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Impact of Training and Visit (T&V) Extension System on Outputs and Income of Cereals Farmers in Zangon Kataf Local Government Area of Kaduna State, Nigeria

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ABSTRACT: *This study assessed the impact of Training and Visit (T&V) extension system on outputs and income of cereals farmersinZangon-Kataf Local Government Area of Kaduna State, Nigeria.Out of 450 total population of cereals farmers who adopted the technology in the 10 council wards, 240 farmers were selected using simple random sampling technique. Primary data were collected using structured questionnaire. Descriptive and inferential statistics were used to analyse the data. The result of the study indicates that more males (73.3%) adopted the cerealstechnologies, mean age of farmers was 46.7years and 63.3%were married with average household size is 11 people. The result revealed that the major methods of cereals production technologies adopted by farmers ranged from improved seed varieties, storage and application of chemical fertilizers, pests and disease control, proper seed rate, herbicides application and timely planting dates. The result also revealed a significant difference (t=2.22; t=2.67; t=1.66: P<0.05) in farmers' maize, rice and sorghum outputs respectively before and after adoption of cereals technologies. Similarly, there was a significant difference (t=3.74; t=7.20; t=2.80; t=2.07; t=2.01: P<0.01) in farmers' annual income, farm size, maize income, sorghum income and rice income respectively before and after adoption of technology.The result revealed that the major factors influencing the adoption of cereals technology in the study area were age of the farmers, education, farming experience, extension contacts,cost of labour and household sizeand were all statistically significant (P<0.01) while farming experience and cost of labour were significant at 0.05 level. The study revealed of insufficient land (75.0%),high cost of production (67.5%), inadequate fertilizer (40.83%) and lack of storage facilities (35.8%) as major constraints to cereals production in the study area. The study concluded that cereals production technologies has a made significantpositive impact on the livelihood of the adopter farmers. It is therefore recommended that the scope of training and visit system of agricultural extension programme be expanded to cover more farmers in the area and most farmers in the country because of its potential to boost food production especially cereals.*

KEYWORDS: *adoption, impact, cereals, technologies, Nigeria*

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I. INTRODUCTION

National development is predicted on the development of the agricultural sector. Agriculture plays a significant role in the economic development of Nigeria. Agriculture was a key component of the national economy until oil the discovery. The contribution of the agricultural sector to the Gross Domestic Product (GDP) was about 60%, but shortly after the oil boom in 1976, it accounted for only 5% of the total export earnings [1]. Since the discovery of oil, agricultural sector has not only been neglected, but steady decline in its contribution to the National economy. However, the role of the sector can be overemphasized. Currently, it contributes about 40% of the Gross Domestic Product (GDP) and employing about 70% of the active population [2], [3]. With the country's vast resources, food production in the country has not kept pace with the increase in food demand as the sector has significantly underperformed its potentials and this has been clearly manifested in the high food prices, food insecurity both at household and national levels with attendant evidence in malnutrition especially among children [4].

Some of the reasons for this low productivity in the sector could be attributed to increasing population pressure on cultivated land and high but uncertain oil revenue. Above all, ineffective agricultural extension service has been a major constraint to the performance of the agricultural sector [5]. This was viewed in relation to the ability of the small-scale farmer (engine room of Nigeria agriculture) to adopt improved farm innovations and use improved inputs associated with agricultural mechanization.

The sustainability of agricultural development depends on the quality and effectiveness of extension services among other factors. Accordingly, [6] observed that there is a gap between agricultural performance and available research information in developing countries and attributed this to poor agricultural extension services delivery and limited interaction between researchers and extension agents. These agents are known to be the link between researchers and farmers [7]. Sustained high levels of agricultural production and income are possible with an effective agricultural extension system supported by agricultural research that is relevant to farmers' needs [8]. Over the years, small-scale farmers have failed to meet food and agricultural needs of the country due largely to use of traditional methods of production. Agricultural development implies the shift from traditional methods of production to new science based methods of production that include new technological components, new crops and even new farming systems.

To achieve agricultural development, the challenges are therefore to find ways of encouraging farmers to use improved farm technologies, through an extension system that would reach the farmers promptly and effectively. According to[8] and [9], several approaches of extension delivery systems have been practiced all over the world ranged from General Agricultural Extension Approach (GAEA), Commodity Specialized Approach (CSA), Training and Visit system (T&V), Agricultural Extension Participatory Approach (AEPA), Project Approach (PA), Farming Systems Development Approach (FSDA), Cost Sharing Approach (CSHA) and Educational Institution Approach (EIA). All these approaches are efforts aimed at improving the technical knowledge and skills that should bring about greater output and improvement in the standard of living of small-scale farmers.

This research focused onthe training and visit (T&V) system of agricultural extension which is an agricultural development extension approach which is expected to improveproductivity and income. The T&V system was first adopted by the enclave projects (Funtua, 1975, Gusua, 1975, Gombe 1975) and later the other ADPs in the country. It is field and farmer oriented that places more emphasis on field work in close association with farmers. The T&V system has a means of continuous training and upgrading of professional skills of resource scientists and extension agents by Monthly Technology Review Meetings (MTRMs) and Fortnightly Training Session (FNTS) for extension agents that is in constant contact with the farmers. The MTRM is a forum for training the Subject Matter Specialists (SMS), which is mainly in the areas of production recommendations and are extended to farmers for timely utilization [8].

Considering the fact that the T&V extension system has been in place in Nigeria for about 40years, it is expected to help get useful agricultural information to farmers and assist in acquiring the necessary knowledge, skill and attitude to effectively utilize this information to improve general production level. The broad objective of this study was to assess the impact of the T&V model of extension on cereal farmers in the study area. The specific objectives were to:

i. describe the socio-economic characteristics of cereals farmers in the study area;
ii. ascertain the awareness and adoption levels of cereals technologies among farmers in the area;
iii. determine the impact of adoption of cereals technologies on farm output;
iv. determine the impact of adoption of cereals technologies on farm income;
v. examine the factors influencing the adoption of cereals technologies among farmers in the study area; and
vi. examine the constraints to cereals production in the study area.

II. METHODOLOGY

The study was carried out in Zangon-Kataf Local Government Area of Kaduna State, Nigeria. Geographically, It is located between latitudes $9^0 25'$ N and $10^0 20'$ N and longitudes $7^0 45'$ E and $8^0 40'$ E. It is bounded by Kaura L.G.A. in the North, Jama'a in the South, Kachia in the West and Kauru L.G.A. in the East. The State also shares boundaries with Katsina and Kano States to the north, Plateau to the north-east, Nasarawa and Abuja to the south and Niger and Zamfara State. It has a total land area of about 4.5 million hectares, with an estimated total arable land of about 2.02 million hectares [2].

The climate is predominantly tropical with two distinct seasons: dry and wet seasons. The rainy season starts from April to October with August and September as the wettest months. The Annual average temperatures ranged between 23 – 28°C while annual rainfall ranges from a minimum of 768.5 mm to a maximum of 1188.3 mm.The people are predominantly farmers and major food crops grown include maize, guinea corn, rice, and millet.Other Nigerian staples such beans, yams, cassava, cocoyam, sweet potatoes are also grown.It has a population of 6,066,562 million people [10].The study employed primary sources of data which were obtained by means of well-structured questionnaire as research instrument administered of farmers. The

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instrument sought information on socio-economic characteristics of the farmers, awareness of cereals technologies and factors affecting their level of adoption of the technologies.

Purposive and random sampling procedure were employed in the selection of respondents. Firstly, the list of cereals farmers was obtained and four (4) Chiefdoms were purposively selected based on their prominence in cereals production. Secondly, four (4) districts were randomly selected from each of the four (4) Chiefdoms giving a total of sixteen (16) districts. Finally, from each district, a random sample of 10%of the respondents (Sample frame) were drawn making a total of two hundred and forty (240) respondents.The data were analysed using descriptive and inferential statistics. The regression model was used to assess the impact of adoption of technologies on income level of the farmers.

Model specification

The model specifies output (Y) as a function of input (X) and disturbance error (e_i).

$Y_i = f(X_i, \beta) + ei$……. (1)

The mode is explicitly stated as:

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8)$…….....(2)

Explicitly, the model is specified as:

$Y= \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + U$……. (3)

Where:

Y = Adoption index

X_1 = Farmer's age (Years),

X_2 = Marital status,

X_3 = Level of education (years of schooling)

X_4 = Household size (number of people)

X_5 = Farmers experience (number of years in cereals production),

X_6 = Farm size (hectares)

X_7 = Years of farming experience (number of years)

X_8 = Extension visit (number of visit),

X_n = the value of the other independent variables,

a = constant term,

U = error term,

$\beta_1 - \beta_8$ = Regression coefficients for the respective variables in the model.

Multiple regression model assumes that the dependent variable being tested is both continuous and measured all the observations within a sample. The specification of the model for the socio-economic characteristics in equation (2) implies that, if the independent variables in the model have a positive sign on an estimated parameter, then the associated variable has a direct relationship with output while a negative sign indicates an inverse relationship.

Thus, the priorexpectation was that the coefficients of the whole independent variables of the socio-economic characteristic in the model should be positive. Therefore, each variable was expected to have positive effect on income.

III. RESULTS AND DISCUSSION

Socio-economic Characteristics of Cereal Farmers

Table 1 showed that majority (73.3%) of the respondents surveyed were males while 26.7% were females. This result indicates that males are usually household heads and actively involved in agricultural and economic activities. The lower proportion of female farmers in the study area could be due to the fact that women prefer trading to farming. In addition to this,it is difficult for women to owe farmlands due to cultural restrictions. These results agreedwith the work of [11]and [12]who concluded that farming is a male-dominated profession. Majority(63.3%) of the respondents were married with average age of 46.7 years and average household size of 11 persons. This implies that majority of the respondents were within productive age category and can actively and effectively use their energies on agricultural and economic activities. This means that households in the study area can supply enough family labour to realize the goal of agriculture (food security) if provided with adequate inputs and improved technologies in production. However, the large household size in the study area has implications on food security of the households. According to [13], an increase in household size would increase the coping strategy index, meaning that increase in household size in general increases the food insecurity of the household. Accordingly, [14] agrees that large household size could constitute a serious hindrance in the face of sickness, educational funding, feeding and other activities that compete for the meagre resources of the households. Majority (88.4%) of the respondents had one form of education or the other. The high literacy rate observed in the study area, by implication means that the educated people would understand

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the advantages of technological innovations better and would be willing to adopt innovations for increased agricultural productivity

Most (45.2%) of the farmers in the study area had a farm size of between 0.1 – 4.0 hectares. The mean farm size was 3.9 hectares.This implies that farmers in the study area had enough farmland that, if effectively put into use can produce the desired output for family consumption. The result agrees with the report by [15], who found that over 90% of the Nigeria's local food production comes from farms, which are usually not more than 10 hectares in size. The mean annual farm income of the farmers was₦65, 000. This indicates that farmers in the study area earned an average monthly farm income of ₦5, 416.77 indicating low income earning compared with the findings of [15] who estimated ₦145, 282.00 as average annual farm income of farmers in Ekiti State. This implies that farmers in the study area earned ₦180.57 per day which is below the poverty line of $3.00 per day at ₦360 per Dollar [16].More so, a mean household size of 11 persons indicates that household members in the study area lived on ₦16.42 per day, indicating a poor living condition of the households. However, households in the study area produced most of the food crops they needed for daily feeding, thus this might lessen the burden on their farm income. Nevertheless, the burden ofnon-food expenditures cannot be overemphasized. Extension agents in the area were very active in discharging their duties as designed by the T&V system of agricultural extension. This is because extension visit was fortnightly basis as reported by majority (95.42%) of the farmers.

Table 1: Socio-economic Characteristics of Respondents in the Study Area (n=240)

Variables	Frequency	Percentage
Sex		
Male	176	73.3
Female	64	26.7
Age (years)		
20-29	22	9.7
30-39	31	12.92
40-49	97	40.42
50-59	62	25.83
60 and above	28	11.67
Mean	46.7	
Marital status		
Single	34	14.2
Married	152	63.3
Widow	13	22.5
Others	0	0.00
Educational level (years)		
No education	28	11.67
Adult	71	29.58
Primary	56	23.33
Secondary	23	9.58
Higher/ Tertiary	62	25.83
Mean	7.8	
Household size		
1-4	82	34.17
5-9	145	60.42
10 and above	13	5.41
Mean	11	
Farm size(ha)		
0.1-1.0	133	55.42
1.1-2.0	56	23.23
2.1-3.0	24	10.00
3.1-4.0	16	6.67
4.0 and above	11	4.58
Mean	3.9	
Extension visit		
Fortnightly	229	95.42
Once a week	3	1.25
Twice a week	8	3.33
Daily	0	0.00
Farming experience (years)	61	25.42
1-10	98	40.83
11-29	46	19.17
21-30	19	7.92
31-40	16	6.67
41 and above		
Annual Farm income (₦)		

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<10,000	24	10
10,100-20,000	18	7.5
20,100-30,000	16	6.67
30,100-40,000	14	5.83
40,100-50,000	69	28.75
501,00-60,000	46	19.17
60,000 and above	53	22.08
Mean	65,000	

Source: Survey Data, 2017.

Level ofAwareness and Adoption of Cereals Technologies by Cereals Farmers

Table 2 showed that use of chemical fertilizer had the highest level of awarenessand adoption rate (98.33%) among maize technologies introduced to the maize farmers, followed by use of open pollinated maize variety with adoption rate of (85.33%).Similarly, the use of chemical fertilizer and threshing has the highest level of awareness highest adoption rate of (99.17%). Among all the sorghum technologies introduced to the farmers, the use of sorghum variety (LS 187) has the highest level of awareness with high adoption rate of (85.0%).There was general awareness in the technology of use of herbicides among cereals farmers in the study area. However the adoption rate of this technology is low. The reason for the low adoption rate of this chemical could be due to inadequate skills of the farmers required for the operation of the sprayers. This agrees with the work of [17] who concluded that the technical skills required in handling the equipment used in mechanized farming can lead to less adoption by the rural farmers.

Table 2: Level of Awareness and Adoption of Cereals Technologies by Farmers in the Study Area

Crops	Technologies	Aware	Not aware	Adopted	Not adopted
Maize	Quality protein maize (QPM)	184 (76.67)	56 (23.33)	169 (70.42)	14 (5.83)
	TZB-SR	28 (11.67)	212 (88.33)	11 (4.58)	17 (7.08)
	DT-SR-WCZ	56 (23.33)	184 (76.67)	32 (13.33)	24 (10.0)
	TZESR (open pollinated)	209 (87.08)	31 (12.92)	206 (85.33)	2 (0.83)
	Spacing in planting	121 (50.42)	119 (49.58)	107 (44.58)	14 (5.83)
	Seed rate of 1 seed/hole	161 (67.08)	79 (32.92)	83 (34.58)	78 (32.5)
	Chemical weeding, pest & disease control	161 (67.08)	85 (35.42)	88 (36.67)	67 (27.92)
	Chemical storage	102 (42.50)	138 (57.50)	67 (27.92)	35 (14.58)
	Use of chemical fertilizer	236 (98.33)	4 (1.67)	236 (98.33)	0 (0)
Rice	NARICA I,II,III or IV	194 (80.83)	46 (19.17)	187 (77.92)	7 (2.92)
	FARO (44)	154 (64.17)	86 (35.83)	142 (59.17)	12.(5.0)
	ITA	130 (54.17)	110(45.83)	80 (33.33)	25 (10.42)
	Spacing	141 (58.75)	100 (41.67)	67 (27.92)	73 (30.42)
	Seed rate	137 (57.08)	103 (42.92)	99(24.58)	78 (32.50)
	Chemical weed control (herbicides)	206 (85.83)	34 (14.17)	178 (74.17)	53 (22.08)
	Threshing	240 (100)	0 (0.0)	179 (74.58)	61 (25.42)
	Use of chemical fertilizer	240 (100)	0 (0.0)	238 (99.17)	2 (0.83)
Sorghum	Samsborg-17 (SK5912)	94 (39.17)	146 (60.83)	66 (27.50	28 (11.67)
	LS 187	238 (99.17)	2 (0.83)	204 (85.0)	34 (14.17)
	Samsorg-14 (KSV8)	168 (70.00)	71 (29.58)	70 (29.17)	98 (40.83)
	Spacing	86 (35.83)	154 (64.17)	52 (21.17)	35 (14.58)
	Seed dressing	200 (83.33)	40 (16.67)	191 (79.58)	10 (4.17)
	Seed rate	41 (17.08)	199 (82.92)	28 (11.67)	13(5.42)
	Chemical weed control (herbicides)	138(57.50)	102 (42.50)	53 (22.08)	178 (74.17)

Source: Survey Data, 2017

Effect of Adoption of Technologies on Output of Cereals

Table 3 showed that there is a significant difference in change in outputs of maize before and after adoption of technologies (t=-14.784: P<0.05). There was also significant difference in rice output (t=-15.342: P<0.05) before and after adoption of technology. The result further revealed that there was significant difference in sorghum production (t=-14.132: P<0.05). It therefore implies that cereals technologies generally have a positive significant impact on cereals' output in the study area. In a related study, [18] also found that introduction of technologies better the lots of the farmers in terms of output.

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Table 4: Effect of Adoption Technologies on Cereals Outputs

S/N	Variable	Period	Mean	N	Df.	Std. Dev.	Mean Diff.	t-val.	P-val.
1	Maize output	Before After	43,6960 68,9906	240 240	239 239	37.98714 52.71950	**252,946**		
								2.22	0.0*
2	Rice Output	Before After	38,8907 59,5469	240 240	239 239	34.22132 48.98786	**206,562**		
								2.67	0.0*
3	Sorghum Output	Before	41,7683	240	239	36.66532	**257,740**		
		After	67,5423	240	239	50.67097		1.66	0.0*

* (P<0.05)

Source:Survey Data, 2017

Assessment of Change in Annual Farm Income, Farm sizeBefore and After Adoption of Cereals Technologies

Table 4 showed that the mean monthly farm income generated from the sales of farm produce after adoption of maize technology was ₦78,525 while the mean income before adoption was ₦37, 371. The result revealed that the mean income from maize after adoption of technologies(₦78,525)was statistically greater (t=2.80: P<0.01) than that generated before the adoption of the cereals technologies (₦37,371), rice (₦69,748) was found to be significantly greater (t=2.072: P<0.05) than that produced before adoption of technologies (₦41,442), sorghum (₦73656) was found to be greater (t=2.004: P,0.01) than that generated before adoption (₦35426). This implies that cereals technologies have made a positive impact on the livelihood of the adopter farmers

The results also showed that farm size of the cereals farmers was found to be significantly greater (t=7.20: P<0.01) than that before the adoption of cereals technologies. The test of statistical difference indicated significance difference between the income before and after adoption of cereals technologies. This may be due to introduction of new farming technology providedby the agency and the farming inputs provided such as provision of improved seeds, fertilizer/agro-chemicals given to the farmers. It can be deduced that the project has made impact positively on the level of farmers' annual income generally. This result compared favourably with [1] who obtained similar result in Imo State of Nigeria.

Table 4: The Result of the t-Test of Mean Differences Showing the Difference in Annual Income, Farm Size and Income from Crops After Adoption of Cereal Technologies

S/N	Variable	Period	Mean	N	Df	Std. Dev.	Mean Diff.	t-val.	Significant
1	Annual Income(₦)	After Before	221152 19528	240 240	239 239	7925.06	201,624.00	3.744	0.000***
2	Farm Size(ha)	After Before	4.91 2.31	240 240	239 239	0.41 0.41	2.60	7.20	0.005***
3	Maize Income(₦)	After Before	78525 37371	240 240	239 239	3769.12	41154.00	2.80	0.000***
4	Rice Income(₦)	After Before	69748 41,442	240 240	239 239	3155.63	28306.00	2.072	0.231***
5	Sorghum(₦) Income	After Before	73656 35426	240 240	239 239	3744.37	38230.00	2.004	0.000***

Source: Survey Data, 2017. ***** (P<0.01), ** (P<0.05)**

Factors Influencing Adoption of Cereals Technologies in the Study Area

Table 5presents the relationship between level of adoption and factors influencing adoption. The results indicated that educational status, householdsize and extension contact and werepositively related to adoption of cereals technologies in the area and were statistically significant (P<0.01.) These findings are consistent with the finding of [3], who reported that age, educational status, years of experience, membership of association and extension contact were factors influencing the adoption on innovation. The result also showed that age, farming experience and cost of labour were negatively related to adoption of cereal technologies, but were statistically

significant. Farm size, marital status,and lack of family labour were positivelyrelated to their adoption of cereals technologies but were not significant.

Table 5: Factors Influencing Adoption of Technologies in the Study Area

	Variables	Coefficient	Standard deviation	t-ratio	P-value
	Constant	2.4183	0.6433	3.76	0.000
X_1	Household size	0.4698	0.1659	2.83**	0.006
X_2	Age	-0.3141	0.4658	0.67**	0.002
X_3	Education	0.6366	0.2388	2.67**	0.010
X_4	Farm size	0.0418	0.1072	0.39	0.698
X_5	Farming Experience	-0.0008	0.1149	0.01*	0.040
X_6	Marital status	0.0980	0.5210	0.678	0.498
X_7	Extension contact	0.4053	0.2020	2.01**	0.041
X_8	Cost of labor	-0.5840	0.2482	2.26*	0.027
X_9	Lack of farm inputs	0.0160	0.4020	0.453	0.699

R^2=0.64; Adjusted R^2=0.61; *(P≤0.05); **(*P≤0.01)*

Constraints to Adoption of Cereals Technologies

Table 6presents the major constraints faced by cereals farmers in the study area. The results showed that the major constraints faced by cereals farmers was high cost of production (75.0%) followed by insufficient land (67.50%). This is not surprising as the patter of land ownership through inheritance constitute an impediment for the introduction of new agricultural enterprise Marketing being the least constraint (23.33%) could be deduced that some farmers only produce at subsistence level mainly for consumption.

Table 6: Distribution of Respondents Based on Constraints

Problem	Frequency	Percentage	Rank
Insufficient land	180	75.00	1st
Lack of storage facilities	86	35.83	4th
Service Providers	76	31.67	5th
Lack of proceeding facilities	68	28.33	6th
High cost of production	162	67.50	2nd
Fertilizer	98	40.83	3rd
Marketing	56	23.33	7th

Source: Survey Data, 2017 Percentage>100 due to multiple responses.

IV. CONCLUSION

The study concluded that Training and Visit system have effect on adoption of technologies and has significantly impacted on the output and farm income of the cereals farmers despite the constraints hindering the adoption of these technologies in the study area.It is therefore very important for cereals farmers to effectively utilize the cereals technologies available to them in the study area to maximize output and income.

V. RECOMMENDATIONS

1. Cereals farmers in the study area should be trained more on how to handle of herbicide equipment for effective application.
2. Female farmers should be allowed access to agricultural lands so as to increase the percentage involvement in cereals production in the area.
3. Credit facilities should be provided to the farmers in form of loan or farm inputs to reduce the high cost of production.

REFERENCES

[1]. Onazi, O. C. (2008). The role of Agricultural Education in National Development Text of Public Lecture of A.B.U., Zaria, Pp. 11-20.

[2]. Isa, C. G., Badaru, I.A., Garba, A. and Bidoli, T. D. (2015). An Overview of the Roles of Extension Services Delivery for Sustainable Agricultural Development in Nigeria. Proceedings of the 29th FAMAN Annual Conference 'Dutse, 2015 on the theme: Agriculture: A Reviewed Focus for Economic Development in Nigeria. (Edited by Haruna, U., Izge, A.U., Abduhamid, A., Iliyasu, Y., Abdulrahman, S.L. and Katanga, Y. N) Pp. 378-282.

[3]. Rose, S. and Akpki, B. (2014). The Nigeria Agricultural Research Strategy Plan and Extension Delivery, Policy Concept and Consensus to the Year. Published by the National Agricultural Research Project. Moor *Plantation, Ibadan,* Nigeria, *Pp.485.*

[4]. Adewale, J.G. (2002). A Review of Finance for Agricultural Extension in Nigeria: 1960-2001. International Journal of Business and Common Market Studies, 1(1): 14-26.

[5]. Dafwang, T. (2006). Determinants of effectiveness of contact farmers and local leaders of Osun State Agricultural DevelopmentProgramme. A Publication of Ariculture and Rural Development. ObafemiAwolowo University Pp. 1-16.

[6]. Daneje, M.I, Vosanka, I. P. and Undiandeye, U. C. (2010). Agricultural Extension as Catalyst for Food Security in Nigeria: An

[1]Department of Agricultural Economics, Federal University of Agriculture, Makurdi Benue State,Nigeria

Overview. *Savannah Journal of Agriculture*, Faculty of Agriculture, Bayero University, 5: 1597-9377
[7]. Johnson, R. L. (2003). Rebuilding Agricultural Research and Extension System in Nigeria, Kansas.
[8]. Ebehard, B. (2003). Training and Visit Extension System. A publication of Agriculture and Rural Development, 4(2):6-13.
[9]. Ekpere, J. A. (2014). Constrains to Effective Extension Work in Nigeria. The insiders view Research Extension and Information Management Report, Pp. 8-28.
[10]. Isa, C. G., Badaru, I.A., Garba, A. and Bidoli, T. D. (2015). An Overview of the Roles of Extension Services Delivery for Sustainable Agricultural Development in Nigeria. Proceedings of the 29th FAMAN Annual Conference 'Dutse 2015' on the theme: Agriculture: A Reviewed Focus for Economic Development in Nigeria. Edited by Haruna, U., Izge, A.U., Abduhamid, A., Iliyasu, Y., Abdulrahman, S.L. and Katanga, Y. N., pp. 378-282.
[11]. National Population Commission (NPC) (2007). Legal Notice on Publication of the Details of the Breakdown of the National and State Provisional Totals of 2006 Census. Printed and Published by the Federal Government Printer, Lagos, Nigeria. Vol.94 (24).
[12]. Oguntola, S.I. (2009). Female oriented technologies in Agricultural Research Institutes in Oyo State. Unpublished B.Sc. thesis in the Department of Agricultural Extension and Rural Development University of Ibadan, Nigeria, Pp. 48-51.
[13]. Anonguku, I., Anonguku L.M &Lawan, A.U. (2010). Socio-economic characteristics of farmers and level of livestock Pilferages in Benue State, Nigeria. *Journal of Agricultural Economics, Management and Development, 1(1): 189-194.*
[14]. Jiang, Y.S & Braun, J. (2005). The economic cost of illness and household copingstrategies in Western rural China, *Chinese Rural Economy, 11:3-39*
[15]. Russell, S (2004). The Economic burden of illness for households in developing countries: A review of studies focusing on Malaria, Tuberculosis, Onchocerciasis and Human Immunodeficiency virus (Acquired Immuno-deficiency Syndrome). *American Journal of Tropical Medicine and Hygiene* 71 (suppl. 2): 147 – 155
[16]. Ugwuja, V.C., Adesope, O.M., Odeyemi, T.J., Matthews-Njoku, E.C., Olatunji, S.O., Ifeanyi-Obi, C.C &Nwakwasi, R. (2011). Socioeconomic Characteristics of Farmers as Correlates of Fertilizer Demand in Ekiti State, Southwest Nigeria: Implication for Agricultural Extension. Greener Journal of Agricultural Science 1(1): 48-54.
[17]. Central Bank of Nigeria (CBN) (2017): Dollar to Naira Exchange Rate. http//www.cbn.gov.ng/rates/exchrateby Currency.asp
[18]. Ekpere, J. A. (2011). Transfer of Agricultural Research Results and Technology. Towards strengthening the Nigeria Agriculture Research System, Pp.1-6.
[19]. Patel *et al.* (2000). Managing Agricultural Extension in Nigeria. Federal Agricultural Coordinating Unit, Ibadan, P. 17

Ogebe, F.O. " Impact of Training and Visit (T&V) Extension System on Outputs and Income of Cereals Farmers in Zangon Kataf Local Government Area of Kaduna State, Nigeria. "Quest Journal of Research in Business and Management, vol. 06, no. 06, 2018, pp 42-49.

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