



Livestock Fattening: A Source of Livelihood Diversification among Households in Adamawa State, Nigeria

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Abstract

The study examined livelihood diversification through livestock fattening among households in Adamawa State. Multi-stage sampling procedure was employed in selecting 250 respondents from three Local Government Areas of the State. Data were collected using interview schedule with the aid of structured questionnaires. Data were analyzed using descriptive statistics which includes; means, frequencies, percentages and Gross Margin. The result of the demographic characteristics of respondents revealed that most of them were young, male, married and had one form of education or the other. All the respondents reported that livestock fattening was their secondary occupation. They diversified in order to earn more income. Majority (85.34%) of the respondents fattened cattle. Depending on the kind (cattle, sheep or goat) and number of livestock fattened, on the average cattle fatteners earn ₦29,500 per head of cattle, ram fatteners earn ₦16,300 per head of ram and goat fatteners earn ₦4,100 per head of goat. Respondents reported that income earned from livestock fattening play significant role in their day to day households' spending Majority (66.38%) of the respondents reported that finance is their major limiting factor to livestock entrepreneurship. The study concluded that households diversified their livelihood through livestock fattening. The study recommended that livestock supporting services should be revived particularly financial services to livestock fatteners and they should be encouraged to fatten more than one animal at a time so as to enjoy the economics of scale.

Keywords: Livestock fattening, Livelihood Diversification, Adamawa State, Nigeria

Introduction

A Livelihood strategy include activities that generate income to a household. Livelihoods not only captures what people do in order to make a living, but also resources that provide them with the capability to build a satisfactory living, risk factors they consider in managing their resources as well as the institutional and policy context that either helps or hinders them in pursuit of an improved standard of living. Livelihood diversification is defined as the process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living (Ellis, 1998; Bedeke, 2013).

Very few people collect all their income from one source, hold all their wealth in the form of any single asset, or use their assets in just one activity which makes diversification the norm (Barrett *et al.*, 2005). Livelihood diversification can be seen as an attempt by individuals and households to find new ways to raise incomes and reduce environmental risk (Haggablaide *et al.*, 2007). Livelihood diversification would include both on-farm and off-farm activities undertaken to generate additional income to the main household agricultural activities. Households may diversify their livelihoods through the production of other agricultural and non-agricultural goods and services, sale of labour, or self-employment in addition to other strategies undertaken to spread risk associated with their sources of livelihoods.

Urged on by their survival instinct, households in developing countries diversify away from traditional subsistence agriculture to the production of high-value crops and or engage in off-farm and non-farm activities (Bryceson, 1999; Ellis, 1999). By this, farm households enhance their ability to secure basic needs including food, striking a linkage between diversification and poverty reduction. With the need to increase agricultural productivity is crucial to the food security campaign (Tobin, 2009), livelihood diversification has been put forward as an equally potent complementary strategy for addressing rural poverty (Ellis, 1999; Start, 2001; FAO/World Bank, 2001 cited in Khatun and Roy, 2012) as well as reducing “the vulnerability of the poor to food insecurity and livelihood collapse” (Ellis and Allison, 2004).

A great number of studies have surfaced to highlight the importance of livelihood diversification as a relevant poverty reduction strategy. Empirical evidence on how livestock fatteners specifically help rural dwellers diversify away from primary occupations remain limited. Already, available empirical studies on the extent to which diversification amongst households impacts on households' expenditure have revealed mixed results (Yenesew *et al.* 2015; Hanazaki *et al.*, 2012; Awotide *et al.*, 2010).

Livestock fattening and its related value adding activities are one of the most important sub-sectors of agribusiness activities. It provides high quality food, cash income and employment for the teeming population of many countries and essential raw materials for both processing, marketing and manufacturing industries. Livestock fattening is also important in the socio-cultural lives of millions of small-scale entrepreneurs as a symbol of wealth in both developed and developing economies (Sansoucy *et al.*, 1995). Nigeria's livestock resources consist of 19.5 million Cattle, 72.5

million goats, 41.3 million sheep, 145 million chicken, 11.6 million ducks, 1.2 million turkeys, 1 million horses and 974,499 donkey (Umar, 2007). Therefore, this study was designed to look at livestock fattening as a livelihood diversification strategy among livestock entrepreneurs in Adamawa State Nigeria.

The study provided information on the following specific objectives:

- i. socio-economic characteristics of livestock fatteners;
- ii. the kind of livestock kept by livestock fatteners;
- iii. income accrued from livestock fatteners; and
- iv. constraints faced by livestock fatteners.

Methodology of the Study

The study was carried out in Adamawa State. It is located in North east Nigeria between latitude $7^{\circ}33'$ and $11^{\circ}30'$ north of the equator and longitude 11° and 14° east of the Greenwich meridian (Adebayo, 1999). The State has a total land area of approximately 38,741 square kilometers (Uyanga, 1993). The State is predominantly agrarian in nature with most of the inhabitants depending on subsistence agricultural practices mainly food crop and livestock production. Major livestock produce in the State include cattle, goat, sheep, poultry and piggery.

Multi-stage sampling procedure was employed to select sample for the study. In the first stage, three Local Government Areas (LGAs) namely: Mayo-belwa, Song and Mubi north were selected purposively. The choice of the LGAs was informed by the fact that the selected LGAs have the largest livestock markets in the State as such it is expected to have the highest number of livestock entrepreneurs. In the second stage, from each of the selected LGAs, two districts were randomly chosen, giving a total of six selected districts. In the third stage,

from each of the selected districts, three ward communities were randomly chosen, giving a total of eighteen ward communities. In the last stage, 250 livestock entrepreneurs were randomly selected from the selected ward communities in a ratio proportional to the approximate population of livestock entrepreneurs in each ward. However, analyses were carried out using responses from 232 respondents whose records were complete. The remaining eighteen were rejected due to inconsistencies in their responses.

The data were collected with the use of interview schedules guided with a well-designed structured questionnaire. Descriptive statistics such as means, frequency and percentages were used in analyzing the data obtained. In addition, Gross Margin (GM) was used to examine cost and returns from livestock entrepreneurship by respondents in the study area.

The empirical GM model is expressed thus:

$$GM_i = \sum_{i=1} P_i Q_i - \sum_{j=1} C_j X_j \text{ ----- (i)}$$

Where;

GM_i = Gross Margin of enterprise i (₦)

P_i = Unit price of fattened livestock (₦)

Q_i = Number of livestock i fattened (No.)

C_j = Unit cost of variable input j (₦)

X_j = Quantity of variable input j used (Kg, Lt and No.)

Σ = Summation

GM was used under the assumption that the fixed cost of livestock fattening considered under the study is negligible.

belonged to the age bracket of 26-33 years, 29.30% were within the age bracket of 18-25 years old and 17.67% felled within 34- 41 years old. The result implies that majority of the respondents were young entrepreneurs, who have potentials in mobilizing resources for livestock entrepreneurship.

Younger farmers may have a greater tendency to explore external financial sources because they are relatively more knowledgeable, more open to risk taking and have longer planning horizon (Adesina and Zinnah, 1992). Result on gender indicated that majority (92.67%) of the respondents were male. This means that male dominate livestock entrepreneurship business perhaps, because of the laborious nature of the venture. Various studies (Onu, 2006; Idrisa *et al.*, 2007) found that gender plays significant role in having access to production resources. Male have access to productive resources more than their female counter parts. Marital status of the respondents revealed that 69.40% of the respondents were married, 20.26% were single and 9.48% were widowed Married people have more responsibilities and hence they would consider livestock fattening with highest levels of seriousness. Education level of respondents revealed that many (30.17%) of the respondents completed Diploma/NCE, 20% had completed secondary school and 22.84% completed

Results and Discussion

Socio-economic Characteristics of Respondents

Generally, livestock fatteners differ in socio-economic characteristics. These characteristics influence the capacity of respondents to diversify away from primary occupation. Such differences in socio-economic characteristics of households also provide the context within which the behavior of respondents' entrepreneurs can be understood. The socio-economic characteristics of respondents are summarized in Table 1. Age status of respondents revealed that majority (37.93%)

primary school. The result implies that majority of the respondents had formal education. Education brings prudent decision making in dealing with livelihood activities. This may be because educated people can gather, process

and interpret all available information, differentiate between promising and unpromising investment areas and, make decisions on investment areas easily with relatively small error (Agbamu, 2006).

Table 1: Distribution of Respondents Based on Socio-Economic Characteristics (n=232)

Variable	Frequency	Percentage (%)
Age		
< 18	07	03.02
18- 25	68	29.31
26- 33	88	37.93
34- 41	41	17.67
>41	28	12.07
Gender		
Male	215	92.67
Female	17	07.32
Marital Status		
Married	161	69.40
Single	47	20.26
Widow/widower	22	09.48
Education Level (Yrs)		
No formal Education	32	13.79
Pry. Sch.	53	22.84
Sec. Sch.	48	20.69
Diploma/NCE	75	30.17
Degree	24	10.34
Primary Occupation		
Civil Service	70	30.17
Business activities	42	18.10
Housewife	09	03.88
Farming	111	39.22
Livestock Entrepreneurship Experience (Yrs)		
≤ 3	17	07.33
4- 6	100	43.10
7- 10	80	34.48
>10	40	15.09
Annual income from Livestock fattening (₦)		
<50, 000	50	21.55
50, 001 – 100, 000	71	30.61
100, 001 – 150, 000	33	14.22
150, 001 – 200, 000	23	09.91
>200, 000	55	23.71
Membership of Associations/Coop.		
Member	102	43.96
Non-member	130	56.04

Source: Field Survey, 2017.

Results of primary occupation revealed that farmers, 30.17% were civil servants and many (47.84%) of the respondents were 18.10% were business men and women. This

implies that respondents were engaged in other livelihood activities. Respondents considered livestock fattening as secondary occupation. They diversified to obtain more income to cater for themselves and families. Livestock fattening experience revealed that the greater (43.10%) of the respondents had 4-6 years fattening experience, 34.48% had 7- 10 years and 15.09% had greater than 10 years of fattening experience. Experience could bring efficiency; hence much productive resources would be used efficiently by an operator.

Result on annual income from livestock entrepreneurship of the respondents revealed that 30.61% and 23.71% of the respondents earned ₦50,001- 100,000 and greater than ₦200,000 per annum from livestock entrepreneurship respectively. This implies that respondents obtained income from livestock entrepreneurship which enable them settle day to day expenditure of their households. Result on membership of association indicated that, majority (56.04%) of the respondents had no association. However, 43.96% had registered in one association or the other ranging from cattle fattening association, young farmers association etc. Respondents further explained that the aim of forming association among others is to rub minds among members and secure financial support from government,

financial institutions and non-governmental organizations.

Livestock Kept by Respondents

The result on the kind of livestock entrepreneurship engaged in by respondents revealed that majority of the respondents (85.34%) were into cattle fattening, 22.41% were engaged into Ram fattening and 12.07% were into goat entrepreneurship (Table 2). The reason perhaps for the majority into cattle fattening could not be unconnected to the fact that cattle fattening is profitable (Mohammed, *et al.*, 2015; Umar, 2007), has short duration of fattening period and there is ready market for the finished cattle. Ram fattening is practiced by respondents mostly targeting *Sallah* festivity. It has long fattening period if reasonable margin is to be realized. Respondents however, reported that caution should be exercised in fattening rams. The duration should not be too long, otherwise, diminishing return sets in and the margin would be reduced. Respondent reported that Goat fattening was unpopular in the study because goat cannot add much weight when restricted. They prefer to be managed under free range system. Respondents however, reported that goat is kept by many households under traditional scavenging management system, as an asset and respondents fall back to them during emergencies.

Table 2. Distribution of respondents based on Livestock Kept (*n*=232)

Constraint	Frequency*	Percentage (%)
Cattle	198	85.34
Ram	52	22.41
Goat	28	12.07

Source: Field Survey, 2017.

*Indicates frequency based on multiple responses, therefore total percentage greater than 100.



Income from Livestock Entrepreneurship

The result of the average costs and returns of cattle fattening is presented in Table 3. It was revealed that the average cost of feeder cattle accounted for about 79.61% (₦101,500) of the Total Variable Cost (TVC) of the cattle entrepreneurship. Respondents revealed that if cattle has good body structure and aged 2-3 years (determined by length of horn) it cost ₦70,000- ₦80,000. Furthermore, if the age exceeds 3 years, perhaps 4-5 years, it cost ₦110,000- ₦150,000. Feeds accounted for about 13% (₦13,000), labour 5.49% (₦7,000)

and Drugs and vaccines accounted for about 4.71% (₦6,000) of TVC. The average Gross Revenue (GR) stood at ₦157,000 while the TVC stood at ₦127,500. On the average, cattle fatteners obtained ₦29,500 as profit for a head of cattle fattened. Respondents reported that with good management, cattle could be disposed- off after 1- 2 months of fattening period. If the period extends beyond two months, however, the profit could be reduced as a result of cattle consuming too much feeds without proportionate weight gain (diminishing return). Feeds such as ground-nut haulms, cowpea husk, sorghum straw, chaff and bran were mostly used for fattening cattle.

Table 3: Average Costs and Returns (₦) per Head of Livestock

Variable	Cattle (n=198)	Ram (n=52)	Goat (n=28)
Gross Revenue (GR)	157,000.00	38,500.00	21,500.00
Variable Costs			
Feeder Cattle	101,500.00 (79.61) *	9,000.00 (40.54) *	7,400.00 (42.53) *
Drugs/Vaccines	6,000.00 (4.71) *	2,500.00 (11.11) *	1,500.00 (8.62) *
Feeds	13,000.00 (10.20) *	6,700.00 (30.18) *	6,000.00 (34.48) *
Labour	7,000.00 (5.49) *	4,000.00 (18.02) *	2,500.00 (14.37) *
TVC	127,500.00	22,200.00	17,400.00
Gross Margin	29,500.00	16,300.00	4,100.00

Source: Field Survey, 2017.

*Figures in parenthesis are the percentage contribution to Total Variable Cost (TVC).

The average costs and returns of ram fattening is presented in Table 3. It was revealed that the average cost of feeder ram accounted for about 40.54% (₦9,000) of the Total Variable Cost (TVC) of the ram entrepreneurship. Feeds accounted for about 30.18% (₦6,700), labour 18.02% (₦4,000) and Drugs and vaccines accounted for about 11.11% (₦2,500) of TVC. The average Gross Revenue (GR) stood at ₦38,500 while the TVC stood at ₦22,200. On the average, ram fatteners obtained ₦16,300 as profit for a head of ram fattened. Ram fattening is particularly attractive to poor individuals including women because of the low initial investment, rapid rate of turnover and social

acceptance. The main strategy is to fatten young, lean male sheep obtained either from the farmer's own flock or, more often, purchased on the open market, over a two- to three-month period, with each farmer fattening between one and five animals. The rams are usually tethered or kept in a small sheltered enclosure at the homestead, and often fed and watered individually. Basal feeds used for sheep fattening, such as bush hay and millet straw, are commonly supplemented with cowpea hay, groundnut haulms, and maize bran which is derived from the household processing of maize grains. The rapid growth and good condition required within a short time make

feeding the appropriate quantity and quality critical for the profitability of the activity (Zalkuwi *et al.*, 2014). Respondents reported that rams are sold off mostly during Sallah festivity, when good price is offered for rams in the market. However, respondents further reported that they sold out ram at any other period when there is market.

The average costs and returns of goat fattening is also presented in Table 3. It was revealed that the average cost of feeder goat accounted for about 42.53% (₦7,400) of the Total Variable Cost (TVC) of the goat entrepreneurship. Feeds accounted for about 34.48% (₦6,000), labour 14.37% (₦2,500) and Drugs and vaccines accounted for about 8.62% (₦1,500) of TVC. The average Gross Revenue (GR) stood at ₦21,500 while the TVC stood at ₦17,400. On the average, goat fatteners obtained ₦4,100 as profit for a head of goat fattened. From the analysis on the income obtained from livestock fattening, it can be deduced that livestock fattening helps to improve livelihoods of operators. This is possible through improving income level.

Constraints to Livestock Fattening

Result on constraints faced by livestock fatteners is presented in Table 4. The finding

revealed that 66.38% of the respondents reported that inadequate finance was their constraint towards livestock fattening. This result concurred with that of Mohammed *et al.* (2015) who observed that capital was the major problem of cattle fatteners in Song Local Government as reported by 75% of the respondents. Generally, financial capital serves as a pivot for agribusiness development, determines the limit of production, employment and investment in the industry (Onwumere, *et al.*, 2010), however, lack of finance is a major hindrance to livestock fattening in developing countries. Other limiting factors of livestock fattening as reported by respondents in the study area include unavailability of feeds (28.02%) and high labour cost (36.21%), unavailability and cost of feeds coupled with the challenge of finance remains a major constraint. Respondents however, reported that to some extent they have access to industrial feeds through a company known as Riko Gaddo, but it's costly. Since respondents were diversifying, the use of self labour is limited, labour for livestock fattening is sourced through hiring casual labour. This remain a challenge, because sourcing the required and trustworthy labourer is very difficult.

Table 4. Distribution of Respondents based on Constraints to Livestock Entrepreneurship (n=232)

Constraint	Frequency*	Percentage (%)
Inadequate Finance	154	66.38
Unavailability of Feeds	65	28.02
High Labour Cost	84	36.21
Lack of Market for finished Animals	25	10.78
Others	16	6.90

Source: Field Survey, 2017

*Indicates frequency based on multiple responses, therefore, total percentage greater than 100.

Conclusion and Recommendations

The study concluded that depending on the number and kind of livestock kept, livestock fattening provides incomes to operators and helps respondents to diversify away from primary occupations. The study recommended the following:

- i. Livestock supporting services should be reviewed particularly financial services to livestock entrepreneurs.
- ii. Local feed formulation should be advocated among livestock

- iii. fatteners. It will go a long way in reducing the cost of fattening. Livestock Fatteners should be encouraged to fatten more than one animal so as to enjoy economic of scale.

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