

ANALYSIS OF AGROFORESTRY PRACTICES IN POTISKUM LGA OF YOBE STATE, NIGERIA.

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ABSTRACT

The study examined inputs-outputs efficiency in agroforestry systems practiced in Potiskum local government area, Yobe state Nigeria. Structured questionnaires were used to collect data from 185 agroforestry farmers using purposive and simple random sampling techniques. Data collected were analyzed using descriptive statistics. The result revealed that agroforestry is practice in the study area and is male dominated, 33.54% were in age bracket of 46-55 years, while 90.8% were married and most of the respondents has household size 40.54% between 11-20 members. The study also showed that most (44%) of the respondents had secondary school while 46.49% of the respondents has farming as their major occupation. Also, 46.24% of the farmers obtained their farmland from inheritance and 55.14% of the farmers have farm size of 1-2 hectares. Multiple regressions were used to determine the relationship between the inputs and outputs variables. The result shows that they were at 5% level of significant.

Keywords: agro forestry, Potiskum, farmers, respondents

INTRODUCTION

Food crisis declining forest resources and environmental degradation are the problems of wide spread concern in the world and Nigeria today. Anon (1991) pointed out, that the agricultural production system in most developing countries of the world has deteriorated due to inability to produce enough food for their teaming population, coupled with the demands for rapid industrialization and urbanization. Garvin (2005) also observed that the world population is increasing but food production has not kept pace with the increase in population. He maintained further that food insecurity is threatening the whole world but Sub-Saharan Africa is the only region where food insecurity has worsened. Agbelemoge and Akinyemi (2011) pointed out that in the natural effort of farmers to increase agricultural production, they have been involved in de-

reservation of the constituted forest reserves and deforestation of free areas for farming purposes. This has led to environmental degradation and diminishing forest resources. For them the incompatibility of agricultural and forestry land uses has contributed immensely to low production of food and forest products in Nigeria. This has been the practice throughout the world and it continues to be the most persistent threat to human existence and environmental degradation. It is no wonder therefore that all the countries of the world are devoting a lot of energy and resources in tackling this critical problems (Onumadu *et. al*; 2004). The only tool for reversing this problem is by the practice of agroforestry farming system. Akalusi and Chomini (2006) suggested that there is need for shift away from this unsustainable practice and its resultant negative effect on the environment to more sustainable practice. Therefore sustainable agriculture involves farming systems that are capable of maintaining their productivity and commercial competitiveness without jeopardizing the need for conservation of natural and environmental soundness thereby maintaining its usefulness to society (Bisong, 2001). However, there is no land management system that accommodates the productions of food and forest products on the same piece of land other than agro-forestry and to meet the desire of ensuring the sustainability of production system while maintaining the soil fertility for the improvement of the rural economy on sustainable level. Nair (2004) concluded that; the discipline of agro-forestry holds great potential, we need land owner's innovative to push that potential forward in practical ways, we also need the creative and enthusiastic involvement of extension professionals, policy makers and other key decision makers to help spread the worth about agro-forestry, with this team approach in mind we believe that it is our families, communities and nations that will ultimately benefits from the collection Endeavour.

OBJECTIVES

Broad objective of this study was to assess inputs – outputs efficiency in agro-forestry practice in Potiskum local government, while the specific objectives were to:-

- i. Determine the socio-economic characteristics of the farmers in the study area.
- ii. Identify inputs and outputs of agroforestry practice.

MATERIALS AND METHOD

The study area

The study area was conducted in Potiskum Local Government Area of Yobe State Nigeria. Potiskum local government occupies an area of 500 square kilometers. The local

government area is bounded on the North by Nangere local government, South by Fika local government area, East by Fune local government area, and while in the West by Fika and Nangere local government areas. There are two distinct climate seasons in the area, rainy season from May to October and dry season from November to April. The annual rainfall ranges from 500mm – 700mm. The average temperature ranges from 30–42 degrees Celsius. Subsistence agriculture and cattle rearing are the main occupation of the people. Crops include groundnut, millet, sorghum and mango, population depends largely on a natural water source for all their water related activities, while pipe borne water supply is available in Potiskum town-ship the headquarters of local government. Yobe state is blessed with arable land. In addition this arable land is threatened by erosion, rural- urban expansion, deforestation and over grazing (YSES, 2008). (YSES, 2008) further revealed that the state has no documented land use therefore land is generally used haphazardly throughout the state.

Population of the study area.

Potiskum local government area has an estimated number of population 205,876 people (NPC, 2006) and farm families of 36,470 engaging in various production systems: majority of who are peasant farmers with few serving civil servants, retired civil servants and retired military men constituting category of farmers with great potential. It is the intent of this researcher to select 200 agro-forestry farmers from the estimated 800 farmers who practice agro-forestry considering its importance to economic and environmental improvement.

Sampling Procedures and sampling size

Purposive and simple random sampling techniques were used in this study. The first stage is the choice of Potiskum Local Government Area was purposively selected because of the large volume agroforestry activities in the State. There are sixteen (16) cells in Potiskum local Government Area out of which eight (8) cells was randomly selected and thirty respondents of contact agro-forestry farmers and one hundred and seventy non-contact agro-forestry farmers was used for this studies as indicated in Table 1.

Instrument for Data Collection

Structured questionnaires were used for data collection for this study as well as oral interview.

Method of Data Collection

Data for this research was collected through the use of direct administration of the questionnaires to the respondents by the researcher and ADP enumerators who were adequately trained and supervised.

Data Analysis

SPSS software (2016) was used to analyze data obtained. Descriptive statistics-such as percentage was used to describe the socio-economic characteristics of the farmers as indicated in objectives one while multiple regression models was used to determine the relationship between agroforestry inputs and outputs. To predict Y from x_1, x_2, x_3, x_4 , multiples regression analysis was run with SPSS version 16 to examine the relationship between agro forestry farm inputs and outputs variables.

The implicit form of regression analysis is given as

$Y=f(x_1, x_2, x_3, x_4 + u)$ and the explicitly form of the regression model is given by:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + U$$

Where

Y = total expected output value in Naira.

X_1 = Operating expenses (cost in Naira)

X_2 = Land (ha)

X_3 = Labour (man-day)

X_4 = Family size ((number)

B_0 = constant or intercept term

RESULTS AND DISCUSSIONS

Table 1: Distribution of agro-forestry farmers used for the study

S/No	No of contact and non-contact farmers	Selected cell	Percentage
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	selected in Potiskum L.G.A		
1	No. of cells in Potiskum LGA is 16	No. of cells selected 8 cells	50
2	No. of the non- contact farmers were 740	No. of non-contact farmers selected 170	23
3	No. of contact farmers in Potiskum LGA is 60	No. of contact selected 30	50

Source: field survey 2015

Table 2: Distribution of agro-forestry-farmers according to cell

Cells	No of farmers
Mamudo	30
Maidede	30
Dakasku	30
Badejo	30
Jigawa	20
Lailai	20
Garinmaje	30
Potiskum	10

Source: field survey 2015

Table 3: Socio-Economic Characteristic of Respondents.

Age	No of correspondent	Percentage (%)

24-35	45	24.32
36-45	61	32.97
46-55	62	33.54
56-above	16	8.65
Total	185	100
Gender of the Agroforestry Farmers		
Male	183	99
Female	2	1
Total	185	100
Marital status		
Married	168	90.8
Single	15	8.1
Widow	2	1.1
Divorce	0	0
Total	185	100
Family size		
1-10	62	33.54
11-20	75	40.54
21-30	48	25.94
Total	185	100
Educational level		
Non formal	14	8
Primary school	50	27

Secondary school	81	44
Post-secondary school	40	22
Total	185	100
Occupations		
Full-time Farmers	116	62.7
Part-time farmers	69	37.3
Total	185	100
Agro-forestry practice		
Alley cropping	53	28.64
Scattered trees on farms	78	42.16
Wind break	42	22.70
Other specify	12	6.49
Total	185	100
Land acquisition		
Inheritance	86	46.24
Purchased	77	41.62
Rent	18	9.73
Gift	4	3.70
Total	185	100
Animal in combination		
1	12	6.48
2	28	15.13
3	72	38.91

4	65	35.14
5	8	4.32
Total	185	100
No of employed labor		
1	18	9.73
2	16	8.65
3	25	13.51
4	18	9.73
5	50	27.03
6 and above	58	31.35
Total	185	100

Source: field survey 2015

DISCUSSION

The study observed that farmers in the study area were used to planting of two or more crops on a piece of land either simultaneously or sequentially. Common annual crops such guinea corn, millet, cowpea, groundnut e.t.c. usually grown with perennial tree crops such as mango (*magnifera indica*), Zogale (*moringa oleifera*) Date palm (*Phoenix dactylifera*), Cashew, Acacia-Nolitica, & Senegal, Neem/dogon yaro, and indigenous trees such as Baoboa trees, Tamarind trees, African mahogany, locust bean trees and some other economic trees.

Ages of respondents.

Table 3 shows that most of the respondents (33.54%) were within the age bracket of 46-55 years, 32.97% were within the within the ages bracket of 36-45 years 24.32% more within the age bracket of 24-35 years. Only 8.65% were above 56 years. The result is in agreement with Adesehinwa, et.al., (2003) who reported that farmers of 51 above years are likely to be

pensioners` who retired from white collar jobs and are now into farming generally as an income generating business. The result implied that most of these farmers can handle management and labour challenges that are likely to confront them both socially, economically, environmentally and otherwise.

Gender of respondents.

Gender represents the sex of the respondents whether is male or female. The results of the study shows that majority (99%) of the farmers were males while females were only 1%. This may be attributed to the nature of the area where religion, culture, norms and values that restrict women from outdoor activities. This implied that agroforestry practice in the study area was male dominated as supported by Oladele (2001) who reported that women were mostly involved in the production of goat, sheep, and local poultry than crop and tree production. Also, Chinyere and Madumere (2012) reported that ` in the third world nations as it is practice in Nigeria, women are restricted from owning land due to agricultural bias. In a study on Assessment of Community Participation in Forest Management in Ondo State Saka (2009) pointed that majority (85%) of the respondents were male. Therefore, the findings of the study revealed that there were more men than women that practices agroforestry in the study area and the main reasons were due to lack of land right, religion/custom of the area. The implication is that the issue of gender equality has being abused.

Marital status of respondents.

The study revealed that 91% of the respondents were married while, 8.1% and 1.1% were single, and widow respectively. This result is in agreement with Umar (2012) who reported that `different ethno-religious groups continue to attach prestige to marriage as an indicator of social responsibility`.

House hold size of respondents.

House hold size indicates the number of people or size of the family that are under the control of a respondent. They are members of family living together and relatively taking some part in social and economic activities. The result of the study revealed that 40.54% of respondents had 11-20 members, 33.54% of respondents had between 1-10 members, and, 25.94% had 21-30 members.

The result in table 3 indicated that most of farmers had polygamous type's family and this could be attributed to the religion, culture, and norms of the study area. This is in agreement with Bello

(2010) who report that large family members commensurate with the polygamous nature of the society.' Even though, they supply cheap labour, for the family business. Adeshinwa, Makinde, and Oladele (2003) uphold that married people who had children staying with them have access to family labour, the more the number of wives, in Africa setting the larger the family size and definitely the more the expenses required, especially if children are going to school.

Educational level of respondents.

Educational is the acquisition of knowledge by farmers through any organized mean as which will either be formal or informal, expected to help famers access to diversify sources of information on innovation, facilitate learning leading to farm practice (Damisa and Yohanna, 2006). The result of the study revealed that 44% of the respondents had secondary school education, 27% had primary education, 22% had post-secondary education and 8% had non-formal education. This implied that majority (93%) of the farmers were literate, thus justifying the background to accept and comprehend new farming skills so as to carry out wise economic decision. This level of literacy is in contrasts with the findings of Adinya, Erun and Ijoma (2010) that lack of educational training affect the yield and production efficiency of farmers because they were unable to read the instruction on fertilizer bags and lack of the extension agent to guide them on recommended rate of fertilizer application as a result some illiterate farmers under applied fertilizer per hectares.. According to Umunna (2010) certain technical skills such as dealing with agricultural innovations, ability to retrieve information may be quite important therefore, education enables the individual farmers to know how to seek for and apply information on improved farm practices. Once an individual gained the ability to read he can be able to extend the scope of his experience in the printed media. Also Flyvberg (1990), Mabogunje (1999) and Umunna (2010) maintain that an illiterate farmer is generally apathetic, and lacks choice. Lack of choice is due largely to lack of knowledge which can be epistemological, technical or prudential that is knowledge of what to do under different circumstances and involves the understanding of the social, economic, political and cultural context in which one lives. Such lack of education can excludes the small scale farmers from being active participants in development.

Occupation of respondents.

The study shows that majority (62.7%) of the respondents were operating full-time farming while 37.3% combined farming with other business. Distribution of farmers according to

Agro-forestry practice in the study area is shown in table 3. The table shows that most of the farmers (47.57%) practiced scattered trees on farm method, (25.94%) practiced Alley cropping and wind breaks (26.49%).

Agro-forestry practiced in the study area.

The research finding revealed that tree on farm is the most widely practice in the study area. The lower percentage of Alley cropping contradict Muktar et.al, (2006) report that alley cropping, possibly the most versatile, effective and widely adoptable, and this may be attributed to Onumadu, Popoola, and Adekunle (2004) report that alley cropping is a relatively new technique developed at the International Institute for Tropical Agriculture.

Land acquisition of respondents.

Land holding is an important factor in agroforestry project. It has been revealed that most (46.14%) of the farmers in the study area acquired their farm lands through inheritance., The implication is that inheritances land had it influence on the adoption of new agricultural techniques or ideas on modern agricultural technology and they are usually small in size of about 1- 5 hectares, 41.62% of the respondent acquired their through purchase these category farmers can expand to commercial large scale production of crop and animal husbandry and they are early adopters of new ideas/techniques while the remaining 9.73% and 3.70% of the respondent acquired their land through rent and gift respectively. Agbelemoge and Akinyemi (2011) maintained that this should enhance adoption of agroforestry since inheritance will give holders total power to use their land. This study supported the work of Alao and Shuaibu (2011) who reported that the land tenure system is also conducive for the development of agroforestry system with the largest proportion as either inherited or purchase makes the ownership personal and transferable to offspring.

Farm size of respondents.

The sizes of the farm is very important in explaining the level of farmers contribution to farming decision, resources requirements and management decision for farmer will certainly increase with the sizes of the farm. Farmers with larger farms are therefore likely to contribute more to decision making than those with small farms (Umar, 2012).The study revealed in table 3

that the highest proportion of the respondents has a farms size of between 1–2 hectares, this implies that majority of the respondents are small scale farmers. This study is in line with Daniel and Owa, (2010) and cited in Jawa (2012) that small Scale Farmers are those that cultivate land of 1–5 hectares. This was also supported by Chawdhury *et. al* (2004) statement that land holdings in Bangladesh are generally less than four hectares, also Agbelemoge and Akinyemi (2011) reported that the size of holding was between 2 to 4 hectares. In a similar, study conducted by Adekunle and Bakare (2004), reported that 87% of Nigerian farmers usually have a small farm size of between 1 and 2 hectares, located in separated distance of about a kilometer or more. The findings of this study revealed that farmers were used to combine two, three or more crops on the same farm land. This implies that those farmers who have large farm size cultivate few crops on their farmland while those with small size cultivate more on same land. This is in-line with Adekunle (2009) is his report that farmers with farm land located in different places have the opportunity to combine several agroforestry systems in desire to provide food for house hold consumption and also to generate income. According Alao and Shuaibu (2011) fruit (food) trees, beside their consumption it also generates income to farmers`. In similar findings, Djabletey and Adu-Bredu (2007) reported that majority of the farmers followed the normal cropping practices of indigenous farming by planting as many as two or more crops on the same pieces of land

Animal in combination.

Livestock production practice in agroforestry is important as they provide meat, milk, hides, and skin. They also used as a source of power in rural areas where farmers cannot afford tractor. Livestock serve many other functions to producers such mean of transport, sold for income to family, sometimes they serve as investment when there is shortage in family's needs such as school fees, clothing, health care etc. Table shows that seventy-two (38.91%) of the respondents had three species of livestock while sixty-five (65) respondents (35.14%) has four species of livestock, twenty-eight respondents (15.13%) has two species of animal in combination with crops, twelve (12) respondents (6.48%) has one species of livestock and eight (8) respondents(4.32%) had five species in combination. They are sold to take care of such needs. According to Adesehinwa, Makinde, and Oladele (2003) the system is very important in that it is the form of integrated farming where by crop residues, waste and bi-products are process as feed to the animals. Animals waste in turn use as manure to fertilize the soil for crop

production thereby greatly reducing the cost of production. The most popular livestock types reared in the study area includes goats, sheep, cattle, horses, donkeys, and both local and modern poultry. These livestock were reared at subsistence and commercial levels. The study area is well known for its livestock productions and has the largest livestock market in the whole of West African sub-region located at Potiskum headquartered of the study area. With regard to Management, livestock such as sheep, goats and local poultry moves in the bush to find for themselves feeds. During the dry season that is, after harvest sheep and goats browse in the nearby cultivated and uncultivated farm land to feeds freely and to be supplemented by given them ground nut leaves and other food ruminants such corn-feed and left over food both wet and dried either in the morning or evening in line with the report of Aliyara and Yakubu (2010) that goats and sheep are managed traditionally in Adamawa state. The modern poultry is being managed under intensive care and within or at outskirts of the town. Other services like health care were place under specialist either from Ministry for Animal Health or employ services of College of Agriculture staff residing in the area.

Number of employed labour

Labour in any agricultural practices is very important factors in production. Labour in context of this study included both family and hired labour. Table 3 shows that transportation has the highest percentage of 28.49%, followed by second weeding has (8.90%), first weeding has 7.48%, land preparation has 7.42% and Final harvesting has 5.34%, while the remaining land clearing, planting, and agrochemical applications has 4.43% each. Ajayi (2006) uphold that the introduction of the technology (agroforestry) into the farming system obliges farmers to provide additional labour inputs for nursery and planting of trees within a short period over and above the labour that they normally required in conventional crop fields. Results also revealed the household average cost of hired labour for individuals farmers in per man-day operations for the two years (2011 & 2012) 6871 (48.93%) and 7171 (51.07%) of the total amount.

Multiple regressions

A multiple regression was run with SPSS version 16 to predict Y from X₁, X₂, X₃, and X₄. The findings of the study in tables 4 and 5 revealed that the four personal and socio-economic variables, when taken together statistically are effective in predicting Y (outputs). These variables statistically and significantly predicted Y. The magnitude of the relationship between Y (Total

cost of outputs) and X_1 , X_2 , X_3 , and X_4 (a combination of independent variables) is reflected in the values of co-efficient of multiple correlation (0.892) and multiple correlation R^2 0.795 (79.5%) is considered for least square model as shown in table 4.26 and 4.27 below the difference given by $(n_1-1, n_2-1) = (4, 180) = 174.7$ at 5% level of significant, ($P < 0.05$), the table value is 5.628 indicating $174.7 > 5.628$, therefore, the conclusion is that there is significant difference between the inputs and the outputs of agroforestry practice in the study area and about 79.5% of the total dependent variables (Total cost of outputs) is accounted for by linear combination of the four personal and socio-economic variables (Inputs).

Regarding to the extent to which each of the four independent variables contribution to prediction, the value T- ratio associated with the respective variables as shown in table 4.28, the results indicate that with exception of family size each of the following variables: (X_1) Operating expenses, (X_2) Land, and Labour, contributed significantly to the dependents (Total cost of outputs). Furthermore, the values of the standardized regression weight associated with these variables as shown in table 4.28 indicate that the variable 3 (labour) is the most potent contributor to the prediction, followed by variable 2 (land) and 1 (operating exp.). The labors' positive influence on output correspond with the reports of Kalirajan (1981), Fujimoto (1988) and Adinya, Enun, and Ijoma (2012) who reported similar results for labour.

Table 4: Analysis of Variance for Total.

Model						
	Sum of Square	DF	Mean Square	F	Sig	
1	Regression	1.5E+012	4	3.690E+011	174.694	.000 ^a
	Residual	3.8E+011	180	2112467002.4		
	Total	1.9E+012	184			

a. Predictors: (Constant) Family size, Operating Exp., Land, Labour.

b. Dependent variables (Total cost of Outputs).

Source: Field Survey 2015

Table 5: Coefficients of the Model

Model	Unstandardized		Standardized		
	Coefficients		coefficients		
	B	Std. error	Beta	t	Sig.
1 Constant	-963482.8	858969.144		-16.339	.000
X ₁	.155	.140	.038	1.106	.270
X ₂	2293.407	2303.766	.039	.996	.321
X ₃	14756.564	669.320	.872	22.047	.000
X ₄	-833.193	395.604	-.71	-2.106	.037

X₁= Operating Expenses

X₂= Land

X₃= Labour

X₄= Family size.

$Y = B_1 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4$

$Y = -96352.8 + 0.155 \text{ Op. Exp.} + 2293.407 \text{ land} + 14756.564 \text{ labour} - .833.193 \text{ Family size.}$

$R^2 = 79.5$, Std Err of the est. = 45961.581

Source: Field survey 2015

Conclusion

The results of the study indicates that individual farmer of agro forestry practice generate income of ₦161,423.08 and agroforestry practice and helps in generating employment. People in the area are aware of the practice. Labour and size are all had positive coefficients and significant at $P < 0.005$ and $P < 0.005$ respectively.

Recommendation

Based on the study findings the following recommendations are made:

- Government should make sure that the security of the people of the area is ensured
- Make farm inputs available at a right time and ensure proper maintenance of machineries

- Look into the activities of herdsmen towards grazing so as to avoid conflicts between herdsmen and the farmers.
- Employed or post more extension agent and ensure their service delivery to the farmers.
- Source market for the perishable products and liaise with juice producing factory to purchase these products or encourage locally processing of the fruits through providing fruits processing machines or sponsoring the producers to training in places like Songhai Entrepreneur Training to learn how to locally processed the fruits, these and many others can help encourage farmer to improve their productive capacities.

REFERENCES

- Adekunle, V. A. A and Bakare, Y. (2004) Rural Livelihood Benefit From Participation In tamgya Agroforestry system in Ondo State Nigeria. *Journal of Small Scale Forest Economic, Management an policy* 3(1) 131-138
- Adesehinwa, A.O.K., Makinde, G.E.O. and Oladele, O.I. (2003) Socio—economic characteristics of Pig farmers as determinant of feeding pattern in Oyo state, Nigeria. *Journal of Livestock Research for Rural Development* 15(12) 2003
- Adinya, I.B, Emun E.E. and Ijoma, J.U. (2010) Exploring Profitability Potentials in Groundnut (*Arachies Hypogaea*) Production through Agroforestry Practices .A Case Study in Nigeria. 2010
- Akalusi, M. E. and Chomini, M. S. (2006). Achieving sustainable Agricultural Production Through Agro-forestry Practice. The Alley Cropping Example. A paper presented at the 20th Annual National Conference of Farm Management Association of Nigeria held at Forestry Research Institute of Nigeria, Federal College of Forestry Jos, Plateau State 18th – 21st September, 2006. Pp 530 – 534.
- Alao, J. S. and Shuaibu, R. B. (2011) Agroforestry practices and preferential Agroforestry

trees Amount farmers in Lafia Local Government Area, Nasarawa State, *Nigeria Journal homepage waste Management and Bio-resource Technology*. Pp 43-51

Anon, (1991): Human Development Report. United Nations Development Programme (UNDP). Oxford University Press, New York pp. 202.

Bisong, F.E. (2001). National Resource use and Conservation System for Sustainable Rural Development. Pp. 122 – 133.

Chinyere, R. O. and Madumere, N. F. (2012) Women Empowerment: A Tool For National Development Proceedings of the 10th International Conference of the School Of Social Sciences A.I.F.C.E., Owerri, Nigeria.

Damisa, M. A and Yohanna, M. (2006) Socio-economic Analysis of Agroforestry Adoption in Zaria Area of Kaduna State. *Journal Crop Research agroforestry and environment*. A Logistic Model Approach

Djabletey, and Adubedu S. (2007) Adopion of AF by small scale teak famers in Ghana, case study of Nkaranza Distrit.

Fujimoto, A. (1988) The Economics of Land Tenure and Rice Production in Double Cropping Village in Southern Thailand American Journal. Agric. Economics 26 (3) 190-210.

Garvin, S. (2005): Long Term Food Prospect Form Africa in Report of the 4th NESG Agricultural.

Jawa, I. G. (2012) Economic Analysis of Onion Production and Market along River Kumadugu Yobe state of Nigeria. An unpublished M.sc Thesis submitted to the Department of Agricultural Economics and Extension Bayero University Kano.

Kalirajan, K. (1981) An Economic Analysis of Yield Of Variability in Paddy Production; *Journal of Agric. Economics* 25 (8) 286-291.

Muktar, A.A., Tanimu, B., Falaki, A.M., and Amanus, E.B. (2006) Socio-economic Analysis of Agroforestry Adoption in Zaria Area. A Case study of Zaria Local Government of Kaduna state. A Logistic Model Approach.

Nair P.K.R (2004): The Practice & Potential of Agroforestry in the south eastern United State. Center for Sub-Tropical Agroforestry (ISTAF) School of Forest Resource & Conservation University of Florida.

Onumadu, F.N. Popoola, A. I and Adekunle, F.O.A. (2004). Agroforestry Farming System: Environmental and Socio – Economic Benefits of its Practice.

Saka, M. G. (2009) Assessment of Community Participation in Forest Management in Ondo State Afforestation Project (Oluwa Forest Reserve): of Tropical Agriculture; Journal Vol. II 2009 (379)

Umar, S.M. (2012) Hides skills and value chain study in Daura Area, An unpublished M.Sc. thesis. Department of Agriculture Economic and Extension, Bayaro University Kano, Nigeria.

Yobe State Economic Summit (2008) published by Yobe Printing Press Damaturu.