
THE FEED AND WATER INTAKE OF LACTATING WEST AFRICAN DWARF GOAT FED CASSAVA LEAF MEAL CONCENTRATE DIET DURING THE RAINY SEASON

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ABSTRACT

This study evaluated the feed and water intake of lactating West African dwarf does offered cassava leaf meal concentrate. Twenty animals were distributed into 2 treatments (0% and 30% cassava leaf inclusion levels). The goats' daily feed and water consumption was recorded, and their weights were taken. Data were analyzed using T-test using Minitab 2.0 statistical package for windows. The maximum concentrate intake (281.3g) and water intake (1150) was reported in 30% inclusion level although there was no difference between treatments ($P>0.05$). These results showed that supplementation of concentrates based on cassava leaf meal at 30% level of inclusion improved feed intake. It is therefore recommended that lactating West African Dwarf Does could be fed up to 30% inclusion level of cassava leaf meal.

Keywords: Feed intake, lactating goats, cassava leaf meal, rainy season

INTRODUCTION

Cassava is widely used as a staple food in Nigeria aside from its use as livestock feed, hence, having the capacity to promote development and provide food security (Chidozie *et al.*, 2019). The production of large quantities of under-utilized residues from cassava comprising of peels, leaves and undersized tubers are currently increasing due to the demand for cassava for household and industrial use. Most of these residues are being lost and wasted, which translates to losses of food and nutrition, and also contribute significantly to generated environmental problems, including the production of greenhouse gases. Cassava leaf meal (CLM) is a potential alternative protein source for goats.

Higher DMI is important to sustain higher milk yield per unit of metabolic BW in goats. Dry matter intake of lactating goats is also affected by dietary energy density and protein level. Dry matter intake increased with increasing dietary protein levels and decreased with increasing dietary energy density, when animals were fed diets containing 12.3 to 16.4% CP and 1.98 to 2.46 Meal ME/kg DM. This study aims to investigate the effect of dietary inclusion levels of CLM on the feed and water intake of lactating WAD goats.

MATERIALS AND METHODS

The study was conducted in the small ruminant experimental unit, College of Animal Science and Livestock Production, Federal University of Agriculture, Abeokuta, Ogun state, Nigeria.

Experimental diets

For the research, the cassava leaf was gotten from freshly harvested cassava from farmers around Abeokuta, Ogun state, Nigeria. The cassava leaf was sundried for 2 days under medium contact with sunlight, till it is brittle but still maintains the quality in color and air-dried under shade for 2 days. The air-dried cassava leaf was taken to the feed mill with other ingredients for proper mixing to compound the concentrated meal. Other ingredients included were brewer-dried grain (BDG), groundnut cake (GNC), palm kernel cake (PKC), bone meal, salt, premix, limestone, maize, and dried cassava peel.

Results

Table 2 shows the effect of cassava leaf meal on concentrate, grass and water intake. The result shows that concentrate, grass and water intake were statistically similar ($p>0.05$), however, concentrate, grass and water intake were numerically higher in lactating does fed cassava leaf meal concentrate diet at 30% inclusion level.

Table 1. Composition (%) of the Experimental Diets

Ingredients	0%	30%
Maize	5	5
Dried cassava peel	40	40
Cassava leaf	0	30
Brewers dry grain	25	0
Palm kernel cake	20	19
Groundnut cake	5	1
Bone meal	2	2
Limestone	1.5	1.5
Common salt	1	1
Premix	0.5	0.5
Calculated Analysis		
Crude protein	15.9	15.69
Crude fat		
Fibre (%)	10.9	13
Metabolisable energy (MJ/J)	2195.75	2366.45
Calcium	1.16	1.10
Average phosphorus	0.35	0.31
Lysine	0.49	0.22
Methionine	0.23	0.11

Table 2: The effect of cassava leaf meal on concentrate, grass and water intake

	0%	30%	P-value
Cassava leaf meal concentrated intake	271.7 ± 21.3	281.3 ± 17.2	0.757
Grass Intake	1033 ± 176	1150 ± 158	0.449
Water Intake (mL)	425.4 ± 74	506.3 ± 86.4	0.662

Table 3 The result shows that concentrate intake was negative but not significantly ($p>0.05$) correlated with grass intake (-0.017) but positively (0.09) correlated with water intake.

Table 3: Pearson correlation coefficient among concentrate, grass and water intake

	Concentrated Intake	Grass Intake
Grass Intake	-0.017	1.00
Water Intake (mL)	0.097	-0.416

DISCUSSION

Multiple studies (Ajayi *et al.*, 2005 and Ososanya, 2010) have reported that feed intake, specifically dry matter intake, plays a crucial role in the utilization of feed by livestock. It is a key determinant of their energy and protein intake, as well as their overall performance in small ruminants. The research showed that the highest dry matter intake was achieved by does fed with a 30% inclusion level of cassava leaves meal. Interestingly, the dry matter intake values were similar, suggesting that the presence of toxic hydro-cyanic acid did not significantly affect the does' appetite. The highest dry matter intake indicated a high degree of acceptability. Nonetheless, dry matter intake is influenced by factors beyond dietary crude protein and acceptability, such as gut fill, body fat, and changes in the body weight gain of goats (Ukanwoko, 2007). Notably, the non-significant variation in water intake suggests that the different levels of cassava meal inclusion had no adverse effects on the animals' voluntary water consumption.

The correlation between feed and water consumption aligns with the results reported by Ikhatua *et al.*, in (1992). This connection is likely due to the role of water in aiding digestion and the elimination of metabolic waste.

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