

Influence of water management farming practices on soil organic carbon and nutrients: A case study of Rice farming in Kilombero Valley, Tanzania

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Supplementary materials

Table S1. Multivariate analysis of variance (MANOVA) to show difference in SOC, nutrient and physical properties of soil among farming management practices and depth at Kilombero Valley

Management		df	Mean Square	F	P value
Farming Practice	pH	4	1.014	2.821	0.031*
	BD gcm ⁻³	4	0.194	12.085	0.000*
	Porosity	4	0.033	8.223	0.000*
	SOC gkg ⁻¹	4	672.105	6.647	0.000*
	TN gkg ⁻¹	4	4.060	6.165	0.000*
	TP gkg ⁻¹	4	6.438	3.658	0.009*
Depth	pH	3	0.421	1.171	0.326
	BD gcm ⁻³	3	0.162	10.069	0.000*
	Porosity	3	0.022	5.517	0.002*
	SOC gkg ⁻¹	3	556.925	5.508	0.002*
	TN gkg ⁻¹	3	4.852	7.367	0.000*
	TP gkg ⁻¹	3	0.763	0.434	0.730
Practice * Depth	pH	12	0.130	0.362	0.973
	BD gcm ⁻³	12	0.008	0.512	0.901
	Porosity	12	0.004	0.944	0.508
	SOC gkg ⁻¹	12	62.385	0.617	0.021*
	TN gkg ⁻¹	12	0.269	0.409	0.043*
	TP gkg ⁻¹	12	2.208	1.255	0.263

*=significant at 0.05

Table S2. Post hock Turkey test results to show direction of variation of soil properties and nutrients among farming practices and depth at Kilombero valley

			pH	BD	Porosity	SOC	TN	TP
Farming practice	A	B	0.996	0.996	0.996	0.997	0.839	0.995
	A	C	0.000*	0.000*	0.000*	0.001*	0.009*	0.271
	A	D	0.009*	0.452	0.009*	0.453	0.966	0.054
	A	E	0.033*	0.934	0.033	0.934	0.999	0.037*
	B	C	0.001*	0.000*	0.000*	0.000*	0.000*	0.494
	B	D	0.002*	0.269	0.026*	0.270	0.998	0.130
	B	E	0.081	0.785	0.081	0.785	0.835	0.098
	C	D	0.844	0.162	0.844	0.162	0.002*	0.908
	C	E	0.428	0.008*	0.429	0.009*	0.009*	0.895
	D	E	0.975	0.881	0.975	0.881	0.965	0.999
Depth (cm)	0-20	20-30	0.652	0.008*	0.02*	0.073	0.088	0.851
	0-20	30-40	0.340	0.000*	0.029*	0.004*	0.005*	0.986
	0-20	40-50	0.314	0.000*	0.002*	0.004*	0.000*	0.995
	20-30	30-40	0.954	0.828	0.999	0.706	0.728	0.662
	20-30	40-50	0.941	0.250	0.841	0.717	0.175	0.720
	30-40	40-50	0.999	0.741	0.765	0.999	0.736	0.999

*=significant at 0.05