

# Performance of Sheep with Tree Fodder Supplementation

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## ABSTRACT

*A 216-day feeding trial was conducted to determine and compare the liveweight performance of sheep under three feeding management, namely: T1, farm practice (grazing native pasture the whole day plus 400g concentrate supplement per head per day); T2, grazing with concentrate supplement reduced to one-half (200g per head per day) plus ad libitum feeding of tree fodder; T3, grazing supplemented with tree fodder (no concentrate). The economic benefit of substituting concentrate with tree fodder for sheep feeding was evaluated.*

## INTRODUCTION

Feeding management plays a very important role in livestock production. It exerts great influence on animal health and breeding performance. Roughages supply the bulk of the feed requirements (3 to 4% of body weight) of ruminants. In smallholder farms, rearing of small ruminants is gaining popularity over large ruminants because they are easy to handle, consume less feed and market demand for their meat is high. However, animals are mostly tethered or grazed on roadsides and marginal lands where most forages consumed are of lower quantity and quality. These feed resources cannot adequately support animal production. Fodder trees are good sources of cheap

and sustainable quantity of good quality feeds because it contains important feed nutrients that grasses sometimes do not have (Smith 1994).

Leucaena and Gliricidia are among the common fodders for ruminants that provides valuable source of protein, energy and sulfur for the rumen bacteria (Devendra 1992). This is more evident during the dry season when the trees especially legumes can continuously provide green fodder to the animals. This study was conducted to determine the liveweight gain of sheep fed with fodder from leguminous trees replacing the concentrate feeds as practiced in

government owned small ruminant production centers. Its value in terms of reduced feed cost was also determined.

#### **MATERIALS AND METHODS**

The study was conducted at the BAI's Palayan Livestock Production Center (PLPC) located in Palayan City. The climate in the area is characterized by two pronounced seasons: dry from November to April with a maximum temperature of 33°C, and wet during the rest of the year with a minimum temperature of 22°C. Availability of feeds in the center is always a problem during the dry season. The soil type is vertisol, which is characterized by heavy clay texture.

Twelve heads of about 5 month-old female sheep were selected within the existing purebred St. Croix herd in the farm. They were divided into three groups with 4 heads per treatment. The treatments were:

Treatment I – Farm practice (whole day grazing on native pasture + 400 g/hd/day concentrate)

Treatment II- whole day grazing on native pasture + 200 g/hd/day concentrate + tree fodder (*ad libitum*)

Treatment III - whole day grazing on native pasture + tree fodder (*ad libitum*)

The animals were weighed individually and randomly allocated to each treatment based on weight. Animals were dewormed and injected with vitamins before the actual feeding trial. Experimental animals from the 3 treatments were separated by fence.

Each group of animals was gradually fed with their respective ration for 2 weeks to get adjusted to the feeds. Animals were weighed every month after overnight fasting. Water was made available to the animals at all times. Animals were allowed to graze from 7:00 a.m. to 5:00 p.m. Then they were turned-in to their respective houses and fed according to the corresponding treatments. Concentrate was given in the morning before they were let loose in the pasture. Tree fodder consisting of leucaena (*Ipil-ipil*), *Gliricidia sepium* and *Bauhinia sp.* were given to the animals at 40, 30, and 30 percent, respectively, at 5:00 p.m. Tree fodder offered were weighed and refusals collected, weighed and recorded to determine the amount consumed.

#### **RESULTS AND DISCUSSIONS**

The average initial weight of the animals under each treatment was 15.45 kg. After 216 feeding-days, animals under Treatment I obtained the highest liveweight gain of 12.9 kg/hd or an

average daily gain of 59.72 g (Table 1). When concentrate supplement was reduced to 50% and replaced with tree fodder (T2) a comparable weight gain with Treatment 1 was achieved (12.47 kg/hd or an ADG of 57.73 g).

Animals in treatment 3 (complete replacement of concentrate supplement with tree fodder) gave good performance (10.8 kg/hd or an ADG of 50.10 g). Although the value was lower than the values for animals in Treatment 1 and 2, all the values were not significantly different. Initial results indicated a possible reduction in the cost of feed through replacement of concentrate with available tree fodder in the farm.

Average daily intake of fresh tree fodder was about 950 g/hd for both Treatments 1

and 2 during the first three months of the feeding trial. The amount increased from the fourth to the seventh month with average values of 1,200 g/hd for Treatment 2 and 1,300 g/hd for Treatment 3. Refusals, which were mostly non-edible parts of the trees ranged from 35-50% of the total feeds offered.

Results showed that there are no significant differences among treatments. A considerable reduction in feed cost was achieved if the concentrate was partially or completely replaced by tree fodder (Table 2). This would mean more productive and profitable livestock enterprise when practiced by livestock raisers.

**Table 1. Total liveweight gain and ADG of sheep under different treatments (216 feeding days).**

Treatment	Initial wt. (kg)	Final wt. (kg)	LWG (kg)	ADG (g)
Treatment I -Farm practice (whole grazing) + 400 g/head/day concentrate	15.45	28.35	12.9	59.72 ns
Treatment II – whole day grazing + 200 g/hd/day, Concentrate + tree fodder (ad libitum)	15.45	27.92	12.47	57.73 ns
Treatment III – whole day grazing + tree fodder (ad libitum)	15.45	26.27	10.82	50.10 ns

Table 2. Estimated feed cost under different treatments.

Treatment	*Cost of concentrate (216 days feeding) Php	**Cost of fodder tree supplement (216 days feeding) Php	Total cost Php	Economic benefit over concentrate cost Php
I	3,110.40	-	3,110.4	-
II	1,555.20	1,080.00	2,635.20	475.20
III	-	1,080.00	1,080.20	2,030.20

\* P 450/ 50k bag

\*\* P 5.00/bundle (8-10 kg)

### CONCLUSION

Feeding of fodder trees to replace the expensive concentrate resulted to an equally good sheep performance. This feeding strategy will considerably reduce the cost incurred on commercial concentrate and therefore will increase profitability.

### REFERENCES

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