ISSN 0189-0514
J. Anim. Prod. Res. (2017) 29(1):419-429

National Animal Production Research Institute
Ahmadu Bello University
P.M.B 1096, Shika-Zaria,
Kaduna State, Nigeria.
Email: japr@napri.gov.ng
Website: http://journals.napri.gov.ng

ANALYSIS OF ENTREPRENEURAL MANAGEMENT AND FOOD SECURITY STRATEGIES OF SMALL RUMINANT WOMEN FARMERS IN KIRIKASSAMMA LOCAL GOVERNMENT AREA OF JIGAWA STATE.

[1]Abdulrahman, S., [2]Mani, J. R., [1]Oladimeji, Y. U., [1]Abdulazeez, R. O. and [1]Ibrahim L. A.
[1]Department of Agricultural Economics and Rural sociology, Faculty of Agriculture, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
[2]National Agricultural Extension Research and Liaison (NAERLS), Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
Corresponding Email: sabdulrahman@abu.edu.ng Phone no: +2348036535223

ABSTRACT

This study carried out in Kirikassamma Local Government Area (LGA) of Jigawa State to examine the entrepreneurial management of small ruminant production in the achievement of food security among rural women. A multistage sampling procedure was used to select respondents for the study. A total of 197 respondents were randomly selected from eight villages in the study area. Descriptive statistics, tobit regression and cost of calorie intake were used in analysing the data. The result showed that small ruminant women farmers in the study area are married (98%); average age of 34 years with adjusted household size of 5. The estimated mean years of schooling of the respondents were 6 years, largely skewed towards the non-formal education. Furthermore, the majority of the respondents (86%) had an income ranging from ₦40, 000-₦80000 with an average income of ₦65,000. Based on the recommended daily calorie intake of 2260 kilo calorie, it was found out that approximately 51.3% of the respondents were food secure and 48.7% were not food secure. The food security indexes for the food secure and insecure households were found to be 1.29 and 0.73 respectively implying that food secure households consumed 29% in excess of their daily calorie requirements; while food insecure households consumed 27% less than their daily calorie requirements. This study also revealed that 6.1% of the respondents were found to be severely food insecure. The determinants of food security in the study area were age, education and income. The medium level of risk orientation ($\bar{\pi}$=2.63) was noticed with more number among the rural women followed by low social motivation ($\bar{\pi}$=2.08). These was due to their low level of educational attainment in the study area.The study, therefore, recommended that small ruminant women farmers should be educated on the need to diversify their sources of income from agriculture to off- farm income generating businesses. This is to improve food security at a household level.

Keywords: Women, Small ruminant, Food security, Jigawa state

INTRODUCTION

Women play a major role in contributing to agricultural economy and the overall Gross Domestic Product (GDP), but face serious setbacks in achieving optimal livestock production and rural farmers livelihood. Women folk are important factor in the society as they perform significant roles in domestic, national developments and economic life of the people (Damisa and Yohanna, 2007).

Small ruminants (sheep and goats) are domestic animals that have been associating with humans for a very long time. According to Hamito, (2008), Small ruminants serve as source of income and also an asset against economic hardship. The importance of this animal cannot be overemphasized. As they are kept for a variety of economic reasons which including

savings and investment, food security and social functions. It requires small amount of initial capital, easy to manage and occupy little housing space (Oluwatayo, 2012). Lebbie, (2004) noted that Small ruminants animal play animportant role in farmers livelihood and are largely regarded as women's property. Ozung *et al*. (2011) opined that the short gestation interval of sheep and goats and the absence of religious bias against their meat are among the reasons why they are kept by peoples of various cultures, religions and races.

In some traditions, women have no access to land resource. World Bank (2008) argued that the failure to realize women potential in agriculture as one of the contributing factor to agricultural production and food security as it is observed that majority of the small holder farmers are women. Despite the critical role they play in food production and management of natural resources they have only 1 percent of land. Lack of access to and control over land has intensified women difficulties, their access to credit, technical assistance and participation. Ayoade, (2011) states that development of small ruminants such as sheep and goats plays a vital role in the rural economy of many developing countries. They provide alternative sources of income for the farmers; they also serve as an insurance cover to cope with crop failures for rural landless, small-scale and marginal farmers of rural communities particularly in achieving food security and poverty reduction.

Poverty reduction and food security have been the priority objectives since independence not only in Nigeria but also in other sub-Saharan African countries. However, these objectives have not been fully achieved due to a number of factors such as political and economic instability, inadequate infrastructural facilities, and inadequate credit facilities at both household and national levels, over population, unfavourable micro and macroeconomic policies, inadequate agricultural inputs, poor agricultural technologies, inappropriate agricultural knowledge, rural-urban migration and lack of employment opportunities (Chopra, 2004; Kidane *et al*., 2005).These factors are found to have an important impact on income, income distribution, and welfare across rural households (Ellis, 2000; Reardon *et al.*, 2000; Hoogeveen, 2001; Block and Webb, 2001; Canagarajah *et al.*, 2001; de Janvry and Sadoulet, 2001).

In Nigeria, despite agricultural policies and strategies, the population of food insecure households in Nigeria was 18% in 1986 (Babatunde *et al.*, 2007) but had increased to 40% in 2005 and higher in the subsequent years (Enete *et al.*, 2010). Nigerian agriculture has failed to produce sufficient food to feed her growing population. Therefore, the level of food insecurity in Nigeria has continued to increase steadily since the 1980s. Food security can be defined as the situation where people have physical and economic access to sufficient food for a healthy and active life (Franz *et al*., 2004).

Promoting small businesses is increasingly seen as a means of generating meaningful income and sustainable employment opportunities, particularly for those at the margins of the economy such as rural population (United Nations, 2007). According to Nippierd (2002). Enterprise development and particularly the promotion of small and medium enterprises have been adopted as a strategy for job creation and economic growth in a large number of countries. Entrepreneurship can be defined as the process of using private initiatives to transform a business concept into a new venture or to grow and diversify an existing venture or enterprise with high growth potential (UNDP, 1999). Wenneker and Thurik (1999) described a model of entrepreneurship which identifies three levels at which entrepreneurship may be viewed, the individual, the firm and the region. They also identify three dimensions of entrepreneurship- the condition which leads to entrepreneurship, the attributes and the impacts of entrepreneurship. With regards to individuals, the conditions for entrepreneurship are culture and incentives, elements are attitudes, skills and creativity and the impacts are

self-realization and income (Wennekers and Thurik, 1999). However, entrepreneurship has been analyzed extensively in the context of industrial development in the literature. Industrial entrepreneurship can be transferred from one firm to another without much loss of entrepreneurial talents. Agricultural entrepreneurship is not transferable as it is farm specific, location-specific and product-specific. There is thus the research need to analyze this concept in terms of the agricultural industry especially the livestock sector so as to close the gap existing in the literature.

METHODOLOGY

The study was conducted in Kirikassamma Local Government Area (LGA) of Jigawa State namely: Fandum, Ganji, Jiyan, Kubayo, Malinta, Matarar Galadima, Tage, and Turabu. The location of Jigawa State is between 11^0-13^0 N longitude and 8^0 E latitude. The climate of the study area is characterised by relatively wide and rapid changes of temperature and humidity. Humidity at times could rise up to 100 percent in an area considered characteristically dry. The mean daily minimum and maximum temperatures are 15.1^0 and 33.1^0C respectively. The Local Government Area has 191,523 persons (NPC, 2006). With an annual projection of 252810 as at 2016. The state covers a land mass of about 22,410 sq/km and the bulk of agricultural production is undertaken by small-scale farmers using family labour, capital and management. Major crops grown are: millet, sorghum, rice, wheat, cowpea, groundnut, maize, sesame, vegetables and cotton. Livestock such as cattle, sheep, goat and poultry are also raised.

Primary data were collected from small ruminant women farmers through interview and structure questionnaire which was subjected to a pre-survey production records. Multi-stage sampling procedure was used to select the small ruminant farmers for this study. Kirikassamma Local Government Area was purposively selected from the entire LGAs due to predominance of women involvement in small ruminant farming. Then, the lists of ruminant women farmers were sought for in LGA and random sampling resulted in 197 respondents. The last stage involves using a formula for calculating sample size based on the assumption of 5% expected margins of error, 95% confidence interval and applying the finite population correction factor. The formula is expressed as follows: $n_0 = N/1 + N(e^2)$ Where: $n_0$is the sample size without considering the finite population correction factor; e = 0.05; N = total number of observation. Fifty-one percent (51%) of the sample frame (387) was used as the sample size. In all197 small ruminant women farmers were randomly selected for the study.

Analytical Techniques

Descriptive statistics, Cost of calorie intake and Tobit models were employed to analyse the data.

i. **Descriptive statistics**

Descriptive statistics were used to summary of socio-economic variables employed in model estimation. It involved the use of measures of central tendency such as means, frequency distributions and percentages to describe the socio-economic characteristics of small ruminant women farmers.

ii. **Cost-of-calorie index**

The cost-of-calorie index method proposed by Foster *et al.* (1984) and as employed by Amaza *et al.* (2009) was used in this study to determine a threshold food security line. The method yields a threshold value that is usually close to the minimum calorie requirement for human survival. Two steps, identification and aggregation, are involved in constructing the index. Identification is the process of defining a minimum level of

nutrition necessary to maintain healthy living. This minimum level is referred to as the 'food insecurity line'. In the context of this study, the food insecurity line was the calorie level below which people would be classified as being food insecure or subsisting on inadequate nutrition in the study area. Calorie adequacy was estimated by dividing the estimated calorie supply for each household by the household size, adjusted for adult equivalent and using the consumption factors for various age-sex configurations. Following from above, the food insecurity line is given as:

$$lnX = A + BC$$

Where X is the adult equivalent food expenditure and C is the actual calorie consumption per adult equivalent in a household. The recommended minimum daily calorie requirement per adult equivalent is 2260 kcal and this was used to determine the food insecurity line, using the equation:

$S=e^{(a+bL)}$

Where S = cost of buying the minimum calorie intake (food security line)

a and b = parameter estimates

L = recommended minimum daily energy (calorie) level (2260 kcal). Based on the S calculated, households was classified as food secured or food insure, depending on which side of the line they fall.

i. Tobit regression model

The Tobit regression was used to analyse the determinants of food security status of households in the study area. It measures the parameter of the conditional probability of being food secured and the effects of the marginal changes in explanatory variables on the food security status of households. According to Omonoma, (2001) the model can be expressed as; $Fss=Xi_{+}\beta x+e_i$

Where, Fss = 0 for yi> z and

$$Fss=\frac{(z - yi)}{Z} \text{ for } yi<z$$

Xi = vector of explanatory variables, β = vector of respective parameters, ei = independent distributed error term, Fss = Food security status of household, Z = Food security line, Yi = calorie consumption of household i. The independent variables are the socio- economic and demographic characteristics of women ruminant farmers.

Entrepreneurial characteristics were assessed by taking into consideration entrepreneurial components such as economic motivation, achievement motivation, social motivation, and risk orientation. The dependent variable decision making of small ruminant production activities was measured and 12 items were finalized for measuring decision making in small ruminant.

RESULTS AND DISCUSSION

Socio-economic characteristics

Table 1 shows the summary of socio-economic variables employed in model estimation. The result also shows that small ruminant women in the study area are married (98%); average age of 34 years with adjusted household size of 5. This shows that the age population of the small ruminant women farmers in the study area is agile and active necessary in order to

reduce their level of insecurity. This finding is line with Abdulrahman *et al*. (2016) who opined that old people are considered to be less energetic and less receptive to agricultural innovations and hence develop inefficient production routines and practices. This also implies that married respondents with additional member of households could encourage income diversification. The estimated mean years of schooling of the respondents in Table 1 was 6 years, and largely skewed towards the non-formal education. According to Oladimeji *et al*. (2016), education assists farmers in reducing the transaction costs for accessing and interpreting information regarding alternative income-generating activities. Furthermore, the average household size was 5 people and majority of the respondents (86%) had an income ranging from ₦40, 000-₦80000 with an average income of ₦65,000.This means that women farmers in these communities relied absolutely on farm business and must have acquired a lot of farming experience over time. According to FAO (1999), employment in non-farm activities is essential for diversification of the sources of farm household's livelihood. It enables households to modernize their production by giving them an opportunity to apply the necessary inputs. This finding is in line with Oladimeji *et al*. (2016) who worked on determinants of participation of public servants in fish pond production in Kwara State, Nigeria, opined that, the share of off-income to be 0.39 which implies that on the average the fish farming venture contribute 39% of the total income of public servant households in Kwara State. Hence, there is a strong synergy between the ancillary income and total household income of the studied public servants.

Table 1: Description and measurement of variables employed in model estimation

Variables	Minimum	Maximum	Mean	Standard deviation
Marital status	0	1	-	-
Age	16	48	34	1.45
HH Size	3	11	5	2.9
Education	0	12	6	3.6
Income	20000	98000	65000	12650

Food security status of small ruminant women producers

Food security status of small ruminant women producers in the study area is presented in Table 2. The household's calorie intake was obtained through the household's consumption and expenditure data. From the result, the quantity of every food item consumed by the households in the 30 days period was estimated. The quantities were converted to gram and the calorie content estimated using the nutrient composition table of commonly eaten foods in Nigeria. Per capita calorie intake was calculated by dividing estimated total household calorie intake by the family size after adjusting for adult equivalent using the consumption factors for age-sex categories. To get the household's daily per capita calorie intake, the household's per capita calorie intake was divided by 30. A household whose daily per capita calorie intake is up to 2,260 kcal was regarded as food secure and those below 2,260 kcal were regarded as food insecure households. Based on the recommended daily energy levels (L) of 2260 Kilocalories, the food security line (S) for the households was estimated at ₦340.96 per day per adult equivalent, also ₦2,393.27 per week per adult equivalent, while ₦10,370.83 per month per adult equivalent finally ₦ 124,450 per year per adult equivalent. The result showed that 51.2% of the small ruminant women producers were food secure while only 48.8% of the sampled households were food insecure.

Furthermore, the aggregate income gap of -154.21 indicates that food insecure household's adult equivalent to meet their daily basic food requirements, respectively. The income gap of the respondents may be due to high taste and preferences of these households. Differences in income levels predispose households to different consumption patterns due to their economic access to food. Among the respondents there was heavy reliance on agriculture. Engagement in livestock, small ruminant animal and poultry equally provide animal sources of protein. When own production depletes, available incomes are spent on food or assets liquidated to cater for consumption and general welfare. Households with insufficient economic access to food ultimately become food insecure (Ahmed *et al.,* 2015).

Table 2: Summary statistics and food security measures among households

Variable	Value
Cost-of-calories equation: lnX=a + bC	
Constant	13.451 (2.705)
Slope coefficient	-2.86E-07(-1.655)
FAO recommended daily energy levels (L)	2260 kcal
Food insecurity line S: cost of the Minimum Energy requirements per adult Equivalent	
Per day	₦340.96
Per week	₦ 2393.27
Per month	₦10,370.83
Per year	₦124,450
Head count (H)	
Food secure	101
Food insecure	96
Mean FSI (food secure)	1.29
Mean FSI (food insecure)	0.73
Aggregate income gap (G)	-154.21
Food secure	51.3%
Food insecure	48.7%

***P<0.01, **P<0.05 and *P<0.10 *Figures in parenthesis are t-values.

The mean food security index of food secured and food insecure households were 1.29 and 0.73 respectively. The food insecurity gap was therefore 0.29 and 0.27 implies that on average the food secure households consumed 29% more than their daily calorie requirements whilst food insecure households consumed 27% in less than their daily calorie requirements. Per capital daily calorie requirement was estimated to be 2,260kcal which is lower than the national weighted average of 2,849 kcal (World Food Program, 2009). However, households suffering from food insecurity are more likely to have adults who have lower nutrient intakes (Kirkpatrick and Tarasuk, 2007).

Level of food insecurity among the small ruminant women farmers

The level of insecurity was classified based on calorie consumption per person per day: Above 2260 Kcals are food secured, between 1800 and 2260Kcals are marginally food insecure, between 1500 and 1800Kcals were moderately food insecure and below 1500 Kcals were severely food insecure. Based on the level of food insecurity (Figure 1), 51.3% of the respondents were found to be food secure which means that these households show zero or minimal evidence of food insecurity and on the other hand 48.8% are found to be food insecure with different severity levels. About 28.4% and 14.2% of the respondents were marginally and moderately food insecure which means that these households show concern about the adequacy of the households food supply and therefore show adjustment in their daily food management while 6.1% of the respondents were found to be severely food insecure and have both adult and children food intake reduced to an extent that they witnessed severe hunger.

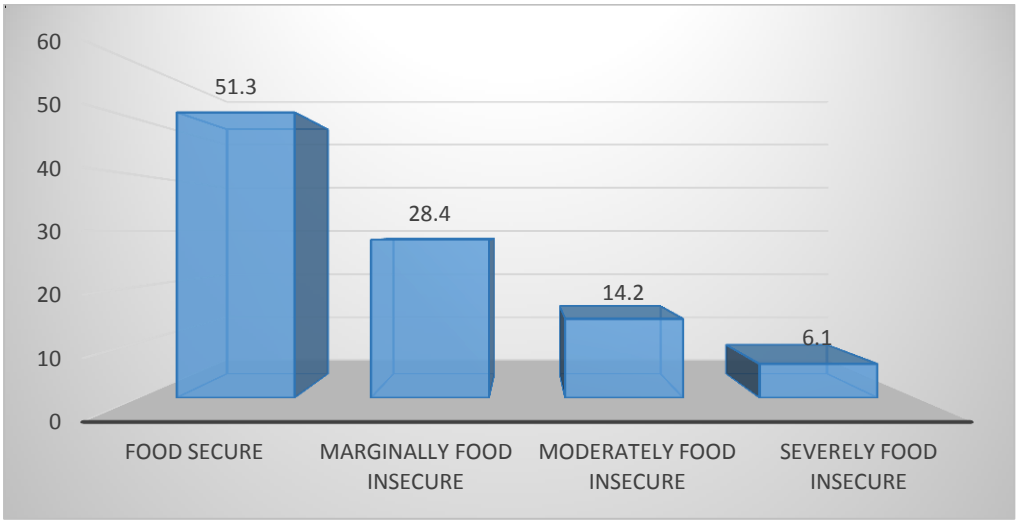


Figure 1: Level of food insecurity

Determinants of level of Food Security of Small Ruminant Farmers

The Tobit regression model was used to estimate the parameters of factors influencing the level of food security of small ruminant women farmers in Jigawa State. The DECOMP based fit measure is 0.617, suggesting that the model has a good fit to the data. This indicates that 62% variation in food security is explained by variations in the specified explanatory variables, suggesting that the model has good explanatory power on the changes in food security among the respondents with 95% level of confidence and the maximum likelihood function was -126.235 (Table 3).

The result showed that age has a negative and significantly influence household food security and significant at $p<0.001$. This suggest that the higher the age of the respondents, the lower the food security level; as there may not be many options of making food available from both agricultural and non-farm opportunities. The coefficient of education had a direct relationship with level of food security and statistically significant at $p<0.001$ level, thus suggesting that the higher the educational level of the household, the more they are food secured. This result is in line with Abdulrahman *et al*., (2016) who opined that educational improvement could lead to awareness of the possible advantages of modernizing agriculture and improve the quality of labour. Income had positive influence on food security status and significant at $p<0.10$ level. This indicates the higher the income of the farmers, the greater the probability of being food secure. This could be expected because increase in income, all things being equal, means increase access to food. This result is consistent with Babatunde *et al*., (2007)

who revealed positive and significant relationship between household income and food security.

Table 3: Tobit regression for food security status of small ruminant women farmers

Variable	Coefficient	Standard Error	b/St.Er.
Constant	0.025	0.83934	0.029
Age	-0.211	0.066	3.170***
Marital Status	-0.974	1.416	-0.688
Household size	2.461	2.493	0.987
Education	-0.629	0.231	-2.718***
Cooperative Membership	-0.132	0.286	-0.462
Income	0.583	0.305	1.911*
Sigma	0.096	0.013	7.384***
Number of observations	197		
Log likelihood function	126.235		
Info. Criterion: AIC	-13.648		
ANOVA based fit measure	.000000		
DECOMP based fit measure	.0617		

*** = p< 0.01 and * = p<0.10

Analysis of Entrepreneurial Management

Entrepreneurial characteristics were assessed by taking into consideration entrepreneurial components such as economic motivation, achievement motivation, social motivation and risk orientation. The rating of these various component was made by using a 4 point Likert scale namely 'high', 'medium' 'low' and 'not at all', which were assigned scores of 4,3,2 and 1 respectively. The results in the Table 4 shows that Economic motivation ($\bar{x}$=3.28) and Achievement motivation ($\bar{x}$ =3.30) were perceived by the respondents to be high which showsthe enthusiasm and zeal amongst respondents to become economically sound. This couple with the fact that small businesses are increasingly seen as a means of generating meaningful income and sustainable employment opportunities, particularly for those at the margins of the economy such as rural population. The medium level of risk orientation ($\bar{x}$ =2.63) was noticed with more number among the rural women followed by low social motivation ($\bar{x}$=2.08). These was due to their low level of educational attainment in the study area. However, recent studies have shown that the root of the problem (low level of education) lies on the attitudes and character of the people in the study area towards western education as well as the quality and quantity of infrastructure and teachers. These findings are at variance with the findings of Bhagyalaxmi *et al.* (2003) and Suresh (2004) who also reported that majority of the entrepreneurs had medium risk orientation, followed by low and high risk orientation categories.

Table 4. Women farmers' perception on selected components of entrepreneurial characteristics

Component	H	M	L	N	WS	MS	%MS	Decision
Economic motivation	444	138	50	15	647	3.28	82.0	High
Achievement motivation	196	408	34	12	650	3.30	82.5	High
Social motivation	64	183	84	78	409	2.08	52.0	Low
Risk orientation	128	321	24	46	519	2.63	65.8	Medium

H= high, M=medium, L=low, N=not at all, WS= Weighted score, MS=mean score, %MS= percentage mean score

CONCLUSION AND RECOMMENDATION

Based on the findings of this study, it could be concluded that more than half of the small ruminant women farmers are food secure with little percentage of the respondents severely food insecure. However, Majority of respondents had medium risk orientation and low social motivation. Thus, the results of the study brings to focus that, the ministry of women affair and other developmental agencies should focus more on farm women empowerment by providing required infrastructural facilities and other necessary help in effective implementation of small ruminant production practices by farm women. Based on the findings, the following recommendations have been advanced:

i. Education was negative and significantly related to food security status of the small ruminant women farmers, thus reduction in food insecurity should involve an integrated approach that promotes education among these farmers.

ii. Majority of respondents had medium risk orientation and low social motivation. It is recommended that the ministry of women affair and other developmental agencies should focus more on farm women empowerment by providing required infrastructural facilities and other necessary help in effective implementation of small ruminant production practices by farm women.

REFERENCE

Abdulrahman, S., David, A. I, Yusuf, O. Abdulazeez, R.O. Binuyo, G. (2016). Analysis of Livelihood Diversification by Farming Households in Kaduna State, Nigeria. 2nd International conference on Dryland Agriculture, Centre for Dryland Agriculture, Bayero University, Kano. 12th -16th December, 2016. Pp45-49

Ahmed, M. A. (2015). Determinants of household food security and coping strategies: The case of Bule-Hora District, Borana Zone, Oromia, Ethiopia. *Global Journal of Food Science and Technology* 3(1): 143 – 152.

Amaza, P., Tahirou, A., Patrick, .K., and Amare, T. (2009). Changes in household food security and poverty status in PROSAB area of Southern Borno State, Nigeria. Promoting Sustainable Agriculture in Borno State (PROSAB). International Institute of Tropical Agriculture, Ibadan, Nigeria : 1-40.

Ayoade, A. R., Ogunwale, A. B. and Adewale, J. G. (2011). Impact of the National Special Programme for Food Security on Poverty Alleviation among women in Oyo State, Nigeria. *African Journal of Food, Agriculture, Nutrition and Development*. 11(4): 11-20

Babatunde, R.O., Omotesho, O.A., and Sholotan, O.S. (2007).Socio-economic characteristics of food security status of farming household in kwara state, north central Nigeria. *Pakistan Journal of Nutrition*, 6 (1):49-58.

Bhagyalaxmi, K., Gopalakrishna Rao, V. and Sudarshanreddy, M., 2003, Profile of the rural women micro-entrepreneurs. *J. Res. ANGRAU*., 31: 51-54. Chauhan, N. B. and Patel, R. C., 2003, Entrepreneurial uniqueness of poultry entrepreneurs. *Rural India,* 66: 236-239.

Block, S. and Webb, P. (2001). The dynamics of livelihood diversification in post-famine Ethiopia. Food Policy, 26 (4):333–350.

Canagarajan, S., Ngwafon, J., and Thomas, S. (2001). The Evolution of Poverty and Welfare in Nigeria1985-92. *Policy Research Working Paper*, 1715. World Bank, 1818 H Street NW, Washington, DC 20433. p84.

Chopra, D. (2004). Food security, rural development and health equity in Southern Africa. Equinet University of the Western Cape South Africa.

Damisa, M.A. and Yohanna, M. (2007). Role of Rural Women in Farm Management Decision Making Process: Ordered Probit Analysis. *World Journal of Agricultural Sciences* 3 (4): 543-546.

De Janvry, A. and Sadoulet, E. (2001). Income Strategies Among Rural Households in Mexico: The Role of Off-farm Activities. Word Development, 29(3): 467-480

Ellis, F. (2000). Rural Livelihoods and Diversity in Developing Countries. Oxford: Oxford University Press.

Ellis, A., Manuel, C. and Blackden, C.M. (2006). Gender and economic growth in Uganda: unleashing the power of women. World Bank, Washington, DC

Enete, A. A. and Amusa, T. A. (2010). Determinants of women's contribution to farming decisions in cocoa based agroforestry households of Ekiti State, Nigeria. *Field Actions Science Reports* 4:1 – 6.

Food and Agriculture and Organization (FAO). (1999).The State of Food Insecurity in the World 1999. Rome, Italy.http://www.fao.org/docrep/007/x3114e/x3114e00.htm

Franze, S. and Scherr, S. J. (eds.) (2002). Trees on farms: assessing the adoption potential of agroforetry practices in Africa, CABI Wallingford.

Hamito, D. (2008). Preface. In: Hirpa, A. and Abebe, G. (Eds.), *Sheep and Goat Production Handbook for Ethiopia*. p5. Retrieved December 18, 2011, from http://www.Inform.und.edu.EdRes.

Hoogeveen, J. G. M. (2001). Income Risk, Consumption Security and the Poor. Oxford Development Studies, 30(1), 105-121.

Kidane, J., Alemu, Z. G. and Kundhlande, G. (2005). Causes of Household Food Insecurityin Koredegaga Peasant Association Oromiyan Zone Ethiopia Agrekon, 44(4): 523-560

Kirkpatrick, Sharon and Valerie Tarasuk. (2007). Food Insecurity is Associated with Nutrient Intakes among Canadian Adults and Adolescents. *Journal of Nutrition.* 138: 604-612.

Kishor, R., B. Gupta, S.R. Yadav and T.R. Singh, (1999). Role of Rural Women in Decision-Making Process in Agriculture in district Sitapur (Uttar Pradesh). Ind. J. Agric. Econom., 54: 282-286.

Lebbie, S. H. B. (2004).Goats under household conditions. Small Ruminant Research, 51, 131-136.

National Population Commission, (2006). National Population Commission. Population Census of the Federal Republic of Nigeria. Census Report. National Population Commission, Abuja.

Oladimeji, Y. U., Abdulsalam, Z., Abdullahi A. N., Adefalu, L.L. and Yakubu, A. (2016). Determinants of Participation of Public Servants in Fish Pond Production in Kwara State, Nigeria. 2nd International conference on Dryland Agriculture, Centre for Dryland Agriculture, Bayero University, Kano. 12th -16th December, 2016. Pp 59-64

Oluwatayo, I. B. and Oluwatayo T. B. (2012) "Small Ruminants as a Source of Financial Security: A Case Study of Women in Rural Southwest Nigeria

Omonona, B.T. (2000) Poverty and its Correlates among Rural Farming Households In Kogi State, Nigeria. Unpublished Ph.D Thesis University of Ibadan.

Reardon, T., Taylor, J., Stamoulis, K., Lanjouw, P. and Balisacan, A. (2000). Effects of nonfarm employment on rural income inequality in developing countries: An investment perspective. *Journal of Agricultural Economics*, 51(2): 55-68

Ozung, P.O., Nsa, E.E., Ebegbulem, V.N. and Ubua, J.A. (2011). The potentials of small ruminant production in Cross River Rain Forest zone of Nigeria: A review. *Continental Journal of Animal and Veterinary Research* 3(1): 33-37.

World Bank (2008). Poverty and Equity–India, 2008. World Bank Country Profile. Povertydata.worldbank.org.30 March 2012.Retrieved 26th July, 2013.