

Table S1. Quantity of manure and chemical fertilizers applied to each cropping systems.

Treatments	Treatments	N (kg/ha)	P (kg/ha)	K (kg/ha)	FYM (t/ha)
T1	Maize–Maize–Maize	350	187.5	187.5	30
T2	Sorghum–Sorghum–Sorghum	225	125	100	30
T3	Oats–Oats–Oats	300	180	100	30
T4	Pearl millet–Pearl millet–Pearl millet	300	180	100	30
T5	Cowpea–Cowpea–Cowpea	62.5	125	62.5	30
T6	Bajra–Napier hybrid perennial system	180	120	80	20
T7	Lucerne perennial system	25	50	25	20
T8	Desmanthus perennial system	62.5	100	50	20
T9	Sesbania perennial system	62.5	100	50	20
T10	Maize + Cowpea–Oat + Cowpea–Pearl millet + Cowpea	350	195	155	30
T11	Sorghum + Cowpea–Maize + Cowpea–Pearl millet + Cowpea	340	185	155	30
T12	Bajra–Napier hybrid + Cowpea perennial system	180	120	80	20
T13	Bajra–Napier hybrid + Lucerne perennial system	180	120	80	20
T14	Bajra–Napier hybrid + Desmanthus perennial system	180	120	80	20
T15	Bajra–Napier hybrid + Sesbania perennial system	180	120	80	20