EFFECTS OF *Albizia saman* PODS SUPPLEMENTATION ON FEED INTAKE AND LIVE WEIGHT CHANGES OF WHITE FULANI CALVES

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ABSTRACT

Nine weaned White Fulani Calves aged between 3-13 months, weighing between 28-71kg were fed on rations consisting of basal Guinea grass hay and 0, 15, 30% *Albizia saman* replacement for cassava waste in a concentrate ration as supplement in a 3 x 3 latin square design. With 3 replicate per ration and each period lasting 28days feed intake and live weight changes of White Fulani Calves were determined. The DM intake increased with increased level of *Albizia saman* in the ration, the highest liveweight changes was recorded when the animals were fed 30% *Albizia saman* whole pod. The result showed that *Albizia saman* whole pod promotes intake and live weight changes of White Fulani calves, thus can be fed without any adverse effect on calves.

Keywords: *Albizia saman* Supple-mentation, feed intake, live weight changes, White Fulani, Calves.

INTRODUCTION

The increasing world population especially in Nigeria calls for an improvement in the method of livestock production. It is believed that one of the most serious problems and that which will be most difficult to solve in Nigeria and other African Countries is that of lack of dietary animal protein. This is due to the small size, slow rate of growth and poor productive and reproductive performance of livestock in this region.

Feed accounts for about 60-80% of the cost of raising animals, depending on species, breeds, and the environment (Jakonda, 1975). The

productivity of ruminants is influenced by feed intake (Preston, 1986), the feed intake is however determined by both animal and feed factors. Akinnusi and Adeleye (1998) reported that supplementation increases feed intake, and liveweight gains in ruminants. Aina (1996) reported the best efficiency in goats when given supplement with their feed. The problem of scarcity of protein sources in ruminant nutrition is well known owing to the high cost of the conventional protein sources such as Palm Kernel Cake, (PKC) Groundnut Cake (GNC), Blood Meal (BM), Fish Meal (FM) and the competition for them by both monogastric and man. There is therefore the need to find alternative source of protein in ruminants nutrition.

Albizia or rain tree is a quick growing leguminous tree, it is adapted to a wide variety of soil types from alkaline to saline soil conditions (Prinsen, 1986). Its foliage is looped for fodder and also makes good green manure. This study was therefore designed to determine the feed intake and weight changes of White Fulani Calves fed various combinations of cassava wastes and milled *Albizia saman* pods.

MATERIALS AND METHODS

Ripe *Albizia saman* pods were hand picked under rain tree plants within the University of Ibadan Campus. The pods were sundried for 3-4 days. The pods were ground into paste and the paste was autoclaved at 121°C and 15lb per sq. inch for 25mins. The autoclaved *Albizia* was then sundried for about 2-3 days and stored in tightly fastened polythene storage bags and stored until required for mixing with other ingredients. Three experimental diets A, B and

TABLE 1: COMPOSITION OF THE EXPERIMENTAL CONCENTRATE DIETS

INGREDIENTS	TREATMENTS		
	A (%)	B (%)	C (%)
<i>Albizia saman</i> pod	0.00	15.00	30.00
Cassava Waste Meal	98.00	83.00	68.00
Oyster Shell	1.00	1.00	1.00
Nacl	0.50	0.50	0.50
Vit. – Min. Mix	0.50	0.50	0.50

C were formulated to contain 0, 15 and 30% milled *Albizia saman* pod (Table 1). The feeds were milled at the University of Ibadan Teaching and Research Farm's feedmill.

Nine weaned White-Fulani Calves aged between 3-13 months and weighing between 28-71kg used in the study were selected from the Teaching and Research Farm of the University of Ibadan. The calves were housed in individual pen of 1.88 x 0.98m where concentrate diets, grass hay, fresh water and salt lick were supplied daily. They were allowed a week adjustment period before the start of experiment. Each animal was fed one of the three experimental diets in a 3 x 3 latin square design, they were fed 3 times daily (07.00, 13.00 and 17.00 hours) with the supply of the concentrate diet first at the rate of 1.5%

of the body weight, while the grass hay was supplied *ad-libitum*. Daily record of feed offered and left over by the individual animal were kept. Weekly live-weight and live-weight changes of the animal were also kept.

Thoroughly mixed representative samples of the forage, cassava wastes, *Albizia saman* pods and each of the 3 concentrate diets were taken for laboratory analysis. The various samples were milled and passed through a 2mm mesh and analysed for proximate composition according to A.O.A.C (1975) procedures and NDF, ADF and Hemicellulose according to Van Soest method (1963) and Goering and Van Soest (1970).

Data were subjected to analysis of variance technique as applicable to latin square design (Steel and Torrie, 1980).

TABLE 2: CHEMICAL COMPOSITION OF BASAL GUINEA GRASS, GROUND *Albizia saman* WHOLE PODS AND EXPERIMENTAL CONCENTRATE DIETS (% DM)

COMPOSITION	AUTO CLAVED ALBIZIA	UNAUTO CLAVED ALBIZIA	CASSAVA WASTES	GUINEA GRASS	A	B	C
Dry Matter	98.00	98.00	93.00	63.92	92.00	91.00	90.00
Crude Protein	28.53	31.15	5.60	7.35	5.65	9.80	15.05
Ether Extract	1.00	5.00	5.00	3.00	5.00	2.00	3.00
Ash	10.00	10.00	9.00	9.70	10.00	9.00	10.00
Crude Fibre	18.00	21.90	9.00	29.00	9.00	12.00	13.00
NDF	33.38	26.56	20.51	81.74	20.51	21.71	55.96
ADF	23.75	28.91	12.73	36.22	12.73	15.74	18.22
Hemicellulose	52.57	42.18	74.54	27.56	74.54	68.52	63.56
NFE	42.47	31.95	32.60	50.95	32.65	67.20	58.95
Nitrogen	4.56	4.98	0.90	1.18	0.90	1.57	2.41

TABLE 3: PERFORMANCE CHARACTERISTICS OF CALVES FED DIFFERENT LEVELS OF *Albizia saman* PODS

	RATION		
	A	B	C
HAY MEAN DM INTAKE			
g/day	133.6.50	1346.33	1403.50
g/100kg LW	2412.89	2395.18	2508.50
g/day/kgW ^{0.75}	66.48	66.22	68.65
CONCENTRATE			
Mean DM intake			
g/day	628.67	622.33	619.00
g/100kg LW	1134.99	1107.15	1106.34
g/day/kgW ^{0.75}	97.67	99.07	98.74
TOTAL DM INTAKE			
g/day	1965.17	1968.66	2022.50
TOTAL N-INTAKE			
g/day	21.43	25.66	31.48
LIVE WEIGHT CHANGE			
g/day	97.00	48.81	141.67
FEED CONVERSION RATIO			
	20.25	22.68	14.28

RESULT AND DISCUSSION

Table 2 shows the proximate composition of the basal guinea grass, ground *Albizia saman* whole pods and the experimental concentrate diets. From the table it could be seen that autoclaving reduced the crude fibre, ether extract, crude protein, acid detergent fibre and nitrogen content of *Albizia* but it increased the Nitrogen free extract, Neutral detergent Fibre and Hemicellulose.

The reduction in crude protein in the autoclaved *Albizia* agrees with the submission of Tagari *et al.* (1986) that heat treatment denatures protein in legumes. Table 3 shows that the DM intake from the grass hay increased from 1335.50 – 1403.50g/day, with increase in the percentage of *Albizia* in the diet, when expressed on 100kg L.W. the grass intake ranged between 2395 – 2508g/100kg L.W. This agrees with the report of Akinnusi and Adeleye (1998) that the inclusion of concentrate in ruminant diets enhances feed intake. The Table also shows that N-intake of

the animals from grass also increased with an increase in the level of *Albizia* in the ration.

The live-weight changes reported in the study ranged between 48.41 – 141.67g/day. This is however lower than between 33-42g/day reported by Krishna and Ranjhan (1982) for White Fulani Calves. The highest live weight change of 141.67g/day was recorded when the calves were fed on 30% *Albizia saman* concentrate diet. The feed conversion ratios were shown in Table 3 to be 20, 25, 22.68 and 14.28 for diets A, B and C respectively. The best efficiency of feed utilization was reported for the calves when they are fed on 30% *Albizia saman* concentrate ration. This agrees with the findings of Aina (1996) that the inclusion of concentrate in the ration of ruminant improves their efficiency of feed utilization.

CONCLUSION

It could be concluded that performance of White Fulani Calves fed Guinea grass could be enhanced with the inclusion of milled *Albizia saman* whole pods in their diet up to 30%.

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