

PERFORMANCE OF RED SOKOTO GOATS FED YAM PEEL MEAL

ABSTRACT The study was aimed at evaluating the performance of Red Sokoto Goats fed varying levels of Yam Peel Meal (YPM) diet. Yam Peels were collected from different restaurants and dried for 3-4days. Twelve (18) bucks with average weight of 11.66kg were randomly assigned into three treatment diets containing YPM at 0%, 50% and 75% inclusion levels with 6 bucks per treatment in a completely randomized design (CRD). The experiment lasted for 8 weeks. Results shows that proximate composition of the experimental diets showed crude protein percentage between 14.00-15.12% and the level of ether extract values decreases with increased yam peel meal inclusion level. Ash of the diets (T2 and T3) were more than that of the control diet (T1) which shows that the diets containing yam peel meal supplied more minerals to the animals than the control diet. Growth and feed intake did not indicate any statistical variance ($p < 0.05$) among treatments. However, goats on diet T2 (50%) were statistically higher in terms of weight gain (5.00g/day). The average daily weight gain values ranged between 3.57 and 5.00g/day. The feed conversion ratio (FCR) values ranged from 6.75 to 8.96%. Yam Peel Meal can be used to replace maize offal up to 50% without adverse effect on the growth performance of Red Sokoto Goats.

Keywords: Goats, Growth, Meal, Performance

INTRODUCTION

Goats occupy important position in the small ruminants industry because of their ability to offer the cheap source of animal protein in the form of meat, milk and other by products (Aina, 2002). In addition, they have a unique ability to convert feed-stuff of low nutritional value into useful products that are utilized for productivity and growth due to their unique feeding behaviour (Aka *et al.*, 2011).

The search for alternative feed stuffs that are readily available, viable, and cheap and not in high demand for alternative use has become imperative to enhance profitable production. A number of agricultural by-products abound in Nigeria some of which are indeed a menace and constitute pollutants in urban settings like the sweet orange peels (Oluremi *et al.*, 2007). Yam peels are by products obtained from yam and are readily available in all parts of Nigeria at little or no cost. It constitutes environmental hazard where it is not properly utilized. The main objective of this work is to ii.determine the growth performance of Red Sokoto Goats fed varying levels of Yam Peel Meal (YPM).

The study was conducted at the Teaching and Research Farm, Faculty of Agriculture, Federal University of Kashere in Gombe State, Nigeria. The Kashere is situated along latitude 9°54'46"N and longitude 11° 0'27"E (GOGIS, 2021) and altitude of 349m above sea level. The annual rainfall of Kashere ranges between 800mm-900mm per annum and is characterized by distinct dry season (October-May) and rainy season (June-September) seasons. The annual mean temperature ranges from 30-32° C and it experiences a relative humidity of 17-19%.

Data collection

The animals were fed the experimental diet at 3% of their body weight in each treatment per day. Feed intake was measured daily by subtracting the left over from the feed offered. Body weight gain was measured on weekly basis. Weekly weight gain was computed as the difference between the weight gain at the end and the beginning of every week during the experimental period until the end of the eight weeks trial. Average daily feed intake and average weekly feed intake were calculated over the experimental period.

Feed conversion ratio was calculated using the formula:

$$\text{FCR} = \text{Feed intake} / \text{weight gain}$$



Experimental Design and Statistical Analysis

The Experiment was laid in a Completely Randomised Design with three (3) treatments and each treatment replicated six times. Data collected from the study was subjected to analysis of variance (ANOVA) using the Statistical Package for Social Sciences (SPSS) version 23. Significant differences were separated using Duncan's Multiple Range Test (DMRT).

RESULTS AND DISCUSSION

Proximate composition of the experimental diets

Proximate composition of the experiment diets is presented in table 1. Generally information on they YPM is scanty (Ezieshi and Olomu, 2011). This paper analysed the proximate composition and revealed that the Dry Matter (DM) varied significantly ($P < 0.05$) from 85.35 to 88.45. The Crude Protein (CP) of the diets was also significantly ($P < 0.05$) affected within the treatment diets and these ranged between 14.00 and 15.12 which is higher than the 10 to 12%CP required by small ruminants for their growth and performance (Gatenby, 2002; NRC, 2007). This is a clear indication that the experimental diets would provide the nutrients required for the animals (Ezieshi and Olomu, 2011). The Ether Extract (EE) values decreases with the increase in the YPM inclusion (6.80 - 5.66). Ash content of the diets T2 and T3 respectively, were significantly higher (3.88 and 3.70) than the control diet (2.33) which shows that the diet with yam peel meal will supply more minerals to the animals than the control

Growth Performance of the Experimental Goats

Growth performance of the goats fed Experimental diets is presented in Table 2. The mean daily weight gain values ranged from 3.71g and 5.00g which were higher than 3.93-32.74g/day reported by Yashim *et al.*, (2016) for red sokoto goats fed diets containing Irish potato (*Solanum tuberosum* L.) as replacement for maize offal. Oloche *et al.*, (2011) reported 63.70-78.30g/day for West Africa Dwarf goats fed diets containing graded levels of yam peel meal and 47.67-68.65g/day for West African Dwarf goats fed diets containing graded levels of sweet orange peel meal (Oloche *et al.*, 2013)

The feed conversion ratio (FCR) values ranged from 6.75 to 8.96. These values were significantly lower (11.59-17.24) than what was reported by Sanwo *et al.* (2011) and 51.08-62.93 for West Africa Dwarf goats respectively. The present study is in agreement with report of Ibrahim *et al.*, (2013) who reported FCR ranging between 13-18 for Red Sokoto Goats fed sabara (*Guiera senegalensis*) leaf meal.

Table 1: Proximate composition of the Experimental Diets

Nutrients (%)	Treatments			SEM
	1	2	2	
Dry matter (DM)	85.35 ^b	88.37 ^a	88.45 ^a	±1.02
Crude Protein (CP)	14.00 ^b	14.00 ^b	15.12 ^a	±0.38
Crude Fiber (CF)	10.41 ^a	9.97 ^b	11.07 ^a	±0.46
Ether Extract (EE)	6.80 ^a	6.65 ^a	5.66 ^b	±0.22
Ash	2.33 ^b	3.88 ^a	2.70 ^b	±0.38
Nitrogen Free Extract (NFE)	67.18 ^a	65.50 ^b	65.45 ^b	±0.56

^{a-d} = Means in a row with difference superscripts are significantly ($P < 0.05$) different.

Table 2: Growth performance of Red Sokoto Goats fed Yam Peel Meal

Parameters	Treatments			SEM
	1	2	2	
Initial weight (Kg)	11.5 0 ^b	12.0 ^a	12.0 ^a	±0.05
Final weight (Kg)	14.0 1 ^b	14.80 ^a	14.03 ^b	±0.30
Total Weight gain (kg)	2.51 ^a	2.80 ^a	2.00 ^b	±0.23

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Feed intake (Kg)	1.35 ^a	1.35 ^a	1.28 ^b	±0.01
Feed Conversion Ratio	7.56 ^b	6.75 ^a	8.96 ^c	±0.72

^{a-d} = Means in a row with difference superscripts are significantly (P<0.05) different.

Conclusion and Recommendations

It can be concluded that the diet with 50% inclusion of Yam Peel Meal (YPM) gave the best result in weight gain and feed conversion ratio. It is therefore recommended that Yam peel meal can be used as a replacement to maize offal up to 50% level of inclusion without impaired growth and feed intake in goat diets to achieve similar result as using maize offal to enhance performance.

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