

# Investigating the biological basis of tree fodder evaluation by farmers

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## Introduction

Farmers in the hills of Nepal have a detailed indigenous knowledge system for describing the nutritive value of tree fodders (Thapa *et al.*, 1997). Previous investigation of farmers' knowledge in the Eastern hills revealed two local classification systems for tree fodders, *posilopan* and *obhanopan* (Thapa *et al.*, 1997) which were widely and consistently applied by farmers (Walker *et al.*, 1999). The research described here uses farmer interview and feeding trials to explore comparisons of farmers' knowledge of fodder quality with the impacts of feeding them on animal nutrition and performance.

## Methods

Six tree fodder species were selected for study (Figure 1). A randomly selected group of 10 farmers (five men and five women) were interviewed about their perceptions of these fodders and the attributes that they used to evaluate them. They were also asked to rank the six different tree fodders separately in terms of their own classification systems and overall quality (*posilopan*). In addition, palatability (on-farm), intake (on-farm) and degradability (on-station) of the tree fodder species were assessed.

## Results

Data for the quality assessment parameters are summarised in Figure 1. Clear relationships may be observed between farmers' quality rankings and short-term palatability (positive) and intake measured over a longer period (negative). Table 1 summarises farmers' reasons for their preferences amongst the six tree fodder species and illustrates the wide range of criteria that govern their perceptions of tree fodder quality.

## Discussion

Degradability data were broadly consistent with impacts on feed intake observed on-farm, although these contradict somewhat the findings of short-term palatability studies. For example, *S. nepaulensis* appeared to be consumed most readily by animals in the longer-term study and was readily degraded in the rumen. This would suggest, perhaps, a limitation on acceptability due to organoleptic properties rather than intrinsic nutritional characteristics. These findings are actually quite consistent with farmers' observations that *S. nepaulensis* is not palatable but does not normally exert a great fill effect on the animal. Interestingly, palatability would appear to be an important component of farmers' criteria for assessing tree fodder. Comparison between the longer-term intake and degradability data indicates that farmers' most preferred species, *B. nutans*, was the least degradable whilst their least preferred species, *S. nepaulensis* was most degradable and consumed to the greatest extent in the longer-term feeding trial. This tallies

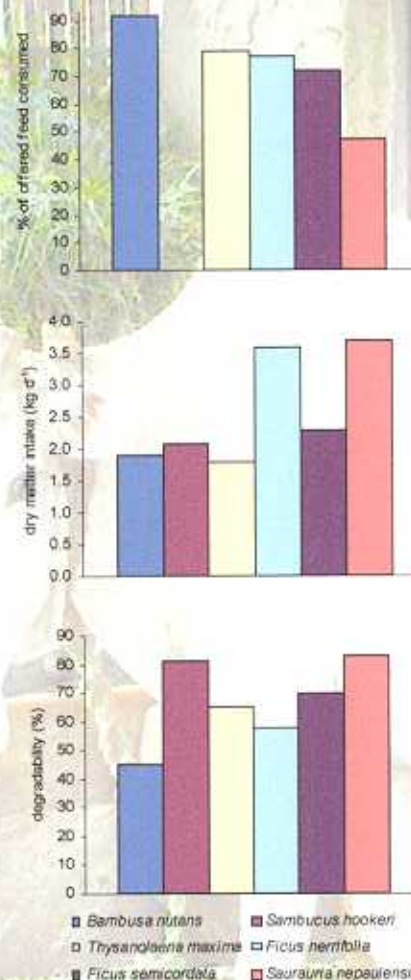


Figure 1: Palatability, intake and degradability of six fodder species. Species order on x-axis corresponds to their overall quality rankings by farmers (highest ranking starting at left).

Table 1: Criteria applied by farmers when comparing amongst tree fodder species for nutritional quality.

Tree fodder	Reasons for assigning rank
<i>Bambusa nutans</i>	Stimulates milk production. Palatable to animals, even during rain or cold weather conditions.
<i>Sambucus hookeri</i>	Heat giving. High leaf yields and does not cause diarrhoea. Leaves do not absorb rain and become wet.
<i>Thysanolaena maxima</i>	Similar to <i>B. nutans</i> but produces less fodder because lower leaf:stem ratio.
<i>Ficus nemifolia</i>	High fodder yield, palatable and promotes milk yield.
<i>Ficus semicordata</i>	Leaves may be given to dry cows and retain greenness late during the dry winter season.
<i>Saurauia nepaulensis</i>	Leaves are coarse, unpalatable and cause weakness to animals particularly when lactating. However, leaves remain green late during the dry winter season and may be used as an emergency feed. Acts an appetite satisfier only when other sources of green fodder are dwindling away.

with earlier findings reported by Thorne *et al.* (1999), who suggested that farmers' preferences for less digestible tree species might reflect a need to moderate the behaviour of stalled animals experiencing periods of feed shortage. However, seasonal changes in nutritional compositions (and indeed the balance amongst farmers' criteria) may mean that this is an over-simplistic view worthy of more detailed study.

## References

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