ADOPTION OF IMRPOVED FEEDING TECHNOLOGIES AMONG FARMERS IN IWO LOCAL GOVERNMENT AREA OF OSUN STATE, NIGERIA

UMUNNA, M.O. AND IBRAHIM, A.O
Federal College of Wildlife Management, P.M.B 268, New Bussa, Niger State, Nigeria
Corresponding Email:mathiasumunna@gmail.com; 08139486968

ABSTRACT
The study was carried out to examine the adoption of improved feeding technologies among livestock farmers in Iwo Local Government Area of Osun state. A purposive sampling method was used to select 100 livestock farmers for the study. Primary data were collected from the livestock farmers with the aid of structured questionnaire. The data were analyzed using descriptive statistics such as means, frequency and percentages. Findings revealed that the mean age of the farmers was 48.44 years and most were married male with a mean family size of 6 persons. Most (83%) of the farmers were literate with majority (69.8%). The major source of awareness for the improved feeding technologies was agricultural extension agents. Soybean wastes had the highest level of awareness (85%) and adoption (55%) among the farmers. There was an increase in the cost feeding of the animals from ₦516.00 before the adoption of the innovation to ₦4146.00 after adoption. There was also an increase in the average income per production cycle from ₦54600.55 before adoption to ₦135500.50 after adoption. High cost of raw materials was ranked the first constraint to adoption of innovation. It was recommended that farmers should be encouraged to adopt innovation through the provision of financial assistance by relevant institutions while increasing awareness on benefits of adopting feeding technologies through extension.
Keywords: **Adoption, Improved feeding technologies, Livestock farmers, Awareness**

INTRODUCTION

Background of the study
Authors have emphasized the need for utilizing alternative feed ingredients which are wastes from human and industrial uses (Nsa *et al.,* 2007). There is, therefore need for animal nutritionists to seek for alternatives to the inadequate and expensive conventional feed stuffs to forestall an impending serious food crisis. Some authors (Kwari *et al.,* 2004) have stressed the need for utilization of alternative feed ingredient.

In Africa and other developing countries, feed and feeding comprises 60-70% of total production costs (Madubuike, 1993), with the present trend of rising feedstuffs prices and global inflation, livestock production is increasingly constrained by feed scarcity and the high cost of feeds (Ayantunde *et al.,* 2005). Shortages of feeds and forages are usually acute during the dry season. The situation is even made worse by the climate change phenomenon resulting to erratic weather. In an attempt to solve these problems, scientists have considered the use of agricultural by-products or wastes in the feed of livestock thereby giving rise to various feeding technologies to reduce cost and improve productivity of livestock.

In Iwo Local Government Area of Osun State, three specific feeding technologies have been introduced to farmers for adoption. These include the use of dried plantain peels, cassava peels and soybean wastes in the feed of livestock. Studies (Fanimo *et al.,* 2006; Adesehinwa *et al*., 2011) have been carried out on the effectiveness of including these materials in the feeds of livestock.

Though, there are numerous feeding technologies developed by scientists a lot more needs to be done to ascertain the adoption of these feeding technologies by farmers who are the end users. DFID (2006) maintained that the issue of the level and determinants of adoption of technologies which is lacking among agrarian communities has been as important as their impact on livelihood. Thus the adoption of these technologies by the farmers as well as constraints to the adoption should be of great importance. It is based on this background that this study was conducted to assess the adoption of the introduced improved feeding technologies among farmers in Iwo LGA of Osun state. The specific objectives were to determine the awareness and use of the technologies, ascertain the sources of awareness, determine the impact of the adopting technologies and constraints to adopting the technologies.

Materials and methods

The study was carried out in Iwo Local Government Area of Osun State. It has an area of 245km^2 and a population of 191,348 as most populous Local Government in Osun State by the 2006 National census figures. The town is located on latitudes 7^0 39^1N and on the longitudes 4^0 9^1E. The primary economic activity of the area is agriculture with the major crops grown being cocoa, yams, maize, cassava, and oil palm. Livestock commonly reared in the area are poultry, goat and sheep. The population of the study included all the poultry, pig and rabbit farmers in Iwo Local Government Area. Ten wards were randomly selected from the fifteen wards in the Local Government Area. Ten livestock farmers were randomly selected in each of the selected wards to give 100 livestock farmers as the sample size of the study. Data collected from the livestock farmers with the aid of interview schedule were analyzed using descriptive statistics such as percentage, frequency and means.

Results and discussion

Socio-economic characteristics of respondents

Table 1 shows that majority (88.0%) of the respondents were male while 12.0% were female. This indicates a greater involvement of the males in livestock in the study area. It further shows that 52.0% of the respondents were within the age range of 40-50 years while 16.0% fell in the range 40 years and below. The mean age was of 48 years implying that livestock production in the area was dominated by adults in their productive and active years. The table also reveals the mean of the household size to be 6 persons with majority (55.0%) of the respondents within the family size of 5-7 persons. A greater percentage (97.0%) of the respondents were married indicating that married people are more involved in livestock farming which may be due to household needs. Most (86.0%) of the respondents had formal education from ranging from the primary to the tertiary level while only 12.0% did not have formal education. This high level of education could positively affect adoption of innovation by farmers. Imoh and Essien (2005) reported that education enhances farmers' ability to understand, evaluate and adopt new production techniques. The table also shows that majority (60.0%) had their major occupation as farming thereby confirming that the study area is a typical agrarian locality. 51.0% were members of the farmers association while 39.0% were not members of farmers association. Farmers association serves as a medium where farmers meet for the purpose of sharing vital information. Adams (1982) in Idio and Okoro (2017) observed that the rate of adoption could be affected by social affiliation

Table1: Socio-economic characteristics of respondents (n=100)

Variable	Frequency	Percentage (%)	Mean
Age (years)			
40 and below	16	16.0	48.44
41-50	52	52.0	
50-60	29	29.0	
Above 60	3	3.0	
Household size (persons)			
2-4	24	24.0	8.00
5-7	55	55.0	
Above 7	17	17.0	
No response	4	4.0	
Marital status			
Single	1	1.0	
Married	97	97.0	
No response	2	2.0	
Educational level			
No formal education	14	14.0	
Primary education	38	38.0	
Secondary education	30	30.0	
Tertiary education	18	18.0	

Major occupation		
Farming	60	60.0
Civil service	14	14.0
Trading	9	9.0
Artisan	2	2.0
Student	1	1.0
No response	14	14.0
Membership of farmers association		
Yes	51	51.0
No	39	39.0
No response	10	10.0

Source: Field survey, 2013

Awareness and use of feeding technologies among the livestock farmers

Table 2 shows that 62.0% of the respondents were aware of the cassava wastes inclusion, 56% were aware of the inclusion of ripe plantain peels while 85% had become aware of soybeans waste inclusion in livestock feeds. Only 20.0% adopted the cassava peel technology, 17% had adopted ripe plantain peel while 55% of the respondents had adopted the use of soybean waste. The result indicates that that soybean waste has the highest level of awareness, and the highest level of adoption among the livestock farmers followed by cassava waste. The least adopted technology was ripe plantain. A larger proportion of the farmers adopted the soybeans waste probably because it is a good source of high quality protein.

Table 2: Awareness and use of feeding technologies (n=100)

Feeding technologies*	Aware	Not aware	Adopted	Not adopted
Cassava peels	62(62)	38(38)	20(20)	80(80)
Ripe plantain peels	56(56)	44(44)	17(17)	83(83)
Soybeans waste	85(85)	15(15)	55(55.0)	45(45.0)

Source: Field survey, 2013 Percentage in parenthesis * Multiple responses provided

Sources of awareness of feeding technologies

As shown in Table 3, majority (73.0%) of the respondents were aware of the technology through the agricultural extension agents, 7.0% were aware through the means of television, 8.0% had no response, and 11.0% became aware through the Poultry Farmers Association while 1.0% got informed through other farmers. The result indicates that extension officer/agents were playing a vital role in creating awareness on improved livestock practices in the area of study. This result is similar to that of Adeokun *et al.*, 2008 where extension agents were found to be the major sources of information on improved goat packages to women farmers.

Table 3: Sources of awareness of feed technologies (n=100)

Sources of awareness	Frequency	Percentage (%)
Agricultural extension officers/agents	73	73.0
Other farmers	1	1.0
Television and Radio	7	7.0
Farmers association	11	11.0
No response	8	8.0

Source: Field survey, 2013

Impact of technology adoption among livestock farmers

Table 4 shows that the average monthly cost of feeding the animals increased from ₦516.00 before the adoption of the innovation to ₦4146.00 after adoption. This indicates an increase in cost of feeding after adoption of the innovation. Adoption of technology may lead to increased production cost caused by additional money used in purchasing feed materials. The table also reveals increase in the average income per production cycle from ₦54600.55 before adoption to ₦135500.50 after adoption. This implies that the adoption of the feeding technologies by the farmers had increased significantly their income per production cycle. This will also lead to an increase in the profitability of the farmers thereby improving their living standards. Farmers should be encouraged to adopt feeding technologies since these technologies are able to increase farmers' income. These same is expected for all innovations that are disseminated to farmers. One of the characteristics of every innovation is its economic viability.

Table 4: Impact of technology adoption among the livestock farmers

Variable	Before adoption	After adoption
Average monthly cost of feeding(Naira)	516.00	4146.00
Income per production cycle (Naira)	54600.55	135500.50

Source: Field survey, 2013

Problems faced in using the new feeding technologies

Table 5 shows that majority (78.8%) of the respondents faced the problem of high cost of feed raw materials followed by scarcity of raw materials (62.5%). 52.5% were of the opinion that the technology was of time consuming while 13.8% had the problem of difficulty in processing the feeds. These were ranked 1st, 2nd, 3rd and 4th respectively. The result reveals that high cost of feed raw materials was the most serious problem to the use of the technology.

Table 5: Problems faced in using the new feeding technologies (n=80)

Problems *	Frequency	Percentage	Rank
High cost of feed raw materials	63	78.8	1st
Scarcity of raw materials	50	62.5	2nd
Difficulty in processing	11	13.8	4th
Time consuming	42	52.5	3rd

Source: Field survey, 2013 ***Multiple responses provided.**

Conclusion and recommendations

Awareness of feeding technologies among livestock farmers was relatively high but with a low level of adoption except in the use of soybean wastes. The adoption of these technologies had increased the average monthly cost of feeding the livestock while also increasing the income per cycle of the farmers. The highly ranked constraints to using these technologies were high cost and scarcity of feed materials. It is therefore recommended that:

i. There should be increased awareness through extension on the benefits of adopting feeding technologies among livestock farmers.
ii. Farmers should be encouraged to adopt innovation through the provision of financial assistance by relevant institutions and agencies.

References

Adesehinwa, A. O. K., Obi, O. O. Makanjuola, B. A., Oluwole, O. O., Adesina, M. A. (2011). Growing pigs fed cassava peel based diet supplemented with or without Farmazyme 3000 Proenx: Effect on growth, carcass and blood. *Afr. J. Biotech., 10 (14):* 2791-2796.

Ayantunde, A.A., Williams, T.O., Udo, H.M.J., Fernandez-Rivera and Mc Crabba. (2005) Coping with feed scarcity in smallholder livestock systems in developing countries. Animal sciences Group,

Wageningen UR (Swiss Federal Institute of Technology), Zurich, Switzerland and ILRI. Nairobi, Kenya. P 306.

Fanimo, A.O., Adebayo, A.J., Oduguwa, O.O. and Biobaku, W.O. (2006). Feeding value of cashew testa for broiler chickens. *Nigerian Journal of Animal Production. Vol.33(*2). P 5.

Idio, A. D. and Okoro, G. I. (2017). Adoption of improved feed production technologies by poultry farmers in Akwa Ibom State, Nigeria. *International Journal of Agricultural Extension and Rural Development Studies* Vol. 4 (1). Pp. 1-22.

Imoh, A.N and Essien, M.U (2005). Adoption of improved cassava varieties among small-scale farmers in Ikot-Ekpene Agricultural zone, Akwa Ibom State, Nigeria. Proceedings, 39th Annual Conference of the Agricultural Extension Society of Nigeria (AESON), held at the University of Benin, Benin City, October 9th -13th. Pp 1-7.

Kwari, L.D., Igwebuike, J.U. and Kwada, M.V. (2004). Effect of replacing maize with spent sorghum grain on performance of laying hens. *J. Sustain. Agric. Environ.*, 1: 25-31.

Madubuike F.N. (1993) Increasing animal protein supply in Nigeria under changing economic situations, In: A.V Anjam.u and B.E.B Nwoko (eds). Development strategies for Nigeria. AUN publishers Pp 211-218.

Nsa, E.E., Okereke, C.O. and Okon, B. (2007). Effects of supplementary green feedstuffs on growth performance, internal organs development and abdominal fat deposition in finisher broiler chickens. Proceedings of the 32nd Annual Conference of Nigerian Society for Animal Production (NSAP), 18th – 21st March, 2007. University of Calabar, Cross River State, Nigeria.