	0-15 cm	3.14±1.01b	2.15±0.70c	1.24±0.36b	0.35±0.10a	6.88±1.21def
	15-30 cm	2.24±1.88a	4.00±0.74ab	0.99±0.37abc	0.33±0.10a	7.55±1.23a
OFV9	0-15 cm	1.26±0.75b	2.41±0.56c	1.57±1.03b	0.27±0.10a	5.51±1.19def
	15-30 cm	0.79±0.45a	1.38±0.66bc	1.26±0.24a	0.29±0.10a	3.72±1.32b
OFV14	0-15 cm	3.84±2.43b	4.06±0.30bc	1.13±0.30b	0.23±0.11a	9.26±2.51cde
	15-30 cm	1.43±0.77a	2.18 ±1.03abc	1.29±0.20a	0.30±0.08a	5.20±1.8ab
CGV9	0-15 cm	0.76±0.64b	0.99±0.30c	0.34±0.04b	0.36±0.11a	2.45±0.60f
	15-30 cm	0.74±0.62a	0.46±0.19c	0.28±0.05c	0.23±0.17a	1.71±0.59ab
CFV9	0-15 cm	1.32±0.73b	1.78±0.84c	0.41±0.08b	0.30±0.22a	3.80±1.58ef
	15-30 cm	1.20±0.87a	1.71±0.47abc	0.41±0.15bc	0.37±0.22a	3.69±0.67ab

Note: Different lowercase letters indicate the significant difference in cropping systems using Tukey's HSD post hoc tests in the same depth. *means difference between different depths among the cropping systems significant at $P < 0.05$

Table S2. Effects of cropping systems and soil depth on soil physical-chemical properties

Treatment	Depth	SOC (g kg^{-1})	TN (g kg^{-1})	TP (g kg^{-1})
RWR	0-15 cm	12.35±4.83de	1.51±0.36cde	0.79±0.16de
	15-30 cm	5.38±4.01a	0.73±0.37ab	0.45±0.04c
OGV1	0-15 cm	10.04±6.51de	0.96±0.72de	0.50±0.17e
	15-30 cm	7.24±3.81a	0.90±0.31ab	0.46±0.11c
OGV9	0-15 cm	31.07±5.89ab	2.93±0.60ab	1.10±0.06bcde
	15-30 cm	5.48±2.56a*	0.74±0.32ab*	0.38±0.08c*
OGV14	0-15 cm	40.01±1.90a	3.82±0.14a	1.68±0.37ab
	15-30 cm	9.79±2.25a*	1.12±0.24ab*	0.57±0.12c*
OGV18	0-15 cm	24.89±2.93bc	2.12±0.38bc	1.34±0.23bcd
	15-30 cm	8.57±4.70a*	0.73±0.36ab*	0.56±0.21c*
OFV1	0-15 cm	5.44±2.10e	0.82±0.33e	0.49±0.09e
	15-30 cm	5.18±1.36 a	0.71±0.22ab	0.46±0.12c
OFV9	0-15 cm	20.18±1.78cd	1.67±0.16cde	1.03±0.00cde
	15-30 cm	4.03±1.53a*	0.41±0.25b*	0.60±0.05bc
OFV14	0-15 cm	19.22±1.54cd	1.94±0.16bcd	1.25±0.14bcd
	15-30 cm	7.80±0.55a*	0.95±0.17ab	0.8±0.11bc
CGV9	0-15 cm	7.41±0.47e	1.54±0.15cde	1.57±0.21abc
	15-30 cm	6.94±0.46a	1.26±0.11a	1.39±0.32a
CFV9	0-15 cm	8.99±0.73e	1.72±0.34cde	1.99±0.41a
	15-30 cm	6.02±0.63a	1.01±0.06ab	1.09±0.31ab*

Note: Different lowercase letters indicate the significant difference in cropping systems using Tukey's HSD post hoc tests in the same depth. *means difference between different depths among the cropping systems significant at $P < 0.05$

Table S3. Effects of cropping systems and soil C, N, P ratios

Treatment	Depth	C:N	C:P	N:P
RWR	0-15 cm	8.02±1.31bcd	16.78±9.80abcd	2.02±0.88abc
	15-30 cm	7.22±3.19a	11.65±7.79a	1.59±0.66a
OGV1	0-15 cm	11.82±3.11ab	18.53±7.05abc	1.72±0.91abc
	15-30 cm	7.60±2.12a	15.64±8.01a	1.99±0.79a
OGV9	0-15 cm	10.64±0.48ab	28.21±4.11a	2.66±0.46a
	15-30 cm	7.48±1.42a	14.04±4.37a*	1.95±0.78a
OGV14	0-15 cm	10.46±0.12abc	24.84±6.83a	2.37±0.63abc
	15-30 cm	8.74±0.18a	17.22±3.74a	1.97±0.42a
OGV18	0-15 cm	11.80±0.76ab	18.66±2.41ab	1.59±0.26abc
	15-30 cm	11.51±0.10a	14.77±2.94a	1.28±0.15a
OFV1	0-15 cm	6.78±1.22cd	10.84±2.79bcd	1.62±0.41abc
	15-30 cm	7.46±0.96a	11.29±0.38a	1.53±0.16a
OFV9	0-15 cm	12.14±1.69a	19.59±1.73ab	1.63±0.15abc
	15-30 cm	11.74±5.01a	6.57±2.02a	0.67±0.40a
OFV14	0-15 cm	9.92±0.17abc	15.49±1.56abcd	1.56±0.13abc
	15-30 cm	8.34±1.42a	9.89±1.26a	1.19±0.06a
CGV9	0-15 cm	4.88±0.75d	4.81±0.88cd	0.99±0.09bc
	15-30 cm	5.51±0.29a	5.17±1.22a	0.93±0.18a
CFV9	0-15 cm	5.33±0.69d	4.62±0.70d	0.87±0.09c
	15-30 cm	5.98±0.61a	5.81±1.53a	0.99±0.31a

Note: Different lowercase letters indicate the significant difference in cropping systems using Tukey's HSD post hoc tests in the same depth. *means difference between different depths among the cropping systems significant at $P < 0.05$