

## Performance of Yankasa Rams Fed Graded Levels of *Moringa oleifera* LEAVE MEAL

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### Abstract

A study lasting 74 days was carried out to determine the intake and utilization of *Moringa oleifera* leave meal as a supplement to a diet of *Ficus sycomorus* and maize offal. Sixteen (16) yankasa rams of average weight and age range of 17.5kg and 8-9 months were assigned to four treatments each with four replications in a Randomized Complete Block Design (RCBD). All the parameters assessed except feed conversion ratio showed no significant ( $p < 0.05$ ) difference. Rams fed supplemented diet of Moringa leave meal recorded significantly ( $p < 0.05$ ) higher feed conversion ratio than those on the control diet. Base on this study it is concluded that *Moringa oleifera* and *Ficus sycomorus* leaves utilized with maize offal can be used for fattening of sheep (rams), especially in the dry season when feed resources are scarce.

**Keywords:** Yankasa Rams, Moringa, Leave meal, Performance

### Introduction

The rate of population growth in Nigeria calls for the intensification of domestic livestock production to improve meat supply to the populace in order to meet the Food and Agriculture Organization (FAO) recommendation of 35 gram kaput/day of animal protein (FAO 2002, Uza *et al.*, 1999). Sheep along with goats are meat producing animals that require simple management as compared to poultry and other classes of livestock. Sheep are economical converter of browse, grasses, concentrates and crop residues into profitable products (meat and wool). Small ruminants are mainly bred in Nigeria for meat production (Ajiji, 2012). Small ruminants contribute 35% of the national meat supply in Nigeria (Uza *et al.* 1999). Inadequate nutrition is one of the major problems facing ruminant animal production in Nigeria (schomian, 2011). Inadequate nutrition is mostly caused by high cost of conventional concentrates, poor quality of the feeds and unavailability of the feeds during the dry season. Ruminants feeding on poor quality roughages exhibit susceptibility to health risk and reduced reproductive performance (Richter, 2003).

When ruminants are fed on poor quality hay deficient in energy and protein leads to devastating loss in weights (Nyako, 2010). Browse (tree leaves, twigs, tender shoots, fruits and pods of shrubs and woody plants) tends to have higher nutritional quality than hay and are usually available when pastures are scarce in the dry season.

Studies had shown that Moringa leave meal can be used as cheap protein supplement (Richter and Becker 2003), which can improve digestibility, voluntary intake and general performance of ruminants fed on low quality feed. Therefore, this research intends to investigate the effect of graded levels of *Moringa oleifera* leave meal supplementation on the performance of yankasa rams fed a basal diet of *Ficus sycomorus* leave meal and maize offal)

### Materials and Methods

The experiment was conducted at the Teaching and Research Farm of the Department of Animal Health and Production, Plateau State College of Agriculture, Garkawa. The experimental animals were Yankasa rams that were between the age of 8 and 9 months with an average body weight of 17.5kg. The experimental design was a Randomized Complete Block Design (RCBD) with four diets evaluate the effect of different levels of *Moringa oleifera* leave meal as supplement on the performance of Yankasa rams fed *Ficus sycomorus* leave as basal diets. Each dietary group was replicated 4 times which gave a total of 16 experimental units. The initial weight of the animals was taken and balanced for weight before commencing the experiment. Thereafter, the live weight gain was measured weekly. Left over feeds were weighed daily before fresh feeds were given for the determination of feed intake. The experiment lasted for about 3 months. All data collected were subjected to Analysis of variance (ANOVA) of a RCBD experiment (Steel and Torries, 1980), using a computer package Genstat Release 10.3 DE (PC/Windows 7). The Least Significant Difference (F-LSD) test was used to separate significantly different treatment means (Obi, 2002)

### Results and Discussion

Table 1 gives the proximate composition of *Moringa oleifera* leave meal, *Ficus sycomorus* Leave meal and the maize offal used in the research.

Table 1: Proximate Composition of *Moringa oleifera* Leave Meal, *Ficus Sycomorus* Leave Meal and Maize Offal.

Composition	<i>Moringa oleifera</i> leave meal	<i>Ficus sycomorus</i> leave meal	Maize offal
Dry Matter	94.75	91.10	93.90
Crude Protein	29.06	11.13	12.79
Crude Fibre	18.60	35.40	21.00
Nitrogen Free Extract	35.19	29.67	46.86
Ether Extract	4.00	0.60	8.85
Ash	35.19	14.30	4.40

Table 2: shows the average daily feed intake, feed conversion ratio, average daily water intake, initial live weight, final weight, live weight gain and average daily weight gain of the rams.

Table 2: Performance of Yankasa Rams Fed *Moringa oleifera* Leave Meal

Parameter	Treatments				LSD
	T1	T2	T3	T4	
Average Daily Feed Intake (kg/d/h)	2.58	2.57	2.57	2.71	NS
Feed Conversion Ratio	2.40	1.16	1.10	1.19	0.777*
Average Daily Water Intake (Litre/h/d)	2.41	2.29	2.22	2.23	NS
Initial live Weight(kg)	18.90	17.30	15.40	17.90	NS
Final Live Weight (kg)	19.98	20.05	18.00	20.25	NS
Total Live Weight Gain (kg)	1.12	2.75	2.57	2.40	NS
Average Daily Weight Gain (g)	18.80	45.90	42.90	40.00	NS

Treatment 1 (T1) = ad libitum sycomorus leave meal + 50grammes maize offal

Treatment 2 (T2) = ad libitum sycomorus leave meal + 50 grammes maize offal + 50 grammes Moringa leave meal

Treatment 3 (T3) = ad libitum sycomorus leave meal + 50 grammes maize offal + 100 grammes Moringa leave meal

Treatment 4 (T4) = ad libitum sycomorus leave meal + 50 grammes s maize offal + 150 grammes Moringa leave meal

LSD= Least Significant Difference

NS= Not Significant

\*= Significant ( $p < 0.05$ )

The result of chemical composition of Moringa leave meal (table 1) gave the nutrient composition of the ingredient thus CP 29.06: CF 18.60: NFE 35.19: ether extract 4.0 and ash 7.90%. The nutrient profile of the feed ingredient may be responsible for the high feed conversion ratio recorded among rams fed 50grammes, 100 grammes and 150 grammes of moringa leave meal which had a feed conversion ratio of 1.16: .10 and 1.19 respectively. The proximate composition of Moringa leave meal obtained in this study were similar to those obtained by Feleke et al (2012): Makkar and Beckers (1996). The performance of yankasa rams fed Moringa leave meal as supplement (Table 2) shows no significant ( $p < 0.05$ ) difference in all the parameters assessed except for feed conversion ratio. This may be due to the good nutrient profile of moringa leave meal as well as the nutrients available for the ram utilization in the ficus leave and maize offal. However the efficiency of feed utilizatization may be attributed to Moringa leave inclusion since rams in treatment one (T1) recorded significantly ( $p < 0.05$ ) lower feed conversion ratio of 2.40 while rams fed T2 T3 and T4 had significantly ( $p < 0.05$ ) higher feed conversion ratio of 1.16, 1.10 and 1.19 respectively. This result agrees with the findings of Feleke et al.(2012), that digestibility of dietary crude protein (CP) increases as the inclusion of Moringa leave meal increases in the feed.

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