

Nutritive value of three tropical grasses : *Eragrostis olivacea*, *Setaria sp* and *Tripsacum laxum*, harvested at a growth stage as used by farmers in Burundi

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Sustainable development of small subsistence farms on the highlands of Burundi is possible through better integration of vegetable and animal production. *Eragrostis olivacea* K. Schum is the main grass found in communal grazing areas. *Setaria sp* is used as anti-erosive hedge and *Tripsacum laxum* is grown on low fertile soils. Both are used as complements to grazed *Eragrostis olivacea*.

Objective of present study is to evaluate on sheep and cattle the nutritive value of three tropical grasses : *Eragrostis olivacea* K. Schum, *Setaria sp* and *Tripsacum laxum*, harvested at a growth stage as used by subsistence farmers in Burundi.

Experiment 1. Seven rams of "Short East African Breed", 20 months old (25.2 ± 3.9 kg) and seven Sahiwal crossbred steers, 23 months old (201.4 ± 22.1 kg) were fed *ad libitum* *Eragrostis olivacea* K. Schum harvested daily and chopped. Animals were adapted to individual digestion crates and fed *Eragrostis olivacea* (96.4 % OM, 77.1 % NDF, 6.2 % CP) for 23 d. During following 10 d, daily voluntary intake and extent of digestion was measured. Experiment 2. Seven rams of "Short East African Breed", 20 months old (23.8 ± 1.1 kg) were fed *ad libitum* in 2 sequential periods : *Setaria sp* (88.1 % OM,

65.7 % NDF, 10.4 % CP) and afterwards *Tripsacum laxum* (92.4 % OM, 62.8 % NDF, 7.3 % CP) harvested daily and chopped. Each experimental period lasted 31 d : 21 d adaptation to digestion crates and forage, and 10 last d of measurements of daily voluntary intake and extent of digestion. Data in experiment 1 were subjected to variance analysis. Statistical analysis in experiment 2 was made using paired t-test.

Voluntary DM intake of *Eragrostis olivacea* and digestibility of DM, OM and NDF were non significantly ($P \geq 0.15$) larger in cattle than in sheep, and significantly ($P = 0.04$) larger for CP digestibility. Digestibility of DM, OM, NDF and CP of *Setaria sp* was better ($P < 0.002$) than *Tripsacum laxum*. Calculated net energy value (Xandé *et al*, 1989, Pâturages et Alimentation des Ruminants en zone tropicale humide, ed INRA, Paris, 21-31) of *Eragrostis olivacea*, *Setaria sp* and *Tripsacum laxum* was respectively 0.45, 0.73, 0.64 UFL/kg DM.

In conclusion, ingestibility and nutritive value (energy, CP) of *Eragrostis olivacea* is not sufficient to cover maintenance requirements of experimental sheep and cattle. Feeding *Setaria sp* and *Tripsacum laxum* as a complement to grazed *Eragrostis olivacea* is strongly recommended.

	Eragrostis olivacea			Setaria sp	Tripsacum laxum	
	Sheep	Cattle	P-Value	Sheep	Sheep	P-Value
Voluntary intake (g DM/kg BW ^{0.75} /d)	49.92	51.25	0.58	56.83	59.52	0.49
Digestibility (%)						
DM	41.80	44.31	0.22	60.61	53.93	0.002
OM	43.22	46.15	0.15	65.64	57.30	0.0004
NDF	45.18	48.26	0.15	66.80	54.55	0.0002
CP	43.38	49.31	0.04	63.96	48.15	0.0001