




SOCIO-ECONOMIC FACTORS INFLUENCING WOMEN PARTICIPATION IN AGRICULTURAL PRODUCTIVITY IN DAMATURU LOCAL GOVERNMENT AREA, YOBE STATE, NIGERIA

Tijani, B.A. 

Department of Agricultural Technology, Ramat Polytechnic Maiduguri, Borno State, Nigeria
abiso06@gmail.com

Tijani, H.

Department of Agricultural Technology, Ramat Polytechnic Maiduguri, Borno State, Nigeria

Abstract

The study intended to determine the socio-economic factors influencing women participation in agricultural productivity in Damaturu Local Government Area, Yobe State, Nigeria. For this, a descriptive research design was adopted. Data were obtained using structured questionnaire. Five (5) wards were purposively selected out of the existing eleven (11) wards in the area to reflect areas where female farmers are predominantly found. A total of 100 Women farmers were selected from the five wards and used for the study. Descriptive statistics and regression analysis were used as analytical tools. The result indicates that most (54%) of the women farmers were married, (47%) had no formal education, most (56%) indicated their major occupation as farming, (56%) had farm size less than 2 hectares, (34%) had between 11-15 years of farming experience. The result shows that 31% of the women were involved in threshing, (25%) planting, (21%) harvesting, (15%) weeding, (5%) transplanting, while (3%) were involved in land clearing. The coefficients of years spent in formal education, farming experience and occupation were negative and significant at 10% and 5% respectively. Lack of access to land, capital and credit facilities and high cost of storage equipment and inputs among others are some of the major problems affecting the involvement of women in agricultural productivity in the study area. It was recommended that women farmers should be given the opportunity of gaining access to



physical and natural resources, primary societies should be educated and encouraged to join societies and female extension workers to be trained and a total depoliticizing of farm inputs distribution.

Keywords: Socio-economic Factors, Women Participation, Agricultural Productivity, Damaturu, Yobe State, Nigeria

INTRODUCTION

Women play a significant and crucial role in agricultural development and allied fields. The nature and extent of women's involvement in agriculture varies greatly from region to region. But regardless of these variations, women are actively involved in various agricultural activities. The Food and Agricultural Organization (FAO) (2003) estimates show that women represent a substantial share of the total agricultural labour force, as individual food producers or as agricultural workers, and that around two-thirds of the female labour force in developing economies is engaged in agricultural work (Uzokwe, Ofuoku and Dafe, 2017). Women grow a substantial amount of food eaten by families, yet they still have less access to knowledge, technology, credit and land than men (Jiriko, 2015). Millions of women work as farmers, farm workers and natural resource managers (Onyemobi, 2000). In doing so, they contribute to national agricultural output, maintenance of the environment and family food security (Brown *et al.*, 2000). Women have important roles as producers of food, managers of natural resources; income earners and caretaker of household food and nutrition security. Women are the mainstay of small-scale agriculture, the farm labour force and day to day family sustenance (FAO, 2004). A survey by Ukeje (2003) on the contribution of women on staple food crops production among the Igbos of Abia State of Nigeria, showed that women contributed most of the labour in planting maize, cassava, cowpea, melon and rice. They are completely in charge of planting and harvesting of cowpea and melon apart from land preparation, women contributed more than 80% of the labour for planting, weeding, harvesting and storage of cassava.

Women farmers account for 70% of agriculture workers, 80% of food producers, 100% processors of basic foodstuffs and they undertake from 60% to 90% of the marketing (Fresco, 1998). Four out of ten agricultural workers part inward are women (United Nation, 1986), they take part in farming activities and in processing farm products in addition to their domestic and reproductive responsibilities. Women have the primary responsibility of food production in Africa. Development agencies have devoted minimal resources to researching the impact of

their policies and new techniques in the well being of African human farmers. Sustainable development only comes if resources are effectively and efficiently utilized to the maximum capacity and women are very much part of human resources.

Women's role in the economy has often been underestimated and their work in agriculture has long been invisible. Policy makers have targeted population, health and nutrition programmes to women in their productive roles, and they neglected women as productive agents in agriculture. They face difficulties than men in gaining access to resources such as land, credit and improved inputs. Their contribution in which ever form should not be underestimated. Empirical studies have shown that there would be an increase in agricultural productivity, improved nutrition and health for children as well as reduction in food insecurity when gender discrimination against women is eliminated in terms of access to productive resources (Blackden and Wodon, 2006). Given women the same access to physical and natural resources as men could increase agricultural productivity (Agnes *et. al.*, 1995).

In Nigeria, the involvement of women in agriculture has attracted greater attention in recent years. The need to develop a suitable extension service that is gender specific and tailored to women farmers cannot be over emphasized. It has been reported by different authors that inadequate information about the improved technology was in agricultural production; women do not have adequate access to agricultural information and innovations (Saito and Surling, 1993). Folasade (1991) emphasized that lack of separate land for women and inadequate contact with extension agents are serious constraints faced by women farmers. Women very rarely own land in Nigeria, despite their heavy involvement in agriculture, because they generally do not own land or other assets. It has traditionally been difficult for women to obtain bank loans or other forms of credit through the banking system. The land tenure system in the country is largely by inheritance. This lack of title to land, according to Famoriyo, (1979) prevents women from exercising or improving their expertise in crop production and animal husbandry because of security of tenure. Majority of women farmers in the country use low yielding and unimproved planting materials, simple and labour intensive farm implements, traditional farming practices, which have adversely affected agricultural production. They also perform tasks such as threshing, drying, winnowing, peeling, grading, sieving and pounding. Since these tasks are performed with traditional tools and techniques, they tend to become tedious and time consuming.

Despite these facts, food is distributed unequally, not only among countries and social classes, but within the family as well. In a typical Hausa setting, men are served with food first while women and children get the left over. Women's nutritional needs are greatest because of their heavy work, child bearing, and breastfeeding, but she gets less food and calories. There

appears to be no existing study on socio-economic factors influencing women participation in agricultural productivity in the study area to the knowledge of the researcher. It was against this background that this study was conceptualized to determine the socio-economic factors influencing women farmers' participation in agricultural productivity in Damaturu Local Government Area of Yobe State, Nigeria to bridge the gap in existing literature on women participation in agriculture research in the study area or elsewhere.

Objectives of the Study

The main objective of this study was to determine the socio-economic factors influencing women farmers' participation in agricultural productivity in Damaturu Local Government Area of Yobe State, Nigeria.

While specific objectives were to:

- i. examine the socio-economic characteristics of the women farmers;
- ii. examine women farmers level of involvement in agricultural productivity;
- iii. determine the socio-economic factors influencing women farmers participation in agricultural productivity; and
- iv. identify problems affecting the involvement of women farmers' in agricultural productivity.

METHODOLOGY

Study Area

The study area is Damaturu Local Government Area of Yobe State, Nigeria. The local government shares boundary with Kaga Local Government Area in Borno State, Tarmuwa, Gujba and Fune Local Government Areas within the State. It lies within latitude 12⁰00N and longitude 11⁰30E (Ministry of Land and Survey Yobe State, 2015). The area has a total landmass of 527 square kilometers (YOSADP, 2015). It has a maximum temperature of 42⁰C during the month of April with a minimum of 15⁰C in January. The annual rainfall ranges from 500mm – 700mm per annum (Nigeria Metrological Agency, 2018). The major occupations of the people in the area are farming, fishing and trading. Other includes building, civil services, rearing of animals and carpentry. The major ethnic groups are Fulani and Kanuri. Others include Kare-kare, Ngamo, Shuwa, Bolewa, Hausa, and Ngezim. It has an estimated population of 48,919 males and 39,095 females (National Population Commission, 2006). Major crops grown include sorghum, millet, cotton, gum Arabic, groundnut; maize etc, the soil types includes clay, loam and sandy loam.

Sampling Technique

Five (5) wards were purposively selected out of the existing eleven (11) wards in the area. These include Gambir kukareta, Maisandari, Murfa, Gabai and Kalallawa wards. These are areas where female farmers are predominantly found. Twenty (20) females' farmers were randomly selected in each of the five (5) wards from list of registered women farmers obtained from the Yobe State Agricultural Development Programme (YOSADP). A total of 100 female farmers were randomly selected using simple random sampling technique and used for the analysis.

Data Collection

Data for this study were obtained from primary and secondary information sources. The primary data were obtained with the aid of structured questionnaire designed and administered to 100 women farmers by the researcher in the study area. While the secondary information source includes textbooks, journals, past projects, conference papers, internet, etc.

Analytical Technique

Descriptive Statistics

The descriptive statistics used include percentage, frequency and rank order. This were use to analyze the socio-economic characteristics of the women farmers, examine women farmers involvement in agricultural productivity and identify factors affecting the involvement of women in agricultural productivity in the study area to achieve specific objectives i, ii and iv.

Logit Regression Analysis

The logit regression model was used to establish the relationship between the likelihood of household members' participation in Off-farm activities and various factors affecting it. Akinola (1987), Capps and Crammer (1985), Adesina and Seidi (1995) have indicated that logit model is precise and the appropriate model of application in explaining relationship between dependent variables and a set of independent variables. Logit model is capable of analyzing the relationship involving binary variables and a set of independent variables, mathematically expressed as:

$$Y = b_0 + b_i x_i + U$$

Y = Dependent variable

b_0 = Intercept

b_i = Coefficient Explanatory Variables

x_i = Independent variable

u = Error term

Logit regression model was used to determine the influence of socio-economic factors on women farmers' participation in sustainable agricultural productivity using the SHAZAM econometric software to achieve specific objective (iii). The model is explicitly expressed as:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + U$$

Where:

Y = Patterns of women participation in agricultural productivity (1, if the referenced person participated in agricultural productivity and, 0 otherwise) following Shittu *et al.* (2006).

X_1 = Age (years)

X_2 = Farm size (hectares)

X_3 = Level of education (No. of years spent in formal education)

X_4 = Farming experience (years)

X_5 = Marital status (Dummy, 1 married, 0 otherwise)

X_6 = Occupation (Dummy 1 farming, 0 otherwise)

b_0 = Constant

b_1 - b_6 = Coefficients of explanatory variables

U = Error term.

It was expected *a priori* that the coefficients of X_1 , X_2 and X_3 would be positive while those of X_4 , X_5 and X_6 would be negative; and women are expected to participate less in agricultural productivity in the study area.

RESULT AND DISCUSSIONS

Socio-economic Characteristics of Women Farmers

The socio-economic characteristics of women farmers examined include, age, marital status, educational level, major occupation, farm size, farming experience and land ownership. The findings are presented in table 1.

Table 1: Socio-economic Characteristics of Women Farmers

Socio-economic variables	Frequency	Percentage
Age (Years):		
Less than 25	17	17
25 – 30	25	25
31 – 35	30	30
36 – 40	16	16
41 and above	12	12
Total	100	100

Marital status:			Table 1...
Married	54	54	
Single	11	11	
Widow	20	20	
Divorced	15	15	
Total	100	100	
Level of education:			
No formal education	47	47	
Primary	29	29	
Secondary	14	14	
Tertiary	10	10	
Total	100	100	
Major Occupation:			
Farming	56	56	
Business	18	18	
Civil servant	15	15	
Student	11	11	
Total	100	100	
Farm size (Hectares):			
Less than 2	56	56	
2 – 4	32	32	
5 and above	12	12	
Total	100	100	
Farming experience (Years):			
Less than 5	16	16	
5 – 10	17	17	
11 – 15	34	34	
16 – 20	23	23	
21 and above	10	10	
Total	100	100	
Land ownership:			
Leasing	65	65	
Traditional	10	10	
Free hold	12	12	
Gift	13	13	
Total	100	100	

Analysis of the finding shows that 30% of the women farmers were within 31–35 years age, while 12% have 41 years and above in the study area. The finding shows that most of the women farmers were in their active and productive age group. The age of farmer is a vital factor because, it could be used to determine the type of agricultural activities performed by the women farmers. For instance, in traditional agriculture, younger farmers tend to engage more in labour intensive farming activities than older farmers. The result also indicates that 54% of the women farmers were married, while 11% were single in the study area. The result indicates that most of the women farmers were married. This suggests that married women are more involved in agriculture than single. This might probably be due to the great responsibility of married people in their households by providing food and other basic household needs. Thus, engage in agriculture to generate income and provide food; and other basic households' needs.

The result of the analysis indicates that 47% of the women farmers had no formal education, while 10% had tertiary education. This reveals that most of the women farmers did not undertake any form of formal education in the study area. The level of education attained by farmers to a large extent determine the farmers level of adoption of new agricultural innovations without difficulties which might in turn increase their farm output and subsequently the profit obtain by the farmers (Iheanacho, 2000).

The finding of the study also reveals that 11% of the women were students, while most 56% were farmers. This shows that most of the women are farmers in the study area. Women engage in agriculture to generate income to supplement household food and other basic needs. Occupation could help provide an insight into income levels and consequently the level of expenditure on household requirements, therefore, heads of household with more lucrative occupations are expected to expend more money on food and other basic needs for household consumption than those with less lucrative jobs (Anka *et al.*, 2009).

The finding shows that most 56% of the women farmers had less than 2 hectares of land, while 12% had 5 hectares and above in the study area. This indicates that most of the women farmers had less than 2 hectares of land. From result of the study, it can be concluded that most of the women are small-scale farmers who cultivate less than 5 hectares of land in the study area. This is coincides with the finding by FAO (1998) that most of the farmers in Nigeria are small-scale farmers who cultivate less than 5 hectares of land. Similarly, Tijani (2007) reported that majority (72%) of the farmers in Marte Local Government of Borno State, Nigeria are small-scale farmers who cultivate 3 – 4 hectares of land.

The result also indicates that 34% of the women farmers had between 11–15 years farming experience, while 10% had 20 years and above in the study area. The result shows that most of the women farmers have reasonable farming experience in the study area. The higher

the number of years spent in farming by a farmer, the more he becomes aware of new production techniques, socio-economic policies and factors affecting agriculture and the higher the output he obtain on the farm (Iheanacho, 2000).

The finding also reveals that majority 65% of the women farmers obtained their farm land through leasers, while 10% had through traditional rulers. This implies that women farmers have less access and rarely own farm lands in the study area. Thus, males have more access to productive inputs that could be invested in agriculture e.g. Land etc than females. This supports the findings by Saito and Surling (1993), Folasade (1991) and Famoriyo (1979) that women do not have adequate access to agricultural information and innovations than men and very rarely own land in Nigeria.

Level of Women Involvement in Agricultural Productivity

Women farmers in the study area were asked to indicate the various areas they are involved in agricultural productivity. The findings are presented in table 2.

Table 2: Women Farmers Level of Involvement in Agricultural Productivity

Labour Activities	Frequency	Percentage
Threshing	31	31
Planting	25	25
Harvesting	21	21
Weeding	15	15
Transplanting	5	5
Land clearing	3	3
Total	100	100

The empirical finding in Table 2 indicates that 31% of the women farmers are engaged in threshing, 25% planting, 21% harvesting, 15% weeding, 5% transplanting while 3% were involved in land clearing. Women are contributing high percentage of agricultural labour particularly, during planting, weeding/ thinning and harvesting in northern Nigeria (Muhammad, 1998; Ismaila, 2005). It is generally believed that women participate less in outdoor activities, which has made their contributions in many endeavours unpopular. Norman (1972) has emphasized the predominance of men in Muslim Hausa-prone areas, particularly in farm jobs. This according to them is principally as a result of the religious seclusion of women.

Socio-economic Factors Influencing Women's Participation in Agricultural Productivity

In order to determine the factors influencing women farmers' participation in agricultural productivity, patterns of participation of a woman farmer's in agricultural activity was regressed against socio-economic variables such as age, farm size, education, farming experience, marital status and occupation. The findings are presented in table 3.

Table 3: Result of Logit Regression Estimate for Factors Influencing Women Farmers Participation in Agricultural Productivity

Socio-economic Variables	Coefficients	Standard error	Z-value
Constant (X_0)	0.9947013	0.0004464	2228.31***
Age (X_1)	-0.058	0.112	0.270
Farm size (X_2)	0.220	0.658	0.111
Years spent in formal education (X_3)	-0.200	-0.143	1.961**
Farming experience (X_4)	0.692	0.395	3.064**
Marital status (X_5)	0.222	1.198	0.034
Occupation (X_6)	-2.499	-1.221	4.189*
Log -likelihood	33.969		

** = Significant at 10%, * = Significant at 5%.

Analysis of the result in table 3 indicates that the coefficient of education was negative and significant at 10%. This does not conform to the *a priori* expectation that women participation in agricultural productivity is influenced positively by their educational level. The negative coefficient of the educational level suggests that participation in agricultural productivity was low among literate than illiterate women. Literate women with higher qualification tend to attach great importance in search of lucrative white collar jobs than labour intensive agricultural sector. It should, however, be noted that one major role of educational qualification is its being a pre-requisite for appointment and placement of individual on salary scales in paid employment in the government or private sectors. The educational levels therefore, have negative relationship with women's participation in agricultural productivity.

The coefficient of farming experience was positive and significant at 10%. This conformed to the *a priori* expectation that women participation in agricultural productivity is influenced positively by their farming experience. This suggests that there is positive relationship between farming experience and women participation in agricultural productivity. The farming experience of farmers to a large extent affects their managerial know-how and

decision making. Besides, it influences the farmers understanding of climatic and weather conditions as well as socio-economic policies and factors affecting farming (Iheanacho, 2000).

The coefficient of occupation is negative and significant at 5%. This conformed to the *a priori* expectation that women participation in agricultural productivity is influenced negatively by their occupation. The negative coefficient of occupation suggests that women participate less in agricultural productivity than men. Women participate more in off-farm activities such as micro food processing; petty trading, harvesting etc that are less labour demanding to supplement household income and provide other basic needs, than farming that is highly labour intensive (Tijani et. al., 2007).

Problems Affecting Women Involvement in Agricultural Productivity

Women farmers in the study area were asked to indicate the most important problems limiting their involvement in agricultural productivity in ascending order. The findings are presented in table 4.

Table 4: Major Problems Associated with the Involvement of Women in Agriculture

Major problems	Very	Serious	Not	Ranking
	Serious		Serious	
Lack of access to land	74	16	10	1 st
Non- membership of women's group	46	30	24	2 nd
Lack of capital and credit facilities	76	19	5	3 rd
Ineffective extension services and coverage	70	16	14	4 th
High cost of adequate storage equipment	52	30	18	5 th
High cost of input	42	34	24	6 th

Analysis of the finding in table 4 reveals that majority (74%) of the respondents rated lack of access to land as very serious problem, 16% indicated serious, while 10% said it is not serious problem. Hence, women farmers always face this problem since most land inherited is been allocated to the men in the household thus, women are always discriminated as regards to inheritance.

The result also reveals that 46% of the women farmers rated non-membership of women's group as a very serious problem, 30% indicated it has serious while 24% indicated it not serious problem. This implies that most of the women farmers do not associate themselves with membership groups, and effective delivery of innovation is needed to be done in groups so that extension agents will know their common problems.

The finding further reveals lack of capital and credit facilities as a problem. The women farmers indicated capital to purchase inputs such as fertilizer, herbicides, etc. is another important problem affecting agricultural productivity, as indicated by majority 76% of the women farmers as a very serious problem, 19% said its serious while 5% indicated as not serious problem.

Ineffective extension services was also rated very serious problem by majority 70% of the women farmers, 16% indicated serious while 14% indicated not serious problem. Since coverage of women farmers was designed to women's group and not to individual women this thereby excludes extension coverage to such women who may have reasons for not belonging to any primary group.

The finding also reveals that 52% of the women farmers indicated high cost of adequate storage equipment was a very serious problem affecting the involvement of women in agricultural productivity, 30% indicated it as serious problem, while 18% rated it not serious problem. High cost of storage equipment is a very serious problem, since most crops harvested could not be stored properly due to high cost of storage facilities. This therefore, makes the products to deteriorate which leads to food insecurity.

The result also indicates high cost of inputs as a problem affecting the involvement of women in agricultural productivity. About 42% of the women farmers indicated it as a very serious problem, 34% said it's serious, while 24% indicated it as not serious problem. Therefore, women in agriculture suffer this problem since most of the women farmers lack access to capital to obtain farm inputs in order to improve their productivity.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study it can therefore, be concluded that majority of the women farmers were married and did not attend any form of formal education in the study area. The result also reveals that women farmers were involved in threshing planting, harvesting, weeding, planting and land clearing in the study area. The study further re-affirmed the claim that age, educational, farming experience, marital status and occupation were the socio-economic factors influencing women participation in agricultural productivity in the study area. Lack of access to land, non-membership of women's group, lack of capital and credit facilities, ineffective extension services and coverage, high cost of storage equipment and inputs were the major problems militating against involvement of women in agricultural productivity in the study area. The major limitation encountered during the course of this study was lack of record keeping by the women farmers. The study therefore relied on memory recalled by the women farmers for its analysis. Despite this limitation, efforts were made to collect reliable data. The findings can thus

be generalized to the entire Local Government Area. We recommend based on finding of the study that:

- i) Women farmers should be given the opportunity of gaining access to the physical and natural resources so as to increase agricultural productivity.
- ii) Government should ensure that all resources are made available to the women farmers in appropriate time in order to improve household food security.
- iii) Women non-members of primary societies should be educated and encouraged to join societies so as to avail them opportunity of adopting new technologies disseminated by the extension agents in order to ensure agricultural productivity and increase household food security.
- iv) There is also need for female extension workers to be trained and a total depoliticizing of farm inputs distribution.

REFERENCES

- Adesina, A.A. and Seidi, S. (1995). Farmers Prescription and Adoption New Agricultural Technologies: Analysis of Modern Mangrove Rice Varieties in Guinea Bissau. *Quarterly Journal of International Agriculture*, vol 34, pp. 358- 385
- Agnes, R. Lynn, R. and Christine, P. (1995). Women: the Key to Food Security, Food Policy Report. The International Food Policy Research Institute Washington, D.C.
- Akinola, A.A. (1987). An Application of Tobit Analysis to the Adoption of Tractor Hiring Services Scheme in Nigeria. *Oxford Agricultural Studies*, vol. 16, pp. 70-82
- Anka, A.S., Mohammed, I. and Dogondaji, S.D. (2009). Comparative Analysis of the Demand for Beef and Mutton in Selected Local Government Areas of Zamfara State. Proceeding of the 23rd Annual National Conference of Farm Management Society of Nigeria held at Usumanu Danfodiyo University Sokoto, 14th – 17th, December. Pp. 647 – 654.
- Blackden, C. M. and Wodon, Q. (2006). Gender Time Use and Poverty in Sub-Saharan African, World Bank, Washington DC.
- Brown, L. R. Feldstein, H. and Haadad, G. (2001). Women as Producers, Gatekeepers and Shock Absorbers. In: Per Pinstiup Anderson and Rajul Randya-lorch (eds); *The Unfinished Agenda Perspectives on Overcoming Hunger, Poverty and Environmental Degradation*. DFI Sustainable Livelihood Guidance.
- Capps, O. and Crammer, R. (1985). Analysis of Food Stamp Participation Using Qualitative Choice Model. *American Journal of Agricultural Economics*, vol. 67, pp. 49 -59
- FAO (1998). 'The State of Food and Agricultural' Food and Agricultural Organization, *Agriculture Series*, No. 31.
- FAO (2004) Food and Agricultural Organization. Household Food Security and Forestry in Analysis of Socio-Economic Issues, Rome, Italy.
- Famoriyo, S. (1979). Land Tenure and Agricultural Development in Nigeria, NISER Ibadan.
- Folasade, K. F. (1991). The Roles of Women in Food Production in Oyo Local Government Area of Ondo State. *An Unpublished B.Sc. Thesis*, Department of Agricultural Extension and Rural Sociology, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Fresco, L. O. (1998). Higher Agricultural Education: An Opportunity in Rural Development for Women. Sustainable Development Department of Food and Agricultural Organization (FAD) for the United Nations.
- Iheanacho, A. C. (2000). "Pattern and Technical Efficiency of Resource Use in Millet-Based Crop Mixtures in Borno State of Nigeria. *Research Journal of Science*. Vol. 6 No. 1 and 2, pp. 97 – 103.
- Ismaila, S.A. (2005). A Study of Women in Agriculture in Wurno Local Government Area of Sokoto State, *Unpublished Under-graduate Project*, Usmanu Danfodiyo University, Sokoto, Nigeria.

- Jiriko, R. K. (2015). Socio-economic factors affecting the performance of women in food production. *Global J Agr Res*, 3(2), 37-45.
- Onyemobi, F. I. (2000). Towards Agricultural Revolution and Rural Development. In: Onyemobi, F. I. (eds). *Women in Agriculture and Rural Development towards Agricultural Revolution in Nigeria*, Falude Publishers.
- Ministry of Land and Survey (2015). Cartography Department, Damaturu, Yobe State, Nigeria. Office File Memo.
- Muhammad, A. (1998). Women in Agriculture: A Case Study of Wurno Irrigation Scheme, *Unpublished Undergraduate Project*, Usmanu Danfodiyo University, Sokoto, Nigeria
- National Population Commission (NPC) (2006). Population Census Data Yobe State, Nigeria. Federal Republic of Nigeria Official Gazette, National and State Provisional Totals Census. Printed and Published in 2007 by the Federal Government Printer, Lagos, Nigeria. Vol. 94, No. 21 pp. 175 – 198. NPC (2006).
- Nigerian Metrological Agency (NMA) (2018). Yobe State, Nigeria Annual Report. Office Memo File.
- Norman, D. W. (1972). An Economic Study of Three Village in Zaria Province: 2 Input Output Study, ABU, Zaria. UNFPA (2007) State of the World Population, UNFPA, New York.
- Saito, K. A. and Surling, D. (1993). Developing Agricultural Extension for Women Farmers. World Bank Discussion paper, No. 5, Pp. 20 – 25.
- Shittu, A.A., Ashaolu, O.F. and Odusanya, O.S. (2006). Off-farm Labour Participation and Farm Household Livelihood Strategies in Yewa Division, Ogun State, Nigeria. *FAMAN Journal*, Vol. 8, No.1, pp.64- 70.
- Tijani, B. A., Benisheik, K. M., Mustapha, A. B. and Dangaladima, W. (2009). Analysis of Factors Influencing Labour Supplied to Non-farm Sub-sector by Households in Mubi North Local Government Area of Adamawa State, Nigeria.
- Tijani, B. A. (2007). Comparative Economic Analysis of Weed Control Methods for Selected Crops in Marte Local Government Area of Borno State, Nigeria. *Unpublished M.Sc Dissertation*, Department of Agricultural Economics and Extension, University of Maiduguri, Nigeria. 93p.
- United Nation (UN) (1986). UN World Survey on the Roles of Women in Development. Published by Department of International and Social Affairs.
- Ukeje, E. (2003). Moderning Small Holder Agriculture to Ensure Food Security and Gender Empowerment Issues and Policy <http://www/g4.org/ukeje.pdf>.
- Uzokwe, U. N., Ofuoku, A. U. and Dafe, O. D. (2017). Male and Female Participation in Selected Agricultural Development Programmes in Edo state *Journal of Agricultural Extension*, Vol. 21 (1) Febuary, 2017.
- Yobe State Agricultural Development Project (YOSADP) (2015). Report on Village Listing Survey of Damaturu, Yobe State Agricultural Development Project. Prepared by Planning, Monitoring and Evaluation Department (YOSADP). Damaturu, Yobe State, Nigeria.