# CONTRIBUTION OF RUMINANTS' PRODUCTION TO HOUSEHOLD INCOME IN YEWA SOUTH LOCAL GOVERNMENT, OGUN STATE.

**Conference Paper**

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**Abstract**

Ruminants' play an important socio-economic role in the rural areas where most of the resource poor farmers in Africa live. It also contributes directly to households' purchasing power and food security. This study analyzed the contribution of ruminants' production to household income in Yewa south local government of Ogun State. 120 respondents were selected through random sampling technique with well-structured questionnaire and interview schedule. Data were analyzed using descriptive statistics, budgetary and regression analysis. Results show that 67.5% of the respondents were males with the average age of 45 years old. Nearly all of the respondents (87.5%) went into ruminants' production as alternative source of income. Two-third of the respondents had the highest percentage of household size ranging between 1-6 which allows the respondents to have easy access to family labour thereby reduce the cost of labour and also decreases their capital income, further lowering their poverty status. The benefit cost ratio value is 1.74, implying that every #1.00 invested in ruminants' enterprise will yield #1.74. Thus ruminant's production is profitable and economically viable. The study concludes that ruminants' are ways of storing wealth and meeting unexpected financial obligations especially among the poor in the study area.

*Keywords:     ruminants', household income, profitability, livestock production*

**INTRODUCTION**

Livestock production constitutes a very important component of the agricultural economy of developing countries, a contribution that goes beyond direct food production and income. Livestock are valuable asset that serves as a store of wealth, collateral for credit and an essential safety net during times of crisis. One of the fastest growing parts of the agricultural economy is the livestock sector. Philip Thornton (2006) found that livestock sector is increasingly organized in long market chains which employ at least 1.3 billion people globally and directly support the livelihoods of 600 million poor smallholder farmers in the developing world. Protein derived from livestock is needed for physical and intellectual development and also for developing immunity against disease (Atinmo and Akinyele, 1983)

Ruminants are mammals that are able to acquire nutrients from plant-based food by fermenting it in a specialized stomach prior to digestion, principally through microbial actions. The process typically requires the fermented ingesta (known as cud) to be regurgitated and chewed again. Examples of ruminants' are cattle, sheep, goats, giraffes, yaks, deer, antelope, and some macro pods.

Ruminants' play an important socio-economic role in the rural areas where most of the resource poor farmers in Africa live. It also contributes directly to households' purchasing power and food security. Ajala (2004) reveals that small ruminants form an integral part of the cultural life and system of Nigerians peasantry. Ruminants' contribute immensely to the farming system and the general economy as source of cash, meat, milk, hide and skin, draught power (cattle), manure and also for ceremonies and sacrifices. By contrast, almost every rural household owns at least a unit of small ruminants (Fane 1992). In spite of the popularity of small ruminants

among rural household as reflected in their ownership distribution, evidence indicates that the small ruminant (goat and sheep) production system receives relatively little attention compare to cattle rearing production (Fane 1992), because small ruminants production system has proved to be suitable to the harsh climatic condition in the country (Molefe 1987).

However, rearing of ruminants' like sheep, cattle and goats serve as sources of funds for household and personal use, it increases source of protein through meat production and also reduces poverty level of the household. {Thus, an improvement in the financial security of ruminant's rear would inevitably translate to better living conditions and food security for households.

This study makes an attempt to look at different ways at which ruminants' production is being employed as a source of household food security in Yewa south}(check or remove). The general objective of the study is to analyze the contribution of ruminants' to household income. The study will describe the socio-economic characteristics of the respondents, profitability of ruminants' production and examine the contribution of ruminants' to household income in the study area.

**MATERIALS AND METHODS**

The study was carried out in Yewa South Local Government Area of Ogun state, Nigeria bordering the Republic of Benin. Its headquarters are in the town of Ilaro at 6°53′00″N 3°01′00″E in the north of the Area. It has an area of 629 km² and a population of 168,850 at the 2006 census. Yewa south comprises of 10 wards; farming is the main occupation of the majority of people in this area, while others engaged in trading, hawking, and agricultural processing.

A random sampling technique was used to sample 135 respondents and only 120 of the sampled size were used in the analysis of the study while the remaining were discarded due to incomplete

and inadequate information. Respondents of the research were those rearing ruminants'. Data was collected from the respondents using a well-structured questionnaire and interview schedule, some of which gave information on the socio-economic characteristics of the respondents, profitability of ruminants' production and the contribution of ruminants' to household income in the study area.

Data were analyzed using descriptive statistics, budgetary analysis and regression analysis.

Descriptive statistics: This comprises the use of measures of central tendency and dispersion (mean, mode, median and standard deviation), percentages frequency and tabulation were used in the analysis of respondents' socio-economic characteristics.

Budgetary Analysis: This was used to determine the profitability of ruminants' production. The profitability analysis that were employed were Fixed Cost (FC), Variable Cost (VC), Total Cost (TC), Total Revenue, Gross Margin, Profit and Benefit Cost Ratio (BCR)

Regression analysis: This was used to identify the factors that influence ruminants' production.

***Regression model***

The implicit and explicit form of the regression model (Greene, 2003) employed is of the form:

$Y = f(X_1, X_2, X_3, X_4, ----------, X_8, e_i)$

$Y = a_o + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e_i$

Where,

$Y$ = Income in Naira generated from ruminants sales

$a_o$ = Constant

$b$ = Regression coefficient

$X_1$ = Age of respondents (years)

$X_2$ = Marital status of respondents (married = 1, single/divorced/widowed = 0)

$X_3$ = Educational status of respondents (years)

$X_4$ = Household size (number)

$X_5$ = Livestock association (yes = 1, no = 0)

$X_6$ = Flock size (number)

$X_7$ = Poverty status of respondents (poor = 1, non-poor = 0)

$X_8$ = Experience in ruminants' production (years)

$e_i$ = Error term

## RESULTS AND DISCUSSION

The result of the analysis in Table 1 shows the distribution of respondents according to socio-economic characteristics. Majority (67.5%) of the respondents were males while 32.5% were females. This is due to the fact that males usually provides for the families, so they get involved in ruminants production more than females so as to make both ends meet and females were involved in ruminant processing. The average age of respondents in the study area is 45 years old, implying that majority of the respondents are still under their productive age. Nearly all (86.7%) of the respondents were married while 10% were single and 3.3% were widowed. Educational distribution of respondents indicates that 29.2% were educated up to the tertiary level while about 48.3% did not receive formal education, the rest received either primary or secondary education. The household size of respondents ranging between 1-6 had the highest percentage 65.83%, followed by household size of 7-10 with 25.83% and above 10 with 8.3%. This implies that ruminant rear have easy access to family labour which reduce the cost of labour and also increases their capital income, further lowering their poverty status. Respondents distribution by membership of livestock association indicates that over three-quarter (78.3%) are not members of livestock farmers association of Nigeria and this may have set-back on

ruminants' production because better information and technology can be obtained from the association. Also, Occupational distribution of respondents shows that only 26.67% of the respondents are full time ruminant rear while over three-quarter (73.33%) are engaged in other occupation. For example 20.83% of them were traders, 33.33% of the respondents were farmers, 11.67% are civil servant and 7.5% of the respondents are artisans. Since few of the respondents (26.67%) were full time ruminant farmers, so this will affect their production.

**Table 1: Distribution of respondents by socio-economic characteristics**

| Variable | Frequency | Percentage |
|---|---|---|
| **Sex** | | |
| Male | 81 | 67.5 |
| Female | 39 | 32.5 |
| **Age** | | |
| 20-30 | 19 | 15.8 |
| 31- 40 | 26 | 21.7 |
| 41- 50 | 44 | 36.7 |
| 51- 60 | 19 | 15.8 |
| >60 | 12 | 10.0 |
| **Marital Status** | | |
| Single | 12 | 10 |

| | | |
|---|---|---|
| Married | 104 | 86.7 |
| Widowed | 4 | 3.3 |

**Educational Status**

| | | |
|---|---|---|
| No formal Education | 58 | 48.3 |
| Primary | 12 | 10 |
| Secondary | 15 | 12.5 |
| Tertiary | 35 | 29.2 |

**Household Size**

| | | |
|---|---|---|
| 1-6 | 79 | 65.83 |
| 7-10 | 31 | 25.83 |
| >10 | 10 | 8.33 |

**Livestock Association**

| | | |
|---|---|---|
| Yes | 26 | 21.7 |
| No | 94 | 78.3 |

**Primary Occupation**

| | | |
|---|---|---|
| Full time ruminant farmers | 32 | 26.67 |
| Trading | 25 | 20.83 |
| Farming | 40 | 33.33 |
| Artisans | 9 | 7.5 |

| | | |
|---|---|---|
| Civil Service | 14 | 11.67 |

| | | |
|---|---|---|
| **Total** | 120 | 100 |

**Budgetary Analysis.**

**Estimation of Gross Margin and Net Profit.**

Gross margin and net profit were used to assess the profitability of ruminants' production. Average variable Cost consists of cost of parent stock, labour wage, total amount spent on medication annually and starting capital. Average fixed Cost consists of cost of land, total amount spent on tax annually and cost of pen construction while Average total revenue is the income realized per year from the sales of ruminants'.

Average fixed Cost (AFC) = #29268.75

Average variable Cost (AVC) = #167512.51

Average total revenue (ATR) = # 343125.00

Average total cost (ATC) = AFC+AVC.

ATC = # 29268.75 + # 167512.51 = # 196,781.26

Gross margin = ATR − AVC

GM = # 343,125.00 − 167512.51 = # 175,612.49

Net profit ($\pi$) = GM − AFC.

$\pi$ = # 175,612.49 − # 29268.75 = #146,343.74

This shows that ruminants' production is profitable.

**Benefit Cost Ratio (BCR)**

Benefit cost ratio is average total revenue divided by average total cost.

$$BCR = \underline{ATR}$$
$$ATC \quad = \# \underline{343125.00}$$
$$\#196781.26 \qquad =1.74$$

This BCR value (1.74) shows that ruminants' production is profitable. The value (1.74) simply means that every #1.00 invested in ruminant enterprise will yield #1.74

**Expenses Structure Ratio (ESR)**

Expenses structure ratio (ESR) is the Average Fixed Cost divided by Average Total Cost.

$$ESR = \underline{AFC}$$
$$ATC = \# \underline{29268.75}$$
$$\#196781.26 \ = 0.149 \ = \ 14.9\%.$$

This means that fixed cost has accounted for 14.9% of the total cost incurred.

**Explaining Different Ways by Which Ruminants' Contribute to Household Income.**

Respondents were given the freedom to express their minds and the responses were summarized

as presented in Table 3. Nearly all the respondents (87.5%) said that the income generated from the sales of their ruminant animals helped them significantly to attend to other important issues in the welfare of household members, since the income generated from other sources is not enough to cope with increasing demands at the home front. About 56.7% used the income

generated from the sales of ruminants for home usage, like buying food, paying house rent, performing burial rights, performing marriage rights, performing naming ceremony, build house and buying other household needs. 11.7% of the respondents used their income in paying school fees of their children, 8.3% of the respondents used their income in assisting their relations in settling contingencies, 1.7% of the respondents used their ruminants income in paying their medical bills, 9.1% of the respondents used their income to expand their farming activities while 12.5% of the respondents used their ruminants' for family consumption in order to supplement their nutritional value.

**Table 2: Ways by which Ruminants' Contribute to Household Income**

| Variable | Frequency | Percentage |
|---|---|---|
| Home usage | 68 | 56.7 |
| School fees | 14 | 11.7 |
| Family issues | 10 | 8.3 |
| Medical bill | 2 | 1.7 |
| Farming expansion | 11 | 9.1 |
| Family meat | 15 | 12.5 |
| Total | 120 | 100 |

Source: Computed from Survey Data, 2017

### Poverty Status of Respondents

Two-third mean per-capital expenditure was used to analyze the poverty status of respondents. (Isaac B. and Titilayo B. 2012). It was found that per-capital income of two-thirds (65%) of the respondents is below #10288.89 per month, this indicates high level of poverty among respondents. Respondents were categorized into poor and non-poor class as shown in table 4 below.

Total expenditure on food and non-food items (Monthly) = #1852000.00

Number of respondents = 120

Mean per-capital expenditure = #1852000.00/120 = #15433.33

Two-third Mean per-capital expenditure = 2/3 * #15433.33 = #10288.89 per month

Any household with monthly expenditure below the poverty line of #10288.89 is classified as poor while those with expenditure of #10288.89 equal to or above are classified as non-poor. Expenditure is known to play a very important role in the poverty level of household because it reflects the true level of actual income.

**Table 3: Distribution of Respondents by Poverty Status**

| Variable | Frequency | Percentage |
|----------|-----------|------------|
| Poor | 78 | 65 |
| Non-poor | 42 | 35 |
| Total | 120 | 100 |

Source: Computed from Survey Data, 2017

**Determinants of Income Realized from Ruminants' Production.**

Ordinary least square regression model was employed to explain the determinants of income realized from ruminants' production. The result shows that coefficients of age, educational status, membership of livestock association and flock size are positively related to income realized from ruminants' production while the coefficients of marital status, household size, experience in ruminants' production and poverty status are negatively related to income realized from ruminants' production. The implication of this finding is that, an increase in the variables of age, years of formal education, membership of livestock association and flock size will positively affect income realized from ruminants' production, while the variables of poverty levels, household size, experience in ruminants' production and marital status will negatively affect the income from ruminants' production.

**Table 4: Regression Result Showing Determinants of Income Realized from Ruminants' Production**

| Variable | Factors | Coefficient | t-value | Significant |
|---|---|---|---|---|
| A | constant | | 1.024 | 0.308* |
| $X_1$ | Age | 0.346 | 3.261 | 0.001** |
| $X_2$ | Marital status | -0.085 | -0.986 | 0.326 |
| $X_3$ | Educational status | 0.139 | 1.057 | 0.293 |
| $X_4$ | Household size | -0.204 | -2.156 | 0.033** |
| $X_5$ | Livestock association | 0.536 | 6.803 | 0.000*** |
| $X_6$ | Flock size | 0.005 | 0.941 | 0.074 |
| $X_7$ | Poverty status | - 0.104 | - 0.787 | 0.433 |
| $X_8$ | Experience | -0.340 | -3.644 | 0.000*** |

***, **, * significant at 1%, 5% and 10% respectively

Source: Computed from survey data, 2017

## Conclusion

The study shows that the ruminants' production is still under small scale due to inadequate public awareness, lack of finance, proper management and diseases. Production of ruminants' in large scale will allow availability of meat throughout the year at reduced price and this will encourage more people to supplement their diet with meat regularly, thus reduce poverty in the study area. Also the place of ruminants' production in meeting social and economic needs of respondents in Yewa South cannot be overemphasized. This is closely connected to the different roles that these animals play in providing a

sign of relief, especially when there are production shortfalls or unexpected contingencies resulting from ill health, changes in government policies and so on. Ruminants 'are the easiest and readily accessible means of coping with shocks (especially the idiosyncratic type). However, governments need to provide enabling environments that will better enhance and encourage investment in ruminants' production.

**Recommendation**.

Based on the findings from the study, it is recommended that:

- ❖ Ruminants' rear should join association of livestock farmers of Nigeria to enlighten them about new technologies and innovations in the area of management of livestock production and also the ruminants' rear should adopt new innovations brought by the extension agents.

- ❖ Extension workers send to the ruminants' rear should be monitored for the appropriate delivery of their work.

- ❖ Government should create public awareness on benefits of eating meat, profitability of ruminants' production and the need to commercialize ruminants' production to increase gross domestic product (GDP) so as to reduce poverty in the study area.

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