

PERFORMANCE CHARACTERISTICS OF WEST AFRICAN DWARF RAMS FED BASAL DIET SUPPLEMENTED WITH MULTI-NUTRIENT FEED BLOCKS

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ABSTRACT

Multi-nutrient block represents a vast reservoir of cheap nutrients as a panacea to protein and energy deficiencies in ruminants especially during dry season. Therefore, this experiment was conducted to evaluate the effects of supplementing multi-nutrient blocks to basal diet (*Panicum maximum*) on the growth performance of West African Dwarf rams. A total of fifteen (15) West African Dwarf (WAD) Rams with an average weight of 13.20 ± 0.20 kg were used in a completely randomized design. Multi-nutrient block consisted of Corn Bran (CB) used in replacing Molasses (M) at varying levels. The multi-nutrient blocks (CB 0%: M 0%, CB20%: M10%, CB10%: M20%, CB 0%: M30% and CB30%: M0%) as treatments 1, 2, 3, 4 and 5 respectively. Parameters determined on performance characteristics included final weight, weight gain, daily weight gain and feed conversion ratio (FCR). Data collected were subjected to analysis of variance (ANOVA). Results showed that the weight gain values ranged from 2.45 to 3.47kg which were significantly different ($P < 0.05$) across the treatments. The highest daily weight gain was 59.17g/day was recorded at the treatment 3 (CB20%: M10%) while the lowest daily weight gain (43.45 g/day) was obtained at control diet containing (CB0%:M0%) which were significantly influenced by dietary feeding of multi-nutrient blocks. The feed conversion ratios ranged from 10.28 – 14.28 which were significantly different ($P < 0.05$) from each other. It was therefore concluded that multi-nutrient feed block containing (CB10%: M20%) can be used to supplement basal diet to improve growth performance of West African dwarf rams

Key words: growth, multi-nutrients, weight gain, basal, rams

INTRODUCTION

Ruminants constitute a very important part of the livestock sub-sector of the Nigerian agricultural economy with its potential in alleviating the low animal protein intake as reported (Fajemisin *et al.*, 2010). The use of urea molasses minerals blocks (UMMB) for supplementing crop residues based diet of livestock has been well documented in ruminant (Singh and Singh, 2003). Supplementation with the locally available concentrate is a common practice among small holder farmer (Sharma *et al.*, 2003). Several workers have shown the increase in intake and/or digestibility of straws when supplemented with urea, molasses and minerals (Daniel *et al.*, 2006). Thus, UMMB blocks were fed to growing rams to determine its effects on growth performance.

MATERIALS AND METHODS

The experiment was carried out at the Sheep and Goat Unit, Institute of Agricultural Research and Training Farm, Ibadan, Oyo State, Nigeria. It is situated within the (latitude 70°N15°N and 70° 55°N) and (longitude 30°E and 30.30°E). The experiment lasted for 14 weeks after two weeks of acclimatization. West Africa Dwarf rams were fed with *Panicum maximum ad-libitum* as basal diet. The Urea Molasses Multi-block (UMMB) was placed in a specially designed trough to facilitate free access. UMMB were analyzed for the chemical content as described in AOAC (2000). The multi-nutrient blocks were compounded as shown in table 1. The mixture was poured into impoverished container of 5kg capacity each and was air-dried for two weeks. A total of fifteen(15) growing West African Dwarf rams weight 13.60 ± 0.2 kg were used in this study. The animals were balanced for their weight before allotting into five (5) dietary treatments of three (3) replicates per treatment. The animals were housed intensively in well-ventilated pens. The animals were fed with *Panicum maximum* supplemented with multi-nutrient block in the morning and evening at 3% body weight.

Table 1: Gross Composition of Multi-nutrient feed blocks (%)

Ingredients	T ₁	T ₂	T ₃	T ₄	T ₅
Corn bran	0.00	20.00	10.00	0.00	30.00
Molasses	0.00	10.00	20.00	30.00	0.00
Cassava Peel	30.00	0.00	0.00	0.00	0.00
Groundnut cake	8.00	8.00	8.00	8.00	8.00
Urea	2.00	2.00	2.00	2.00	2.00
Corn cob	15.00	15.00	15.00	15.00	15.00
Cassava Starch	15.00	15.00	15.00	15.00	15.00
Palm kernel cake	20.00	20.00	20.00	20.00	20.00
Salt	1.00	1.00	1.00	1.00	1.00
Limestone	4.00	4.00	4.00	4.00	4.00
Bone Meal	2.00	2.00	2.00	2.00	2.00
Premix	1.00	1.00	1.00	1.00	1.00
Total	100.00	100.00	100.00	100.00	100.00
Calculated Analysis					
Energy (MJ)	10.50	10.52	10.54	10.52	10.53

T₁ = 0% CB: 0%MT₃ = 10% CB: 20%MT₅ = 30%CB: 0%MT₂ = 20% CB: 10%MT₄ = 0% CB: 30%M

CB= Corn bran

M= Molasses

RESULT AND DISCUSSION

Presented in Table 2 is the performance characteristics of West African Dwarf Rams fed basal diets (*Panicum maximum*) supplemented with multi-nutrient block. Significant difference ($P < 0.05$) was observed in weight gain and daily weight gain which was higher than the values of 22.0-45.49g/day reported by Hatungimana *et al.*, (2015) for sheep fed diet supplemented with urea molasses block. The increase in weight gain was due to the ingredients multi-nutrient feed blocks supplementation containing various protein sources as well as molasses might increase the energy content of feeds. Multi-nutrient feed block supplementation extra energy and Nitrogen are offered to support the synthesis of an increasing amount of microbial protein. (Hatungimana *et al.*,2015). Feed conversion ratio obtained in this present study agreed with the feed conversion ratio (10.20-15.10) reported by Adegun *et al.* (2011) who fed sheep with multi-nutrient feed block. The metabolic weight gain and the daily weight gain obtained in this present study higher than the findings of Jinadu *et al.*(2018) who reported values of (1.74 – 2.11) 42.40 – 62.20 g/day respectively for West African Dwarf rams fed basal diet supplemented with sugar cane silage waste. The difference might due to increase in protein and energy sources from multi-nutrient blocks. The weight gain obtained across the treatment was higher than the value obtained when maize stover was fed to goat (Faftine and Zanetti,2010). Rams fed with CB10%: M20% having

weight gain of 3.47 agreed with the finding of Aye and Adegun (2010) that supplemented sheep diets with Moringa based multi-nutrient blocks.

Performance Characteristics of West African Dwarf Rams Fed Basal Diets Supplemented With Multi-Nutrient Block

Parameter	T ₁	T ₂	T ₃	T ₄	T ₅	SEM _±
Average Initial Body Weight (kg)	13.67	13.67	13.70	13.80	13.80	0.98
Average Final Body Weight (kg)	16.11	16.61	17.17	16.50	16.65	0.81
Average Body Weight gain (kg)	2.45 ^c	2.94 ^b	3.47 ^a	2.67 ^{bc}	2.85 ^{bc}	0.01
Average Metabolic weight (W ^{0.75})	1.95 ^c	2.24 ^b	2.54 ^a	2.08 ^{bc}	2.19 ^{bc}	0.01
Average Daily weight gain (g/day)	43.45 ^b	52.50 ^{ab}	59.17 ^a	47.56 ^b	50.80 ^{ab}	0.09
Average Grass intake (g/day)	363.06	358.73	336.58	354.98	367.28	0.58
Average Multi-nutrient feed block intake (g/day)	238.87	251.52	261.25	244.78	253.00	0.63
Average Total feed intake (g/day)	601.93	610.25	597.83	599.77	620.28	0.95
Average Feed conversion ratio	14.28	11.58	10.28	12.88	12.23	0.17

CONCLUSION AND RECOMMENDATION

It was concluded from the study that multi-nutrient block containing (10% CB + 20%M) can be used to supplement basal diet to promote growth performance of West African Dwarf rams most especially during dry season when forages are of poor qualities to promote growth rate.

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