


Groundnut (*Arachis hypogaea* L.) haulms marketing and preference as feedstuff in Southwest Nigeria

¹Adewuyi, P. A., ²Adebayo, A. A. and ³Fagbenro, R. B.

 ¹School of Agriculture and Environmental Sciences, University of The Gambia
^{2,3}Department of Animal Science, University of Ibadan
*Corresponding author: paademola@utg.edu.gm

Abstract

In the South Western Nigeria, groundnut haulm (GH) as a feed supplement is challenged by marketing factors. The huge quantity of GH generated in the North is optimally used for the livestock and also provides a stable source of income for the GH traders in a well established GH markets. Information about marketing and preference of GH as livestock feed in the South Western Nigeria is scanty. Therefore, in this study, marketing of GH and its use as a livestock feed in Akinyele Kraal market, Ibadan, Southwest Nigeria were investigated. Akinyele Kraal market was purposefully selected based on high GH and small ruminant marketing activities while snowball sampling technique was adopted through a key informant to identify the respondents. Focus group discussion was conducted after which 50 respondents consisting of 25GH sellers and 25 livestock traders each were separately selected and interviewed using structured questionnaires were used to elicit information on breeds of livestock kept, feed preference to the livestock and constraints to GH trading. Data collected were analysed using descriptive statistics. The results revealed that 70% of the small ruminant traders preferred GH to other feedstuff and 60% fed it as sole to the animals. Ouda traders dominated the sheep market (35%) followed by those that sold Yankasa (22%). The GH traders were married (100%) and 60% of them identified high transportation cost from the primary source as the prime limiting constraint facing GH marketing occasioned by its bulkiness. It can be concluded that GH is the major livestock feed in Akinyele Kraal Market and transportation cost is the major constraint to GH trading. It is recommended that research should be directed at processing techniques that can reduce the bulkiness of GH thereby reducing transportation cost, which can eventually increase the trader's profit margin and its availability for livestock in the South Western zone of Nigeria.

Keywords: Groundnut haulm, livestock feed, small ruminant, Kraal, focus group discussion

Commercialisation des fanes d'arachide (*Arachis hypogaea* L.) et préférence comme aliment pour animaux dans le sud-ouest du Nigéria



Résumé

Dans le sud-ouest du Nigéria, la fane d'arachide (FA) en tant que complément alimentaire est mise au défi par des facteurs de commercialisation. L'énorme quantité de FA générée dans le Nord est utilisée de manière optimale pour le bétail et fournit également une source stable de revenus pour les commerçants de GH sur des marchés de GH bien établis. Les informations sur la commercialisation et la préférence de GH comme aliment pour le bétail dans le sud-ouest du Nigeria sont rares. Par conséquent, dans cette étude, la commercialisation de la GH et son utilisation comme aliment pour le bétail sur le marché d'Akinyele Kraal, à Ibadan, dans le sud-ouest du Nigéria, ont été étudiées. Le marché d'Akinyele Kraal a été délibérément

sélectionné sur la base d'activités de marketing à forte teneur en FA et de petits ruminants, tandis que la technique d'échantillonnage en boule de neige a été adoptée par le biais d'un informateur clé pour identifier les répondants. Une discussion de groupe a été menée, après quoi 50 répondants composés de vendeurs de 25 FA et de 25 commerçants de bétail ont été sélectionnés séparément et interrogés à l'aide de questionnaires structurés. Les données recueillies ont été analysées à l'aide de statistiques descriptives. Les résultats ont révélé que 70 % des commerçants de petits ruminants préféraient la GH aux autres aliments pour animaux et 60 % la donnaient comme sole aux animaux. Les commerçants d'Ouda dominaient le marché des moutons (35%) suivis de ceux qui vendaient des Yankasa (22%). Les commerçants de GH étaient mariés (100 %) et 60 % d'entre eux ont identifié le coût élevé du transport à partir de la source primaire comme la principale contrainte limitant la commercialisation de la FA occasionnée par son encombrement. On peut conclure que la FA est le principal aliment du bétail sur le marché d'Akinyele Kraal et que le coût du transport est la principale contrainte au commerce de la FA. Il est recommandé que la recherche soit dirigée vers des techniques de transformation qui peuvent réduire l'encombrement de la GH, réduisant ainsi les coûts de transport, ce qui peut éventuellement augmenter la marge bénéficiaire du commerçant et sa disponibilité pour le bétail dans la zone sud-ouest du Nigéria.

Mots-clés : fanes d'arachide, alimentation du bétail, petits ruminants, kraal, discussion de groupe

Introduction

Many developing countries experience low productivity in their livestock sectors and as such could not meet the animal proteins requirement of their citizens. The major factors limiting livestock production include but not limited to low level of nutrition, high incidence of diseases, poor management and the genetic capacity of the indigenous breeds (GLR, 2010). Feeding is rated to be the most significant challenges facing livestock sector as reported by many researchers. Kayouli and Lee (1999) reported that feed shortage, both quantitatively and qualitatively are limiting livestock productions. Also, feeding alone account for approximately 60-80% of the total cost of animal production (Aregbeore, 2000). There is usually limited and often inadequate supply of forages for livestock especially during the dry season (Babayemi *et al.*, 2003). Availability of pasture for livestock is being challenged by fast rate of infrastructural development, uncontrollable rise in human population and changing climate. The net effect of escalating population rise is the negative impact on the available space for herbage production and limited green area for grazing animals (Makkar, 1994). One of the

most reliable alternatives to conventional livestock feed is the crop residue. Crop residues are materials generated after the crops have been harvested (Dixon and Egen, 1987). Examples of crop residues include maize stover, rice straw, groundnut haulms (GH), etc. Usually, GH are residues obtained when the mature pods are separated from groundnut (*Arachis hypogaea* L.) plants as the vine begins to turn yellow before the commencement of leaf shedding. It is commonly used to supplement low protein roughages and crop residues in ruminant feeding in many countries of the world and research stations. In a trial, Ososanya (2012) reported a weight gain in West African Dwarf ram fed *Cynodon nlemfuensis* hay supplemented with up to 50% GH during the dry season. The GH consists of leaves, stem and at times left over pods abandoned in the field after the groundnut is harvested. It is considered an important fodder for small ruminants especially in ram fattening. It is a popular feed resource in some countries in the West Africa sub-region mostly in dry season. In The Gambia, GH is rated as the most common traditional feed resource where it is fed to the livestock on zero grazing for about nine months of dry Season

(Asaolu *et al.*, 2010). In Nigeria, GH was identified to be a good source of feed for livestock, particularly in the course of dry season when fresh and green grasses are scarce (ICRISAT, 2015). In spite of its popularity as a feedstuff in certain locations, yet ignorance of nutritional importance of GH as feed for livestock is still high among many agro-pastoralists and small holders in some parts of the tropics. Rehab *et al.* (2004) reported that there is poor understanding of nutritional and economic importance of GH as ruminant diet among Egyptian livestock farmers and FAO (2010) further explained that low awareness of its nutritional value subjected it to alternative uses such as organic manure and domestic biofuel. Groundnut haulms for livestock are faced with problem of transportation due to its bulky nature and restriction of groundnut production to certain agro-ecological zones ie location bound (Babayemi, 2014). Most of the earlier studies on GH were focused on its nutritional value as a supplement and the optimum combination ratios with other forages. Information on its preference among other feedstuff for small ruminants and its availability in South West Nigeria is scanty. This study was therefore designed to evaluate GH for small ruminants and marketing activities of GH in Akinyele Kraal Market (AKM), Ibadan, Nigeria.

Methodology

Study area

The study was carried out at AKM, Ibadan. The market is located in Akinyele, a town in Akinyele Local Government Area of Oyo state, a peri-urban town near Ibadan. It is located between the latitude 3°54'N and 3°55'N; and 7°36'E and 7°37'E longitude. It is one of the largest ruminant markets in South West Nigeria which attracts livestock buyers from Oyo, Ogun, Ondo, part of Osun and Ondo States and as such an active market for sales of livestock feeds especially GH.

Sampling procedure, data collection and data analysis

The AKM was purposefully selected for the

study based on high intensity of livestock and groundnut haulm trading activities at the market and snowball technique was adopted through a key informant to identify the respondents. Focus group discussion was conducted separately for livestock and groundnut haulm traders. Twenty-five respondents each for livestock traders and groundnut haulm sellers were selected respectively for individual interview. Structured questionnaire was used for data collection from individual respondent. Data collected were analysed using descriptive statistics.

Results and discussion

Table 1 shows the socio-economic characteristics of small ruminant traders at AKM, Ibadan. The small ruminant trading at the market were dominated by male (100%) and are married (92%), this may be due to the stress involved in the transportation of the animals especially as most of the animals were brought to the market from the Northern part of the country. The results is in agreement with Paul (1990) who reported that goats and sheep marketing are predominantly undertaken by male and small ruminant sold in the Southern parts of Nigeria are from the North. Majority (60%) of small ruminants' traders falls within 41-60yrs age range and this could be attributed to the dominance of youth below 40 years in motor cycle or 'Okada' riding business and older people beyond 60 years may not have the strength to carry the animal or travel for a long distance to source for the animals. The business was dominated by Yoruba (60%) and predominantly Muslims (100%). This could be linked to the location of the business preeminently Yoruba community and also the use of small ruminants especially sheep by the Muslims during their festivals thereby accorded them the exposure and the interest in the business than their Christian counterparts.

Groundnut (Arachis hypogaea L.) haulms marketing and preference as feedstuff in Southwest Nigeria

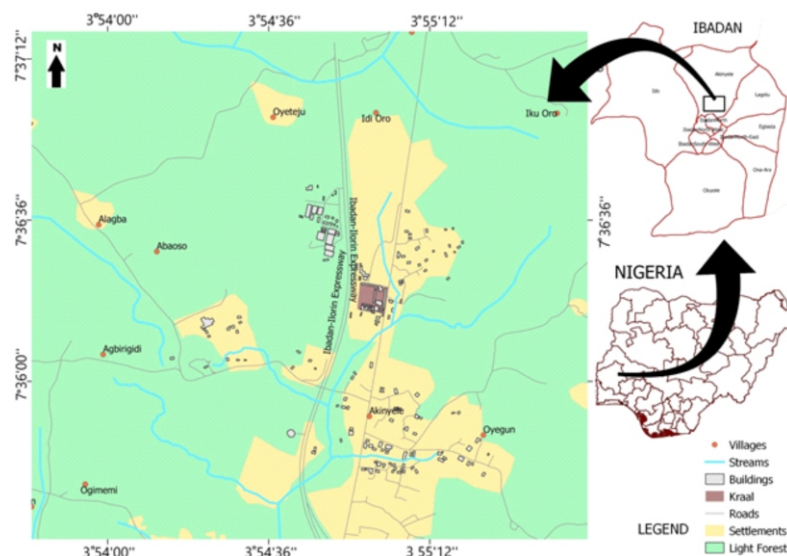


Figure 1: Topography map of Akinyele Kraal Market, Ibadan

Table 1: Socio-economic characteristics of small ruminant traders in Akinyele Kraal market

VARIABLES	Frequency	Percentage (%)
SEX:		
Male	25	100
Female	0	0
Total	25	100
AGE:		
<20	3	12
20 – 40	5	20
41 – 60	15	60
>60	2	8
Total	25	100
ETHNIC GROUP:		
Yoruba	15	60
Hausa	10	40
Others	0	0
Total	25	100
RELIGION:		
Christianity	0	0
Islam	25	100
Total	25	100
MARITAL STATUS:		
Married		
Single	23	92
Total	2	8
EDUCATIONAL STATUS:		
Primary		
Secondary	10	40
Non - formal	10	40
None	5	20
Total	0	0
OCCUPATION:		
Sales of Livestock	25	100
Farming	23	92
Artisan	0	0
Total	2	8
Total	25	100

Source: Field survey, 2017

Presented in Table 2 is groundnut haulm as a feed resource in AKM, Ibadan. Majority (95%) of livestock traders at the market specializes in small ruminants with long legged Northern breed, Ouda dominated the market (35%). In consonance with earlier report (Paul, 1990), preponderant breeds of sheep in the South West small ruminant market are the long legged transported from the North like Yankassa, Ouda and Balami. This may be as a result of higher demands for medium to large animals during the festive periods. A larger proportion of the

respondents (60%) fed groundnut haulm sole to their animal especially sheep. Majority of the traders (70%) had the highest preference for groundnut haulm because it gives the best results in ram fattening operation. This is in tandem with Asaolu (2010) that groundnut haulm is the major feed resource for the small ruminants in the peri-urban Gambia but contradicts Umunna *et al.* (2014) who reported cassava peel as the major feed resource given to the small ruminants by small holders in Urban Guinea Savannah of Nigeria.

Table 2: Groundnut haulm as a livestock feed by small ruminant traders in Akinyele Kraal market, Ibadan

VARIABLES	Frequency	Percentage (%)
LIVESTOCK KEPT:		
Cattle, sheep and goat	2	5
Sheep and Goat	23	95
Total	25	100
BREED OF SHEEP SOLD		
West African Dwarf	3	10
Yankasa	6	22
Ouda	9	35
Balami	2	6
All	5	27
Total	25	100
FEEDSTUFF SERVED		
Groundnut haulm only	3	60
Groundnut haulm + Cowpea husk	5	10
Groundnut haulm + Wheat bran	1	20
Groundnut haulm + Threshed sorghum top	1	5
All	0	5
Total	25	100
GROUNDNUT HAULM PREFERENCE		
Preferred	2	10
More preferred	5	20
Most preferred	18	70
Total	25	100
REASONS FOR GROUNDNUT HUALM PREFERENCE		
Price advantage	2	10
Availability	5	20
Gave the best fattening results	18	70
Total	25	100

Source: Field survey, 2017

Groundnut (Arachis hypogaea L.) haulms marketing and preference as feedstuff in Southwest Nigeria

Table 3 reveals the socio-economic characteristics of GH traders at AKM. Groundnut haulm trade at AKM was dominated completely by men (100%). This could be as a result of bulky nature of the haulm, long distance and means of transportation from the northern part of the country. The haulms are transported by trucks or attached to the trucks already loaded from the north thereby leaving only a very little space for the traders in the truck to stay which may be too stressful for a woman to endure. Majority (90%) of the respondent GH traders at the market are Hausa and predominantly (100%) Muslims. Groundnut haulm is a popular livestock resource in the north where it is referred to as 'Harawa' in Hausa language and livestock brought from the north relish it as feedstuff. This is corroborated by Umanna *et al.*

(1993) that GH is fed intensively to the livestock in the northern Nigeria. High awareness of GH as a livestock feed in the North may be linked to high groundnut production of groundnut in the region. Majority of the traders had either formal or informal education. Education is an important social tool for communication and interaction in business and this helps the traders a lot in relating with almost level and statuses of people that come to buy the haulms within and outside the market. Large proportions of the respondents (80%) were married and depend solely on GH as trade (90%). Marriage is attributed to being responsible and as such the traders were focused on haulm trading without distraction in order to meet their basic and routine family obligations.

Table 3: Socio-economic characteristics of groundnut haulm traders in Akinyele Kraal market

VARIABLES	Frequency	Percentage (%)
SEX:		
Male	25	100
Female	0	0
AGE:		
<20	5	20
20 – 40	18	70
41 – 60	2	10
>60	0	0
ETHNIC GROUP:		
Yoruba	3	10
Hausa	22	90
Other tribes	0	0
RELIGION:		
Christianity	0	0
Islam	25	100
MARITAL STATUS:		
Married	23	80
Single	2	20
EDUCATIONAL STATUS:		
Primary	5	20
Secondary	2	10
Non - formal	18	70
None	0	0
OCCUPATION:		
Sale of feedstuff	23	90
Farming	0	0
Artisan	2	10

Source: Field survey, 2017

Table 4 shows groundnut haulm trading at AKM, Ibadan. A large proportion (32%) of respondent livestock feed traders sold GH, cowpea husks and wheat bran. This may be attributed to the higher demand for the three feed resources than others by the livestock traders in the market and buyers from outside. The groundnut haulms sold in the market are brought solely (100%) from

Kano. Kano has been famous in groundnut production which led to the historic Kano groundnut pyramids before the discovery of the crude oil and also known to be a notable source of GH to other parts of the country (ADENI, 2003). The groundnut haulms were bought mainly (100%) from middle men who brought it to the city for wholesale buyers. The results agree with early finding

Table 4: Groundnut haulm trading at Akinyele Kraal market, Ibadan

VARIABLES	Frequency	Percentage (%)
FEED MATERIALS SOLD:		
Groundnut haulm only	4	16
Groundnut haulm + Cowpea husk	7	28
Groundnut haulm + Cowpea husk +Wheat bran	8	32
Groundnut haulm + Cowpea husk +Wheat bran + Sorghum top	6	24
Total	25	100
GROUNDNUT HAULM SOURCE (STATE):		
Kano	25	100
Sokoto	0	0
Other States	0	0
Total	25	100
GROUNDNUT HAULM SUPPLIER:		
Middle men	25	100
Groundnut Farmers	0	0
Total	25	100
SELLING PRICE IN NAIRA PER BUNDLE (25 KG):		
2500 – 3000	18	70
>3000	7	30
Total	25	100
SEASON OF HIGHEST SALE:		
Rainy	0	0
Dry	25	100
No difference	0	0
Total	25	100
CONSTRAINTS TO GROUNDNUT HAULM BUSINESS:		
Bulkiness	7	28
Storage	3	12
Cost of Transportation	15	60
Total	25	100
CUSTOMER’S LOCATION:		
Oyo State alone	0	0
Oyo, Ogun, Osun and Ondo States	25	100
Total	25	100

on GH marketing chain by ADENI (2003) that GH are brought to the city for sales by the local haulm collectors who bought from farmers in small bundles, crush and repack them in large bags. In consonance with earlier reports Samireddypalle *et al.* (2017), most of the traders (70%) sell 25kg bundles of GH for about 3000 Naira indicating that a kilo of the haulms will cost about 120 Naira compared to cassava peels that cost about 35 Naira per kilo. All the respondents (100%) had the highest sale of the haulms during dry season. Parallel observation was made by (Asaolu *et al.*, 2010) that crop residues is the major alternative feedstuffs for livestock during dry season. In terms of constraints to GH business, the rank order is: transportation cost (60%) > bulkiness (28%) > storage (12%). This indicates that transportation cost is the strongest constraint affecting GH business at the market. This may be linked to the bulky nature of the haulm, occupying more space compared to unit of weight in the vehicle thereby resulting in higher cost of transportation. Transportation challenges due to bulkiness, seasonality of production, and alternative uses are among the constraints facing the utilisation of crop residues for livestock (Sansoucy and Emery, 1982). Akinyele Kraal market attracts buyers from most of the States in Western Nigeria for purchase of livestock mostly during the festive periods and throughout the years as well as GH for feeding livestock.

Conclusion

The study showed that groundnut haulm was the most preferred feedstuff for small ruminant in Akinyele Kraal Market and high transportation cost from the major

source is the most limiting constraint faced by the haulm traders. It is recommended that feed processing techniques like pelleting be embarked upon by relevant government agencies and agro-allied industries to reduce haulm bulkiness which will eventually lower its transportation cost from the Northern Nigeria and invariably increase trader's profit margin and boost small ruminant production in the South Western Nigeria.

References

- ADENI, 2006.** Agriculture Development in Nigeria Commodity chain analysis of groundnut Sector in Nigeria, a report submitted to ADENI project/naerls Zaria pp 36.
- Anandan, S., Ousmane, B., Christian, A. F., Prasad, K., Iheanacho, O. and Michael, B. 2017.** Cowpea and Groundnut Haulms Fodder Trading and Its Lessons for Multidimensional Cowpea Improvement for Mixed Crop Livestock Systems in West Africa *Front. Plant Sci.* <https://doi.org/10.3389/fpls.2017.00030>
- Aregheore, E. M. 2000** Crop residues and agro-industrial by-products in four Pacific Island countries: Availability utilization and potential value in ruminant nutrition; *Asian Australasian Journal of Animal Science*, 13 Supplement 2000b; 266-269
- Asaolu, V. O., Odeyinka, S. M., Akinbamijo, O. O and Sodeinde, F. G. 2010.** Effects of moringa and bamboo leaves on groundnut hay utilisation by West African Dwarf goats. *Livest. Res. Rural Dev.*, 22 (1)
- Babayemi, O. J., Samireddypalle, A., Sosina, A.O., Ayantunde A. A.,**

- Okike, I., and Duncan, A. J. 2014.** Characterization of farming and livestock production systems using the feed assessment tool (FEAST) in selected local government areas of Osun state, Nigeria. Research program on integrated systems for the humid tropics ILRI Technical Report, December, 2014
- Babayemi, O.J., Bamikole, M.A., Daniel, I.O., Ogungbesan, A. and Oduguwa, B. O. 2003.** Growth, nutritive value and dry matter degradability of three Tephrosia species. Nigeria Journal of Animal Production 30; 62-72
- Dixon, R.M. and Egan, R.M. 1987.** Strategies for utilizing fibrous crop residues as animal feeds. Paper presented to the 7th AAFARR Workshop. 2-6 July, Chiang Mai, Thailand.
- Etela, I., Dung, D. D., 2011.** Utilization of stover from six improved dual-purpose groundnut (*Arachis hypogaea* L.) cultivars by West African Dwarf Sheep. Afr. J. Food Agric., Nutr. Devel., 11 (1): 4538-4545
- GLSR. 2010.** Gambia livestock sector review, FAO. P62
- ICRISAT .2015.** A Farmer's Guide to Profitable Groundnut Production in Nigeria 36pp
- Kayaouli, C and Lee, S. 1999.** Silage from by-products for small holders. Proc. FAO e-Conf. on Tropical Silage. FAO Plant Production Paper 161. Rome 85-96
- Makkar, H.P.S. 1994.** Application of the in vitro gas method in the evaluation of feed resources and enhancement of nutritional value of Tannin rich tree browse leaves and agro-industrial by-products. Animal Production and Health Section, International Atomic Energy Agency, Vienna. Pp 1-40
- Ososanya, T. O. 2012.** Effects of groundnut haulms supplementation on Intake, digestibility and growth performance of rams. *PAT June, 2012; 8 (1): 209 -215; ISSN: 0794-5213*
- Paul, A. F. 1990.** Small-Ruminant Marketing in Southwest Nigeria. Agricultural Economics, 4 (1990) 193-208 Elsevier Science Publishers B.V., Amsterdam-Printed in the Netherlands.
- Rehab, A. M., Abdel-Azeem, F., Abdel-Fattah, S. A. and Yacout, M.H.M. 2004.** Effect of using commercial enzymes to improve diets contained peanut hay on performance of growing rabbits
- Sansoucy, R. and Emery, B. 1982.** Utilisation actuelle des résidus de récolte et sous-produits agro-industriels en alimentation animale. In: Proceedings of the FAO/ILCA Workshop on crop residues and agro-industrial by-products in animal feeding. Dakar, Senegal.
- Umunna, M. O., Olafadehan O. A and Arowona, A. 2014.** Small Ruminant Production and Management Systems in Urban Area of Southern Guinea Savanna of Nigeria *Asian Journal of Agriculture and Food Science* 2: 110-111

Received: 15th November, 2021

Accepted: 17th February, 2022