Supplementary Table 1. Dry Matter Fermentability (DMF), Kinetic Parameters and Short-Chain Fatty Acids Concentrations after *in Vitro* Hindgut Fermentation with a Pig Faecal Inoculum of the Undigested Residue of Tropical Legumes Treated with Different Heating (Five Minutes) and Soaking Treatment Combinations.

	DMF	Kinetic parameters[a]			Short-chain fatty acids (mmol/L)			
	(%)	G_f (mL/g DM)	T/2 (h)	μt = T/2 (h^{-1} x 10^2)	Acetic	Propionic	Butyric	Isobutyric
Legume[b]								
CB	81[c]	334	16.4[a]	7.7[ab]	27.0[c]	12.6[c]	5.7[c]	11.1[b]
LP	85[bc]	388	16.4[a]	5.8[b]	33.8[a]	14.8[ab]	6.4[c]	13.8[a]
PVU	90[a]	376	12.0[b]	9.2[a]	34.0[a]	15.5[a]	7.5[ab]	14.4[a]
RVU	89[a]	388	13.6[ab]	7.4[ab]	30.6[b]	14.1[b]	6.7[bc]	12.9[ab]
WVU	87[ab]	442	13.7[ab]	7.8[ab]	32.8[ab]	15.3[a]	7.7[a]	14.4[a]
SEM[c]	2.1	5.2	1.27	0.57	2.34	0.66	0.37	0.67
Heating[d]								
Raw	85	407	13.6	8.9[a]	31.1	14.5	7.2[a]	12.5[b]
B5	87	381	15.3	7.7[a]	31.6	14.3	6.9[ab]	13.6[ab]
A5	87	369	14.4	6.0[b]	32.1	14.7	6.3[b]	13.8[a]
SEM[c]	2.0	4.8	1.17	0.44	2.3	0.64	0.28	0.52
Soaking[e]								
Unsoaked	85	389	14.1	8.1[a]	31.2	14.4	7.0	13.0
Soaked	88	382	14.8	7.0[b]	31.8	14.5	6.6	13.7
SEM[c]	1.9	4.7	1.10	0.36	2.28	0.62	0.25	0.50
Heating x soaking								

Raw	Unsoaked	82[b]	412	13.5	9.7	30.6	14.3	7.2	12.1
	Soaked	89[a]	401	13.7	8.7	31.6	14.6	7.3	12.9
B5	Unsoaked	88[a]	376	14.2	8.9	31.2	14.3	7.3	13.0
	Soaked	86[ab]	386	16.4	6.6	32.1	14.3	6.4	14.2
A5	Unsoaked	86[ab]	378	14.5	5.7	31.9	14.7	6.4	13.8
	Soaked	88[a]	360	14.2	6.3	32.2	14.6	6.2	13.9
SEM[c]		2.2	5.4	1.32	0.60	2.35	0.68	0.40	0.74
P-values[f]									
Legume (L)		<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001
Heating (H)		0.356	<0.001	0.182	<0.001	0.411	0.555	0.006	0.028
Soaking (S)		0.026	0.019	0.362	0.041	0.205	0.834	0.156	0.113
L x H		0.626	<0.001	0.154	0.066	0.279	0.157	0.070	0.796
L x S		0.163	<0.001	0.489	0.068	0.787	0.825	0.984	0.671
H x S		0.003	<0.001	0.336	0.053	0.873	0.815	0.13	0.516

Values with different letters in the same column for each effect differ significantly ($P < 0.05$). Values are means of 24 replicates for the legume effect, 8 for the heating effect, 12 for the soaking effect, 20 for the interaction heating and soaking.

[a] The parameters were modelled using the models proposed by France et al. (1993). G_f, maximum gas volume (mL/g DM incubated); T/2, half-time to asymptotic gas production (h); $\mu_{t = T/2}$, fractional rate of degradation at t = T/2 (per h).

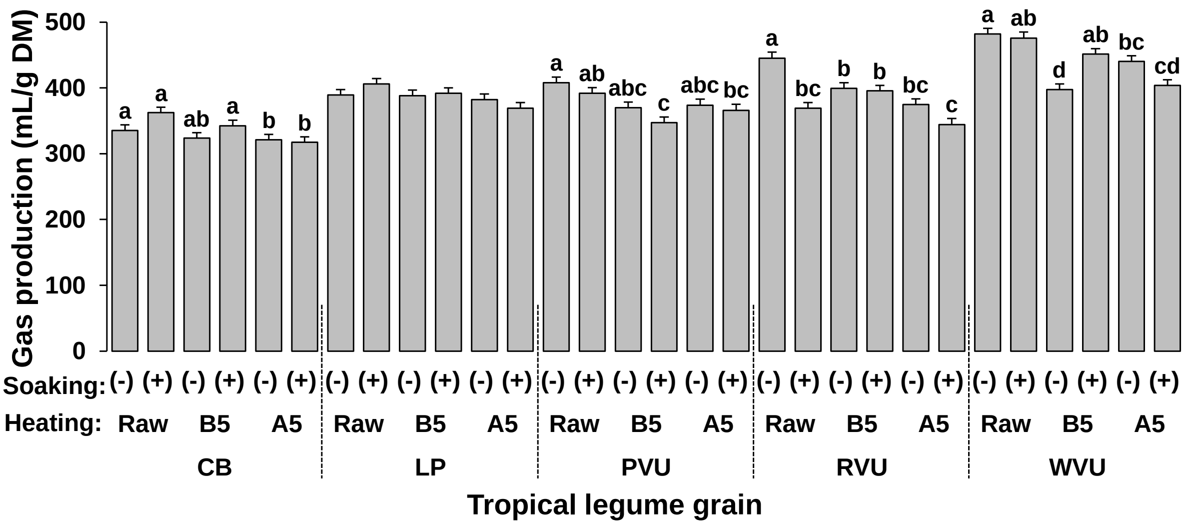
[b] CB, *Canavalia brasiliensis*; LP, *Lablab purpureus*; PVU, RVU and WVU, *Vigna unguiculata* with pink, red and white coat, respectively.

[c] SEM, pooled standard error of the mean.

[d] B5, legumes were boiled at 96°C for 5 min; A5, legumes were autoclaved at 121°C for 5 min.

[e] Legumes were unsoaked or soaked overnight at room temperature.

[f] There was a significant interaction effect between legume, heating and soaking treatments only for the gas production as detailed in Supplementary Figure 1 ($P < 0.001$). For the other parameters, the triple interaction effect was non-significant and was therefore removed from the statistical analysis.



Supplementary Figure 1. Gas production, expressed per gram of DM incubated, from the *in vitro* fermentation model (France et al., 1993) for the residue after *in vitro* hydrolysis of tropical legumes with different thermal and soaking treatment combinations. For this variable a significant interaction between tropical legume, thermal and soaking treatments was obtained ($P < 0.001$; Supplementary Table 1). CB, *Canavalia brasiliensis*; LP, *Lablab purpureus*; PVU, RVU and WVU, *Vigna unguiculata* with pink, red and white coat, respectively. B5 or A5, legumes were boiled at 96°C or autoclaved at 121°C for 5 min. (-) or (+), legumes were either unsoaked or soaked, respectively. Values are means (n=4) and standard errors.

France, J., Dhanoa, M. S., Theodorou, M. K., Lister, S. J., Davies, D. R., & Isac, D. (1993). A model to interpret gas accumulation profiles associated with in vitro degradation of ruminant feeds. *Journal of Theoretical Biology*, *163*(1), 99-111.