

Full-Length Research Paper

Assessment on the Contribution of Homestead Rearing of Small Ruminants to the Income of Households in Ushongo Local Government Area

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ABSTRACT: A study was conducted to assess the economic contribution of homestead small ruminant rearing to small farmers/households in Benue State's Ushongo Local Government Area. In a randomized design, 50 respondents were given well-structured questionnaires that served as the primary source of data. The emphasis was shifted to those who raised small ruminants in a free range extensive system. According to the study's findings, the majority of small ruminant farmers were males (76 %), mostly between the ages of 41 and 50 (46%), and were mostly married (78%). They were also Christians (60%) and engaged in homestead (82%) small ruminant rearing, with goats (58%) being the most reared small ruminant in the study area (22 %). The primary reason for raising small ruminants was to generate income (82 %), and their primary source of capital is personal savings (78%). Household farmers with 1-10 goats made a gross margin and net profit of N75,300 and N65,300 per year, respectively, while respondents with 10 sheep, 20 sheep, and 30 sheep made net profits of N84,400, N135,500, and N181,500, respectively. Respondents with a maximum of 10 sheep had a better return on investment, earning twice their total cost. This implies that homestead small ruminant rearing is profitable and can supplement other sources of income from various fields of endeavor.

Keywords: Homestead, small ruminants, gross margin, net profit, extensive system

INTRODUCTION

Sheep and goats are herbivores and ruminants of medium size, respectively (Fakoya and Oloruntoba, 2009). This class is primarily determined by their size and ease of rearing. Sheep and goats are among the most commonly reared livestock in Nigerian society, particularly in rural and semi-urban areas. Its meat is in high demand, especially during the holiday season (occasions and festivals). They also provide income to many households because they can be raised with little or no stress. In the religious community, Muslims use sheep to fulfill religious obligations and goats as a source of protein (Fakoya and Oloruntoba, 2009). Similarly, Lebbie (2004) and Yusuf et al. (2018) reported that sheep

and goats play an important role in the food chain and overall livelihoods of rural households, where they are primarily owned by women and children. They are viable sources of income, household consumption, and hobby, as well as crop failure insurance. Another advantage is that there are no social or religious barriers to its production and consumption. The recent pandemic (Covid-19) has halted many businesses both nationally and internationally. Many people lost their jobs, while others changed jobs or businesses, and part of this change can be seen in an increase in crop/livestock production. Prior to that, an increase in killings caused by clashes between herders and crop farmers had forced

many to turn to livestock farming in order to avoid losing their lives and crops by staying away from crop farms. As there is little or no cost in production, this has resulted in an increase in small ruminant production. All that is required is the purchase of a young female goat or sheep capable of being raised to breeding age. Such females reproduce by roaming around in search of food and being mated by other males in the vicinity/locality. Most rural residents engage in small ruminant production because it requires little initial investment. This is done to supplement the meager resources that they may obtain from menial jobs or other sources of income. According to Baruwa (2013) (as cited by Offor et al. (2018)), livestock ensured a household's food security, and was often the only asset possessed by a poor family. Sheep and goats can be sold in difficult situations, such as crop failure or family illness, and the proceeds used to purchase food and drugs for the family. Furthermore, the majority of small ruminant farmers are small-scale farmers with limited resources and operations due to low income (Offor et al., 2018). So, how much can raising small ruminants contribute to the livelihood of these households/farmers? Is homestead rearing of small ruminants a significant contributor to the income of rural and semi-urban households? The purpose of this study was to determine the contribution of homestead rearing of small ruminants to household income in Ushongo Local Government Area.

The specific objectives include:

1. To ascertain the socio economic status of small ruminant farmers/households in Ushongo Local Government Area.
2. To assess the production system of small ruminant farmers/households in Ushongo Local Government Area
3. To ascertain the financial contribution of rearing small ruminants to homestead farmers/households in Ushongo Local Government Area.

MATERIALS AND METHODS

Study area

The study was carried out at Ushongo Local Government Area in Benue State. Ushongo LGA is located between latitudes 7°00" and 7°10" North of the equator, and longitude 8°45" and 9°30" East of the Greenwich Meridian (Dada, 2006). The climate of Ushongo LGA, like other parts of Benue state is tropical, with dry seasons running from November to March, which gives way to wet season from April to October. Temperatures fluctuate between 28 and 32°C. Natural vegetation is mainly dry

woodland savanna, highly favoured by the gravelly soils (www.iambenue.com). The majority of the people are farmers whose major crops are fruits, rice, soy beans, cassava and sorghum. They also deal on livestock farming but not on a large scale. Livestock animals reared include goats, sheep, and indigenous breed of chicken, guinea fowl and bush-rats as well as other micro livestock animals.

Study population

A total of 5 small ruminant farmers were randomly selected from each of the ten (10) wards in Ushongo Local Government Area making a total of fifty (50) small ruminant farmers as the population size for the study. Each of these farmers served as respondents to the source of data.

Data collection

Data was collected using a primary source of data collection in form of a well-structured questionnaire and secondary source which includes literature and related reviews. The questionnaire was issued to small ruminant farmers (both homestead livestock farmers and non-homestead livestock farmers) and the same number of questionnaire was retrieved. An interpreter was employed to guide respondents who found it difficult to read and understand the questions indicated on the questionnaire.

Method of data analysis

The socio-economic data of the small ruminant farmers were analyzed using descriptive statistics i.e. frequencies and %ages. Budgetary analysis as partly employed by Olasukanmi *et al* (2015) was used to estimate the profit level that can be generated from the entrepreneur (in this case the small ruminant farmer). It is stated as follows:

Profit (Net Returns) = Total revenue (TR) – Total cost (TC)

Where TR= output (O) x unit price (P)

TC= Total variable cost (TVC) + Total fixed cost (TFC)

Gross margin= Total revenue (TR) – Total variable cost (TVC)

Gross income profit= Gross margin (GM) – Total fixed cost (TFC)

The financial success of the small ruminant rearing was

estimated using the returns to investment as stated below:

Returns on investment (ROI) = Net return ÷ Total cost

Returns on investment (ROI) is the amount of money that would be generated on a naira or dollar invested in business. The higher the rate of return, the more profitable an enterprise is.

RESULTS

The result of the study are presented in (Tables 1, 2, 3 and 4) show the socio-economic characteristics of the small ruminant rearing households, production practices of the small ruminant rearing households, cost and returns of goat production and cost and returns of sheep production respectively.

DISCUSSION

From (Table 1), 76% of the respondents are males indicating that males are more involved in the business of rearing small ruminants in the study area. This is corroborated by Offor *et al.* (2018), Adesehinwa *et al.* (2004), Yusuf *et al.* (2018), and Lawal-Adebowale and Alarima (2011) who all reported that males were more involved in rearing small ruminants. On the contrary, Fakoya and Oloruntoba (2009) reported that women were more involved in ruminant rearing in four (4) selected local government areas in Osun State. The disparity could be due to cultural differences. However, Lawal-Adebowale and Alarima (2011) stated that all in the households – be it male or female, youth and adult, parents and children, take care of the farm animals, providing them feeds and ensuring their safety.

The active age of the respondents involved in small ruminant rearing were between the ages of 41-50 years (46%) while only 4% of the respondents were below the age of 30 years (Table 1). This supports the finding done by Fakoya and Oloruntoba (2009) who stated that the mean age of small ruminant keepers was 41.21 years. This could be due to the fact that some of the younger aged ones have migrated to urban areas in search for greener pastures and others may have chosen to go further in education in tertiary institutions while the middle aged ones are left with the business of keeping sheep and goats.

From the study, majority of the respondents were married (78%) and supports Fakoya and Oloruntoba (2009) and Yusuf *et al.* (2018) findings. This implies that majority of the respondents will be willing to engage in keeping sheep and goats so as to support their families

just as the management of keeping small ruminants will be made easy with reduced labour cost through the harnessing of family labour. In terms of household size, majority (60%) of the respondents have a size of 6-10 persons which support the findings of Offor *et al.* (2018) and Fakoya and Oloruntoba (2009) who reported a mean household size of six (6) persons. Comparing the number of married respondents, age and household size implies that majority of the respondents have dependents and most likely have more responsibilities to meet up with due to the demands of their family members. Therefore there is need to engage in something worthwhile to sustain the family with, and one of such is raising small ruminants.

Based on level of education, majority of the respondents (58%) acquired secondary school education while 26% got to the tertiary level. This could be due to the fact that there are no tertiary institutions in the study area and one has to travel far distances within and outside the state to acquire tertiary education which could quite be expensive for them based on their standard of living. However, this does not distort the fact that the small ruminants keepers will not be able to embrace the advent of new production practices as it unfolds, being that about 94% of the respondents had one form of education or the other. Equally, with the advent of internet facilities, information technology, social media and other means of easy access to information, there is every possibility that small ruminant/livestock farmers will have unrestricted access to information about the prospects of raising small ruminants.

In terms of years of experience in small ruminant rearing, most of the respondents (40%) had an experience of 1-5 years while (12%) had an experience of over 20 years, and 7(14%) respondents had 11-15 years of experience. However, Yusuf *et al.* (2018) reported an experience of 1-10 years while Fakoya and Oloruntoba (2009) reported a mean experience of 6.1 years. The high year of experience shows that there is great potential in the business of raising and selling small ruminant. Most especially, those with the highest year of experience will have made appreciable financial gain and this would have attracted more people to join in the business of raising small ruminants. 39(78%) of the respondents invested their personal savings in rearing small ruminants, while 9(18%) respondents accessed money through cooperative loans. None of the respondents collected government loans. This could be due to poor access to information on government loans and most likely unavailability of these loans to rural dwellers. It is a known fact that most governments prefer to offer loans to people who they can easily access as well as those who can pay back. Hence, there is more preference to offer government loans to urban dwellers than rural dwellers. Also, the fact that respondents took

Table 1: Socio-economic characteristics of the small ruminant rearing households.

		Frequency	Percentage
Gender	Male	38	76
	Female	12	24
Age	Below 30 years	02	04
	31-40 years	06	12
	41-50 years	23	46
	51-60 years	09	18
	Above 60 years	10	20
Marital status	Married	39	78
	Single	02	04
	Divorced	02	04
	Widowed	07	14
Level of education	Primary education	05	10
	Secondary education	29	58
	Tertiary education	13	26
	No education	03	06
Religion	Christianity	30	60
	Islam	19	38
	Traditional	01	02
Years of experience	1-5 years	20	40
	6-10 years	13	26
	11-15 years	07	14
	16-20 years	04	08
	Above 20 years	06	12
Household size	1-5 persons	10	20
	6-10 persons	30	60
	11-15 persons	07	14
	Above 15 persons	03	06
Source of capital	Personal savings	39	78
	Bank loan	02	04
	Cooperative society	09	18
	Government loans	00	00
Source of information	Internet	15	30
	Mass media	03	06
	Extension agents	04	08
	Colleagues	28	56

Table 2: Production practices of the small ruminant rearing households.

		Frequency	Percentage
Small ruminant reared	Goats	29	58
	Sheep	11	22
	Both	10	20
Breeds of goats reared	West African Dwarf	35	70
	Sahel	10	20
	Red Bororo	05	10
Breeds of sheep reared	West African Dwarf	10	20
	Uda	20	40
	Balami	20	40
System of rearing	Intensive	05	10
	Semi-intensive (homestead)	41	82
	Extensive	02	04
	Normadic	02	04
Reasons for rearing	Income generation	41	82
	Meat for consumption	07	14
	Prestige	01	02
	Personal interest	01	02

Table 3: Cost and returns of goat production.

		Flock size 1-10 goats	Flock size 11-20 goats	Flock size 30 goats and above
Revenue (₦)		98,000	185,000	239,000
Variable costs (₦)	Stock purchase	6000	13,000	21,000
	Feeding	11,000	19,000	29,000
	Vaccination and drugs	600	2,300	4000
	Labour	3000	5,500	9000
	Transportation	1,100	2000	4,100
	Miscellaneous	1000	1,200	3000
Total variable cost (₦)		22,700	43,000	70,100
Fixed costs (₦)	Pen construction	9000	13,000	19,000
	Depreciation expenses	1000	1000	1000
Total fixed cost (₦)		10,000	14,000	20,000
Total cost (3+5) (₦)		32,700	57,000	90,100
Gross margin (1-3) (₦)		75,300	142,000	168,900
Net profit (1-6) (₦)		65,300	128,000	148,900
Returns on investment (8÷6)		1.9	2.2	1.6

Table 4: Cost and returns of sheep production.

		Flock size 1-10 sheep	Flock size 11-20 sheep	Flock size 30 sheep and above
1. Revenue (₦)		121,000	207,000	301,000
2. Variable costs (₦)	Stock purchase	8,500	19,000	32,000
	Feeding	12,000	20,000	40,500
	Vaccination and drugs	600	2000	10000
	Labour	2,500	5000	7000
	Transportation	1000	3000	5000
	Miscellaneous	1000	1,800	3000
3. Total variable cost (₦)		25,600	50,800	97,500
4. Fixed costs (₦)	Pen construction	10,000	19,200	20,000
	Depreciation expenses	1000	2000	2000
5. Total fixed cost (₦)		11,000	21,200	22,000
6. Total cost (3+5) (₦)		36,600	72,000	119,500
7. Gross margin (1-3) (₦)		95,400	156,200	203,500
8. Net profit (1-6) (₦)		84,400	135,000	181,500
9. Returns on investment (8÷6)		2.3	1.9	1.5

the risk to invest with their savings implies that the business of homestead rearing of small ruminants could be lucrative and at the same time could serve as a way of saving their money instead of keeping it in a bank.

Also, note that 56% respondents had access to information on small ruminant rearing through their colleagues and 30% got the information on small ruminant rearing through the internet, while 8% respondents got information through extension agents. This could be due to lack of extension agents in the area and with the advent of information on internet enabled facilities, most of the respondents could get the required information on homestead rearing of ruminants and its production/management techniques and also share same information amongst themselves.

Matching the level of education, years of experience and the source of information of respondents depicts that there has been an upsurge in the involvement of the

respondents over the past 5-10 years towards the business of keeping sheep and goats in the homestead (extensive) system having seen its profitability, just as the government of the day have declared that everyone should return to agriculture so as to diversify the economy and ensure food security.

From Table 2, 58% respondents reared only goats, corroborating the findings of Fakoya and Oloruntoba (2009), Adesehinwa *et al.* (2004) who stated that goats are more popular than sheep in the area they conducted their study. This is in a way different from the finding of Yusuf *et al.* (2018) (carried out in Katsina) where respondents kept more sheep than goats. This could be due to the fact that the Islamic religion places more importance on sheep than goats as against the Christians who value goats more. Referring to (Table 1), Christians were the majority of respondents in the study area. However, Fakoya and Oloruntoba (2009) opined that the

preference of goats over sheep and other ruminants could be because goats are perceived to be a lower risk investment.

From Table 3, it can be deduced that the homestead ruminant rearer's of 1-10 goats sold at a mean price of ₦9,800 per goat, made a complete expenditure of ₦32,700 hence getting a gross margin and net profit of ₦75,300 and ₦65,300 respectively per annum. This shows that small ruminant rearing in homestead production system in the study area is profitable. This is almost in agreement with Offor *et al.* (2018) who reported a gross margin and net profit of ₦77,500 and ₦66,000 respectively. It also falls in line with Kumar and Roy (2013) who obtained a gross margin of Rs 66,443 and net return of Rs 65,478 of Indian currency which implies that small ruminant enterprise was profitable in their study area.

In the same vein, those with a maximum of 20 goats and 30 goats made an average net profit of ₦128,000 and ₦148,900 from average sales of ₦9,250 and ₦8000 respectively per annum. It was however noticed that the more the number of goats, the lower the price as most of those respondents with more goats chose to sell in bulk at a purportedly wholesale price while those with fewer goats chose to sell them in retail price. The market was noticed to be a monthly rural market where traders arrive from urban areas to purchase items from a common market once a month. However, there were middle men who traded deals between the livestock owner and the possible consumers or wholesalers. This made the price of goats drop a bit from the end of the livestock owner as they have to give room for the middlemen to add their own financial benefit.

The result on Table 4 shows that the net profit gotten on average sales of sheep at ₦12,100, ₦10,400 and ₦10,000 per sheep is ₦84,400, ₦135,500 and ₦181,500 for respondents with maximum of 10 sheep, 20 sheep and 30 sheep respectively. This amounts to an average of ₦8400, ₦6775 and ₦6050 per sheep. This contradicts the findings of Zakuwi *et al.* (2014) who stated that farmers declared a net profit of ₦16,448.33 per ram after fattening for 2-3 months. This disparity could be because the study area does not value sheep production as much as goat production and hence would choose to sell it at a price that would not be worth its value in other areas especially the northern parts. However, this is in addition to the profit made on sales of crop products and other wares which reduces their total dependency on profits made from small ruminants.

Furthermore, from Table 3, respondents with a maximum of 20 goats had a better return on investments compared to those with 10 goats or less and 30 goats or above as they returned double of their expenses. Equally, the respondents who had a maximum of 10 sheep had a better return on investment as they made double of their

expenses.

Conclusion

On a general note, the study showed that homestead small ruminant farming contributes meaningfully to the income of households in the study area as this augments their efforts in crop farming and other menial jobs carried out by the same households in the study area. Small ruminant farmers are socially and economically viable enough to engage in small ruminant rearing.

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