

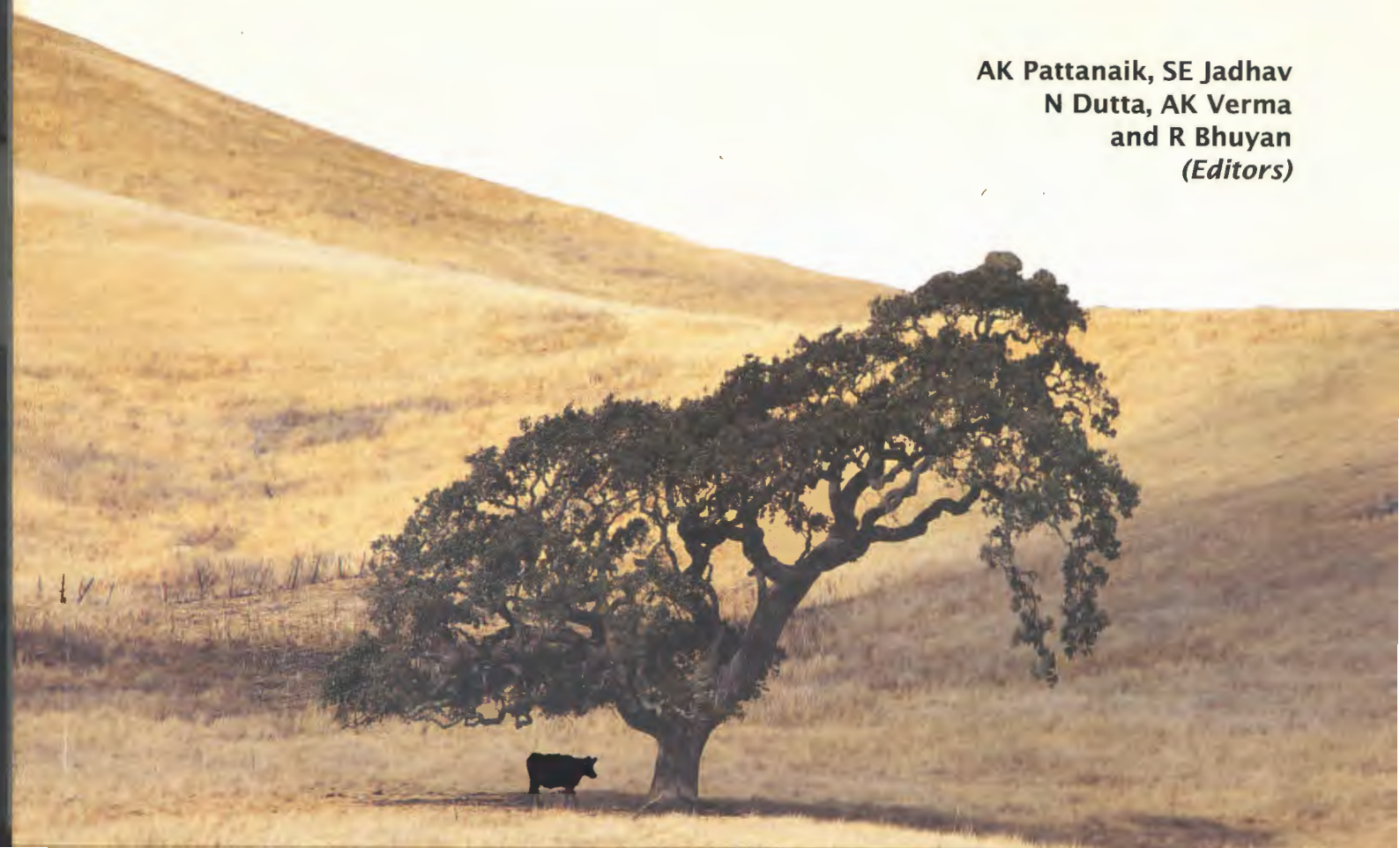
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ECO-RESPONSIVE FEEDING AND NUTRITION

LINKING LIVESTOCK AND LIVELIHOOD

ABSTRACT PAPERS

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Comparison of a Napier Hybrid with Groundnut Haulms from Different Cultivars Fed to Nellore Sheep

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SUMMARY: Haulms from four groundnut cultivars (ICGV 02266, 86564, 91114 and 00440) were compared with Co4 grass (+100 g concentrate) fresh and as silage (+200 g concentrate) measuring voluntary feed intake, digestibility and growth over 43 days in 6 groups of Nellore rams with six animals per group (28.73±kg). Organic matter intake and average daily weight changes were significantly ($P<0.05$) higher in ramson pure groundnut haulms compared to those on either supplemented Co4 fresh grass or silage. Intake were significantly higher in ramson Co4 grass than on silage but in both cases sheep did apparently not achieve maintenance requirements. This was in stark contrast to groundnut haulm fed sheep where apparent (trial period was too short for definite weight change measurements) positive daily weight changes of more than 100 g were observed. However, the voluntary feed intake measurement clearly showed the superiority of groundnut haulms where intakes ranged from 4 to 4.5% of body weight compared to 3% with fresh Co4 grass which is better than in silage form. Cultivar differences in haulms were observed for nutrient intake and digestibilities but not on performance of sheep.

Keywords: Co4 grass, Cultivars, Groundnut haulms, Sheep

BACKGROUND

While planted fodder is often recommended for addressing fodder shortages in India, actual adoption of green forages/fodder planting was on the whole disappointing. The less than expected adoption could partially be attributed to land and water shortage in small holder mixed systems, which commonly rely on crop residues as major feed resource. However, there are also indication that fodder quality might have been neglected in the breeding of some of the proposed forage options, favoring biomass yield over quality considerations. To shed some light on this issue the Napier hybrid Co4 known for its high biomass yield and low oxalate content was compared with haulms from dual purpose groundnut cultivars in a feeding trial with sheep. Groundnut haulms were previously shown to be of extraordinary high fodder quality for crop residues.

METHODOLOGY

Thirty six Nellore rams (28.7±1.11 kg) were randomly divided into six groups of six sheep each. Four groups were offered *ad libitum* haulms of groundnut cultivars ICGV 02266, 86564, 91114 and 00440 as sole feed and the remaining two groups

were offered Co4 in green and silage form supplemented with 100 and 200 g concentrate mixture (17% CP), respectively, for 43 days. A digestion trial was conducted during the last 9 days of study. Feed offered and refused were analyzed using NIRS. Anova was done using the General Linear Model procedure of SAS (2008).

RESULTS

Groundnut haulms had organic matter intakes ranging from 3.6 to 4.15 of bodyweight with significant differences observed among the cultivars. Intake of fresh and silage Co4 was significantly less, amounting to only 2.4 to 2.9% (Table 1). Similarly apparent daily weight gains ranged from 78 to 125 g in groundnut haulm fed sheep while sheep on fresh and silage Co4 diets actually lost. When comparing fresh versus ensilaged Co4, intake was significantly higher in the former and sheep were maintained around maintenance level while on Co4 silage sheep lost 46 g/d, despite being supplemented with 200 rather than 100 g of concentrate daily. The concentrate supplementation in the silage group was doubled early in the trial responding to the low silage intake.

Table 1. Organic matter intake (OMI), digestibility (OMD), digestible organic matter intake (DOMI) and weight gain in Nellore sheep fed only groundnut haulms and concentrate supplemented (CS) fresh (CS 100 g/d) and silage (CS 200 g/d)

Parameter	Groundnut haulms				Co4		SEM
	ICGV 02266	ICGV 86564	ICGV 91114	ICGV00440	Green	Silage	
OMI							
g/d	1283 ^a	1279 ^a	1220 ^a	1168 ^a	681 ^b	493 ^c	41.7
g/kg LW/d	40.6 ^a	39.6 ^{ab}	38.4 ^{ab}	36.3 ^b	28.8 ^c	24.1 ^d	1.2
Digestibility (%)							
OM	62.5 ^{bc}	62.6 ^{bc}	67.5 ^a	60.4 ^{cd}	59.2 ^d	65.3 ^{ab}	1.1
DOMI							
g/kg LW/d	25.4 ^a	24.8 ^{ab}	26.0 ^a	22.1 ^b	17.1 ^c	15.7 ^c	0.94
ADG (g/d)	125 ^a	115 ^a	99 ^a	78 ^a	-4.5 ^b	-46 ^b	23.7

Values with different superscripts in a row differ significantly ($P<0.05$)

CONCLUSION

Groundnut haulms provide excellent feed resources that clearly outperformed Co4 grass and silage fed sheep. While weight change estimates obtained from short duration animal experimentations are somewhat spurious, low voluntary feed intakes observed in Co4 are suggestive of deficiencies in fodder quality in this Napier hybrid. However, major target animals for Napier hybrids will be dairy buffalo and cattle, and similar experimentation should be repeated with those.

REFERENCES

- Blümmel, M., Ratnakumar, P. and Vadez, V. 2012. Field Crops Research, 126: 200-206.
- Prasad, K.V.S.V., Khan, A.A., Vellaikumar, S., Devulapalli, R., Ramakrishna Reddy, Ch., Nigam, S.N. and Blümmel, M. 2010. Animal Nutrition and Feed Technology, 10S: 121-126.
- SAS. 2008. *Statistical Analysis System*. SAS Institute Inc. Release 9.2 ed. Cary, New York, US.