

Figure S1. The method used in the planting of teak wood and coconut seedlings in planting holes in the field and in black plastic bags, respectively. *Note: The PG organic treatments were only added once at the initial of planting.*

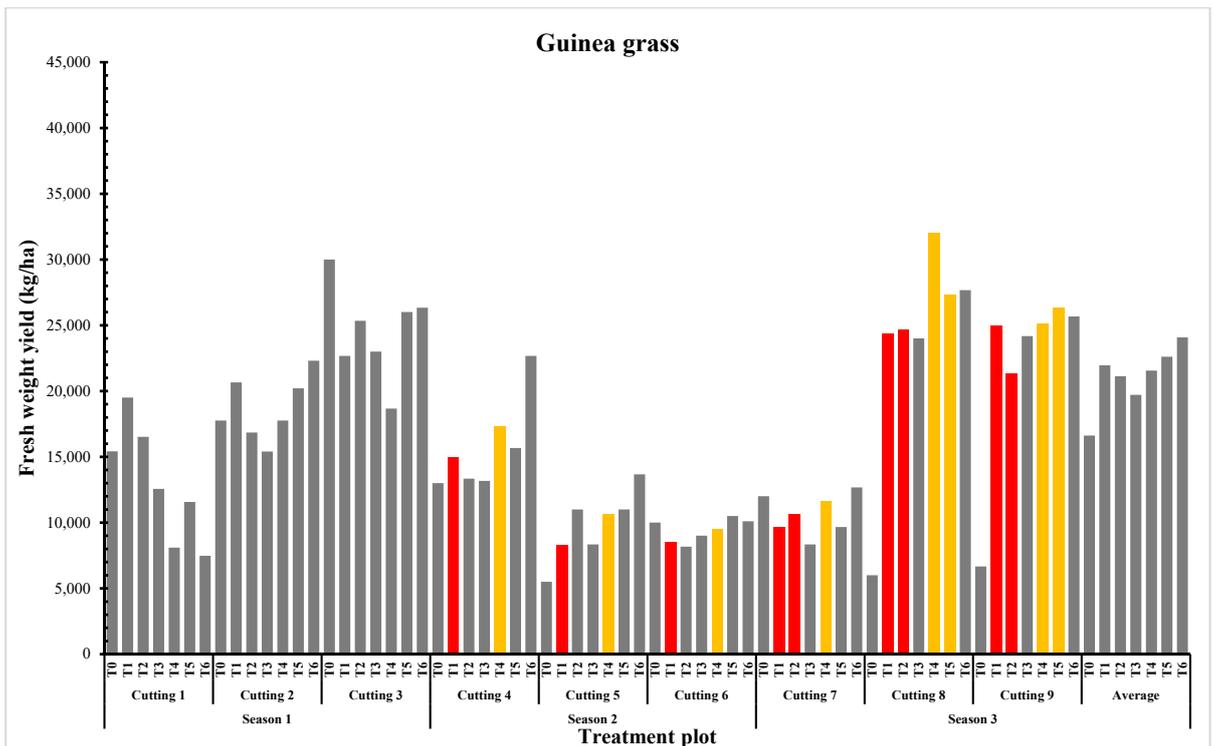


Figure S2. Fresh weight yield of guinea grass grown on a sandy soil with the addition of PG organic or without PG organic (residual) at every season in combination with half- and full-recommended rates of fertilizer. *Note: Shaded parts represent residual treatment, red (a half-fertilizer rate) and yellow (full-fertilizer rate; After 3 season, total PG organic received by plot, T1 and T4 = 28 ton/ha, T2 and T5 = 56 ton/ha and T3 and T6 = 84 ton/ha.*

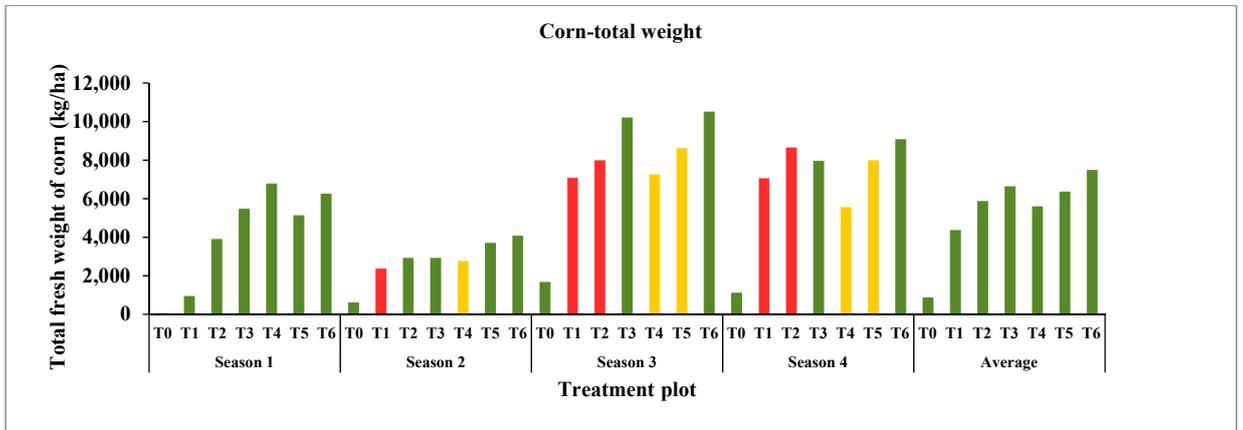


Figure S3. Total fresh weight of corn grown on a sandy soil with the addition of PG organic or without PG organic (residual) at every season in combination with the half and full recommended rates of fertilizer. *Note: Shaded parts represent residual treatment, red (a half-fertilizer rate) and yellow (full-fertilizer rate), red and yellow colors variations indicate the same plot received the second cycle of residual treatment*; After 3 season, total PG organic received by plot, T1 and T4 = 28 ton/ha, T2 and T5 = 84 ton/ha and T3 and T6 = 112 ton/ha.

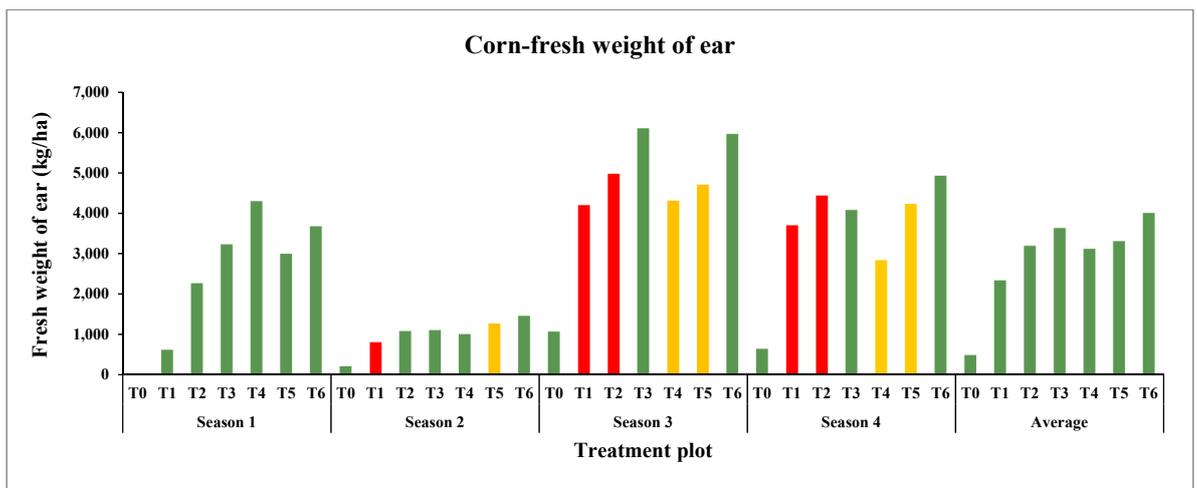


Figure S4. Fresh weight of corn ears grown on a sandy soil with the addition of PG organic or without PG organic (residual) in every season in combination with the half and full recommended rates of fertilizer. *Note: shaded parts represent residual treatment, red (a half-fertilizer rate) and yellow (full-fertilizer rate), red and yellow colors variations indicate the same plot received the second cycle of residual treatment*; After 3 season, total PG organic received by plot, T1 and T4 = 28 ton/ha, T2 and T5 = 56 ton/ha and T3 and T6 = 112 ton/ha.

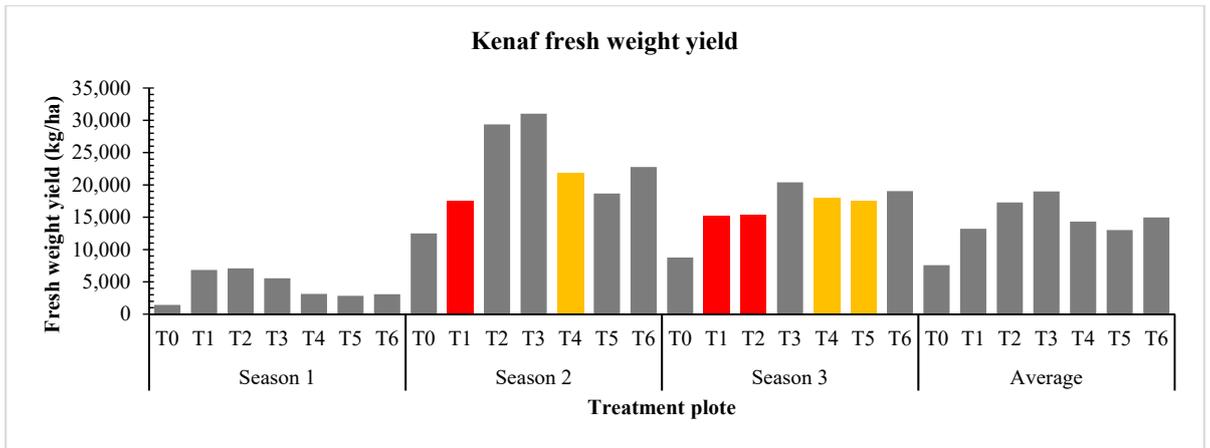


Figure S5. Fresh weight yield of kenaf grown on a sandy soil with the addition of PG organic or without PG organic (residual) at every season in combination with half and full recommended rates of fertilizer. *Note: shaded parts represent residual treatment, red (a half-fertilizer rate) and yellow (full-fertilizer rate); After 3 season, total PG organic received by plot, T1 and T4 = 28 ton/ha, T2 and T5 = 56 ton/ha and T3 and T6 = 84 ton/ha.*

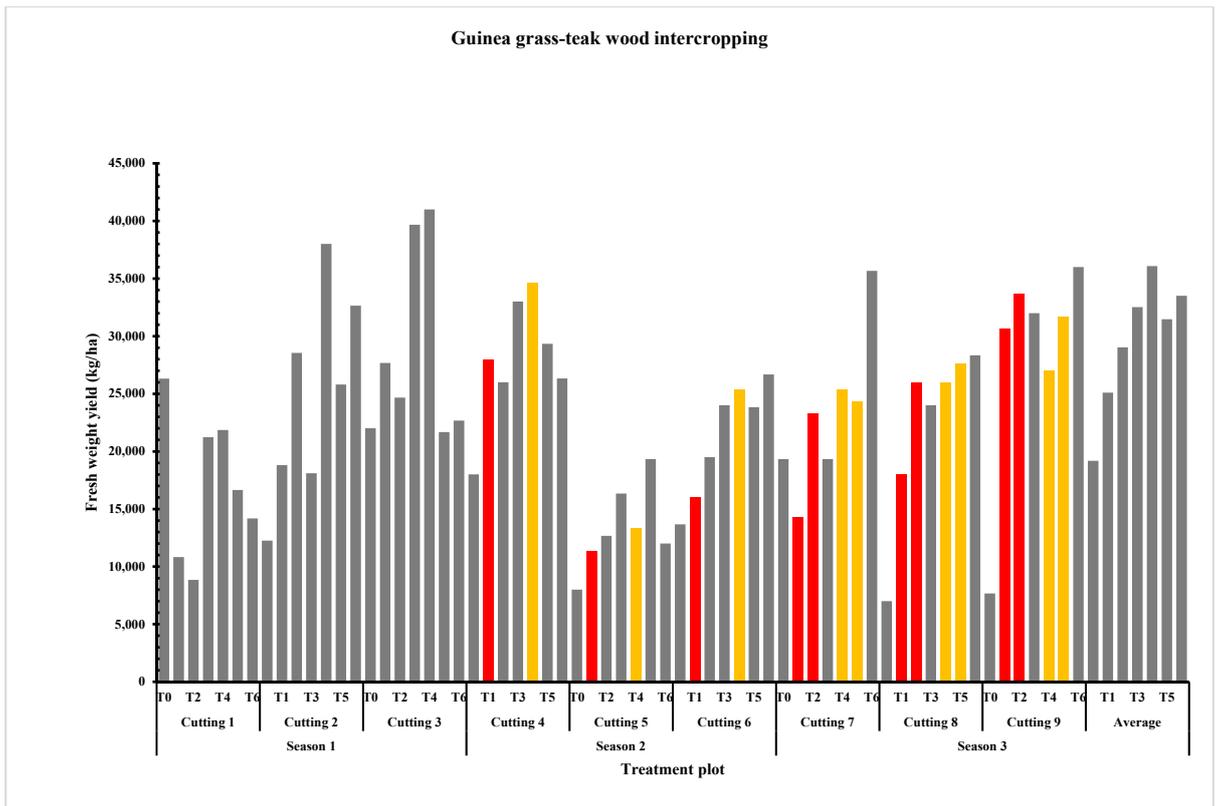


Figure S6. Fresh weight yield of guinea grass intercropping with teak wood tree grown on a sandy soil with the addition of PG organic or without PG organic (residual) at every season in combination with half and full recommended rates of fertilizer. *Note: shaded parts represent residual, red (a half-fertilizer rate) and yellow (full-fertilizer rate); after 3 season, total PG organic received by plot, T1 and T4 = 28 ton/ha, T2 and T5 = 56 ton/ha and T3 and T6 = 84 ton/ha.*

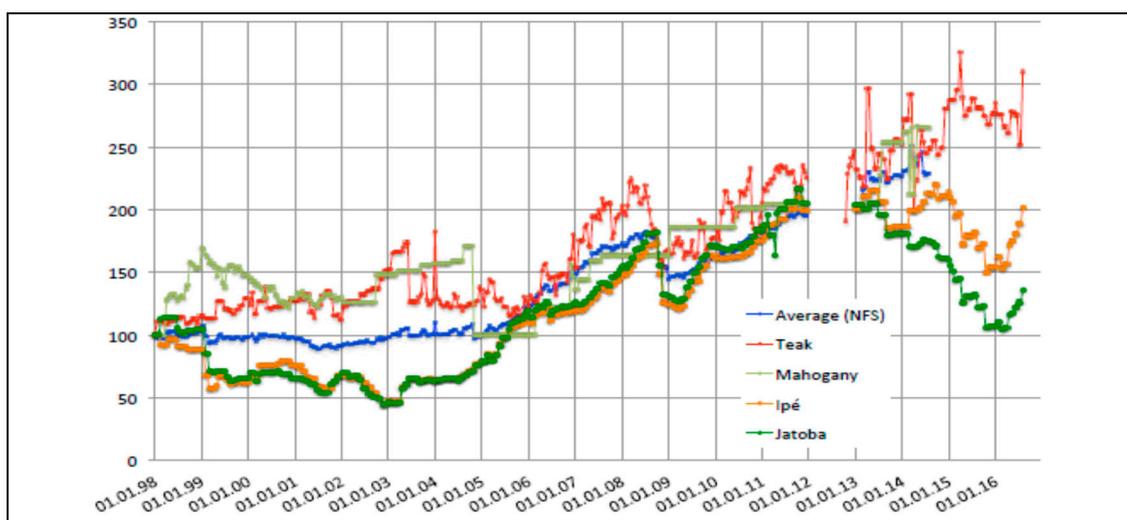


Figure S7. Development of teak and mixed species price indices from 1998-2016 (Kollert and Kleine, 2017).

Table S1. Soil properties before and after PG organic application in the experimental plot.

Sample	22-05-	22-01-	27-09-2016		08-12-2016		24-04-2017	
	2015	2016	Harvest 1		Harvest 2		Harvest 3	
	PG organic application		Control	Max	Control	Max	Control	Max
	Before	After						
	(baseline)							
Sand (%)	87	90	na	na	90	91	84	85
Silt (%)	8	4	na	na	7	5	9	8
Clay (%)	5	6	na	na	3	4	7	7
Texture	Sand	Sand	na	na	Sand	Sand	Sand	Sand
Organic matter (%)	6.14	5.45	5.02	5.25	6.10	5.78	5.60	5.64
pH water	4.11	4.63	5.13	5.34	4.15	4.25	5.79	6.08
EC (mS/cm)	2.04	2.05	1.87	1.96	1.94	1.94	1.99	2.10
Exch Al (cmol ⁺ /kg)	0.47	0.04	na	na	0.01	0.01	0.05	0.04
Exch H (cmol ⁺ /kg)	0.33	0.01	na	na	0.02	0.01	0.04	0.03
Exch Ca (cmol ⁺ /kg)	0.34	0.59	na	na	1.53	1.70	0.16	0.22
Exch Mg (cmol ⁺ /kg)	0.34	0.37	na	na	0.86	1.01	0.71	0.69
Exch Na (cmol ⁺ /kg)	0.19	0.11	na	na	1.52	1.18	0.22	0.36
Exch K (cmol ⁺ /kg)	0.09	0.30	na	na	0.45	0.46	0.09	0.09
CEC (cmol ⁺ /kg)	1.75	1.41	na	na	4.38	4.36	1.20	1.42
Available P (mg/kg)	2.44	5.35	na	na	1.60	1.39	1.90	2.04
Total C (%)	1.70	3.17	2.92	3.05	16.80	15.17	2.30	2.48
Total N (%)	1.16	1.05	0.16	0.02	0.28	0.28	0.10	0.22
Total S (%)	0.13	0.13	0.01	0.02	0.12	0.09	0.02	0.02
C/N ratio	1.47	3.02	18.25	152.50	59.36	54.40	22.35	13.02
Extractable B	0.14d	0.09d	1.33c	1.26c	7.30a	3.35b	0.11d	0.12d

(mg/kg)

Total Zn (mg/kg)	21.16d	18.53d	10.48e	9.30e	35.09b	26.80c	34.47b	40.31a
Total Mn (mg/kg)	21.43e	41.98c	32.39d	33.89d	54.69b	87.74a	22.55e	44.47c

Note: ND, not detectable; In a row, means followed by a common letter are not significantly different at the 5% level.