

Supplementary Table S1. Establishment and management parameters of ten grass-alone (GA) and eight grass-legume (GL) paired pastures in six farms in the Caquetá Department of Colombia. Farm ID numbers with the same letter indicate different plots in the same farm

Farm-plot Code	Field location	Field size (ha)	Years since pasture establishment	Soil preparation*	Fertilizer input at establishment**	Lime input*† (Mg ha ⁻¹)	Years since last lime application	Animal production	Grazing/rest (days) ‡	Stocking rate (cows ha ⁻¹) ‡
A1-GA	depression	0.39	16	tdh	yes	0.2	2	dairy	3 / 30-45	1.0
A1-GL	knoll	0.22	16	tdh	yes	0.2	2	dairy	3 / 30-45	1.0
A2-GA	fold flank	0.7	16	tdh	yes	0.2	2	dairy	3 / 30-45	1.0
A2-GL	fold flank	0.36	16	tdh	yes	0.2	2	dairy	3 / 30-45	1.0
B1-GA	depression	0.37	26	tdh	yes	0.125	1	dairy	1 / 29	2.0
B1-GL	depression	0.53	26	tdh	yes	0.125	1	dairy	1 / 29	2.0
C1-GA	fold flank	1.0	32	burn	yes	1.0	4	beef	10-15 / 30-35	0.46
C1-GL	depression	1.0	32	burn	yes	1.0	4	beef	10-15 / 30-35	0.46
D1-GA	knoll	3.49	26	tdh	yes	1.0	2	dairy	3 / 27	1.57
D1-GL	knoll	1.62	26	tdh	yes	1.0	2	dairy	3 / 27	1.57
D2-GA	depression	2.54	26	tdh	yes	1.0	2	dairy	3 / 27	1.57
D2-GL	knoll	1.34	26	tdh	yes	1.0	2	dairy	3 / 27	1.57
E1-GA	knoll	1.21	26	no	no	no	-	dairy	3 / 27	0.53
E2-GA	knoll	1.1	26	no	no	no	-	dairy	3 / 27	0.53
F1-GA	knoll	0.71	26	tdh	yes	1.0	6	dairy	3 / 27	0.67
F1-GL	knoll	0.71	26	tdh	yes	1.0	6	dairy	3 / 27	0.67
F2-GA	knoll	0.38	26	tdh	yes	1.0	6	dairy	3 / 27	0.67
F2-GL	knoll	0.49	26	tdh	yes	1.0	6	dairy	3 / 27	0.67

* tdh = Tillage with disc arrow

** Organic fertilizer, unknown amount and composition (at establishment)

*† Dolomite (CaMg(CO₃)₂)

‡This is a combined information for GA and GL within a farm. Sometimes more productive animals graze on GL than on GA, and the grazing duration gets adjusted according to forage availability.

Supplementary Table S2. Grass and legume species, $\delta^{15}\text{N}$ signature of shoots, and %Ndfa observed per species per farm. Farm ID numbers with the same letter indicate different plots in the same farm. Ndfa = Nitrogen derived from the atmosphere.

Farm-plot Code	Grass species	$\delta^{15}\text{N}$ (‰) grass	Legume species	$\delta^{15}\text{N}$ (‰) legume	Ndfa (%)
A1-GA	<i>U. humidicola</i>	5.5	-	-	-
A1-GL	<i>U. brizantha</i>	8.9	<i>A. pintoi</i>	1.0	80
A2-GA	<i>U. brizantha</i>	1.8	-	-	-
A2-GL	<i>U. brizantha</i>	3.2	<i>P. phaseoloides</i>	1.7	61
B1-GA	<i>U. decumbens</i>	5.0	-	-	-
B1-GL	<i>U. decumbens</i>	5.0	<i>P. phaseoloides</i>	0.8	74
C1-GA	<i>U. humidicola</i>	7.8	-	-	-
C1-GL	<i>U. humidicola</i>	5.6	<i>A. pintoi</i>	0.02	87
D1-GA	<i>U. decumbens</i>	5.0	-	-	-
D1-GL	<i>U. brizantha</i>	3.9	<i>A. pintoi</i>	0.5	78
D2-GA	<i>U. decumbens</i>	7.2	-	-	-
D2-GL	<i>U. brizantha</i>	3.6	<i>A. pintoi</i>	1.8	60
E1-GA	<i>U. brizantha</i>	7.6	-	-	-
E2-GA	<i>U. decumbens</i>	5.9	-	-	-
F1-GA	<i>U. humidicola</i>	-1.2	-	-	-
F1-GL	<i>U. humidicola</i>	1.4	<i>A. pintoi</i>	-0.7	95
F2-GA	<i>U. humidicola</i>	0.6	-	-	-
F2-GL	<i>U. humidicola</i>	-1.0	<i>A. pintoi</i>	-0.2	99