

**INFLUENCE OF SOCIO-ECONOMIC FACTORS INFLUENCING FARMERS'
PARTICIPATION IN STATE AGRICULTURAL DEVELOPMENT
PROGRAMME IN ZAMFARA STATE, NIGERIA**

Hamza Sani

Research Scholar, Zamfara Agricultural Development Project, Gusau Zamfara, Nigeria

Received: 10 Feb 2018

Accepted: 01 Aug 2018

Published: 09 Aug 2018

ABSTRACT

Socio-economic factors influencing farmers' participation in agricultural development programme in zamfara state. Purposive and multistage random sampling techniques were used in the selection of Local Government Areas, participating farmer associations, participating and non-participating farmers. A sample of 600 farmers from 2034 registered farmers was used for the study Data collected was analyzed using a logistic regression model. The result of the indicated that the effect of socio-economic factors influencing the farmers' participation in agricultural development programme was influenced by 70.5% likelihood was influenced by membership, farmer household size was found to be significant at 1% and labour source 5% major problems affecting farmers' participation in the programme identified were; age, education, experience found to decrease the way of participation. The major constraints were High cost and late supply of inputs, lack of access of loan by women and few female extension agents The study therefore, recommended emphasis in the involvement of female to access of loan and extension education to increase participation in the programme for skills essential for agricultural activities.

KEYWORDS: *Agricultural Development, Constraints, Factors, Farmers, Influencing, Socio-Economic, Participation*

INTRODUCTION

Several agricultural programmes have been introduced to reduce abject poverty among rural dwellers, mostly farmers, Some of these programmes include: United Nations Development Programme (UNDP), International Fund for Agricultural Development (IFAD), Agricultural Development Programmes (ADP), Food and Agricultural Organisation (FAO), and National Economic Empowerment and Development (NEED), The Directorate of Food, Roads and Rural Infrastructure (DIFRRI), National Orientation Agency (NOA), National Accelerated Food Production Programme (NAFPP), Green Revolution (GR), Operation Feed the Nation (OFN), etc. (Hashmi and Sial, 2007) the primary goal in each case was the attainment of self-sufficiency in food production, supply of raw materials to industries as well as to increase the level of farmers' income and standard of living. Tsado (2004) also reported that most of these programmes failed to achieve the desired objectives because they were top-down in design and implementation. (Aref, 2011). According to Iqbal (2007), most agricultural projects fail because when projects are designed, farmers or local ethics, culture and socio-economic characteristics are not considered which lead to outside agents not being able to develop and recommend appropriate technologies that are compatible with the target group.

According to EMRC, (2004) the masterpiece of Zamfara state government socio-economic development programme is ZACAREP. The Zamfara comprehensive agricultural revolution programme (ZACAREP) aimed to increase the state production through adoption of new simple farming techniques, the utilization of improved seeds and improved marketing the agricultural sector. ZASIDEP (2004) pointed out that for any sound agricultural development programme to succeed; it requires a careful planning base on accurate information of what is on the ground. Benchmark survey was established so as to allow for the identification of the gap that exists between what obtains and achievable potentials that can be attained.

Participation is a concept from the field of psychology, which has been widely used in the study of management science (Geng *et al.*, 2008). Participation is referring to the readiness and degrees of subjectivity actors were playing (Li and Li, 2005). Orji (2005) said that there are different types of participation in practice. The types and levels of peoples' participation in development depend on the objectives of a programme. Based on a study of both successful and unsuccessful development projects, Nxumalo and Oladele (2013) stated that empowerment and participation are two most important issues in agricultural development programs. Participation is critical, in order to come up with successful and accepted programs since they facilitate the development plans. Empowerment refers to a process in which community gives or gets power from another. Participation as empowerment is an approach in which people hold complete power over and are in full control of a program. Participation refers to the involvement of marginalized groups in the development process, which intend to build peoples abilities to access and control of resources, benefits and opportunities towards self-reliance and to a better standard of living.

Farmers are willing to participate in future agricultural projects when they aware of benefits that they can get by participating in the projects such as capacity building, exposure to new techniques and empowerment which may help them increase their production and eliminate hunger and poverty (Nxumalo and Oladele, 2013). Males have a high probability of participating as compared to females because they make the final decisions in the households. On the other hand, women are sometimes discriminated to access to land and are often occupied with other household's activities hence the probability of them to participate is very low (Sithole *et al.*, 2014).

Sithole *et al.* (2014) stated that previous empirical studies found a two-way relationship between age and participation in irrigation scheme as well as other agricultural technologies. Younger household heads are more dynamic with regards to the adoption of innovations than older household head; however, they are usually more occupied with other job opportunities as compared to farming. Also, older household members are assumed to have more experience in farming and hence an increase in the probability of participation. Sithole *et al.* (2014) in his studies stated that married households have a higher probability of participating as compared to single-headed households, hence divorced and widow was treated as not married. From Mahabub and Manik (2004), nature and impact of women's participation in economic activities in rural area insights from household surveys found that women working hours in economic activities were low due to their substantial involvement in non-economic household works. Most previous studies indicated that the possibility to adopt and apply new methods of farming increased along with education level is posited to have a positive effect on participation since it enables an individual to make independent choices and to act on the basis of the decision, as well as increase the tendency to co-operate with other people and participate in group activities (Etwire *et al.*, 2013). Farm size significantly influences the probability of participation households who have access to more land are more likely to participate in the scheme as compared to households who have less land Martey *et al.* (2013); Mohammed and Jema (2013) and Nxumalo

and Oladele (2013), also observed that farm size influenced the household heads decision to participate in agricultural projects.

METHODOLOGY

The study was conducted in four of the fourteen Local Government Areas (LGAs) with the highest level of soybean production in Zamfara State. The selected LGAs were: Tsafe, Gusau, Maru, and Bungudu. Zamfara State is located between latitude $10^{\circ}40'N - 13^{\circ}40'N$ and longitude $4^{\circ}30'E - 7^{\circ}06'E$. The state has an estimated area of about $38,000\text{km}^2$, about 50% of which is cultivated. It shares the boundary with Sokoto state and the Republic of Niger to the north, Kebbi and the Niger States to the west, Katsina State to the east, and Kaduna State to the South (ZMSG, 2001; ZSMG 2016). Zamfara State comprises of 14 Local Government Areas located within Savannah ecology, which can be divided into the Sahel, Sudan and Northern Guinea Savannah. The Sahel vegetation is found in northern-most fringes near the border with the Republic of Niger. The climate is generally characterized by alternating dry and wet seasons. The rains usually commence in May/June and end in September/October. The effective rainy season in the study area is restricted to July to mid-September (Yakubu, 2005). Zamfara State from the population census of 2006 has the population figure of 3, 278, 87 (NPC, 2006). About 82% of the population lives in rural areas and depend on agriculture for their livelihood. There are 450,000 farming families in the state, most of whom are small-scale farmers having less than 5 hectares of land. Majority of the farming families practiced mixed farming. The rain fed crops grown are millet, sorghum, rice, maize, cowpea, cotton and groundnut. During the dry season farmers in the State produce mainly vegetable crops such as tomato, lettuce, carrot, onion, pepper and spinach (ZMSG, 2001; 2010; ZADP, 2012).

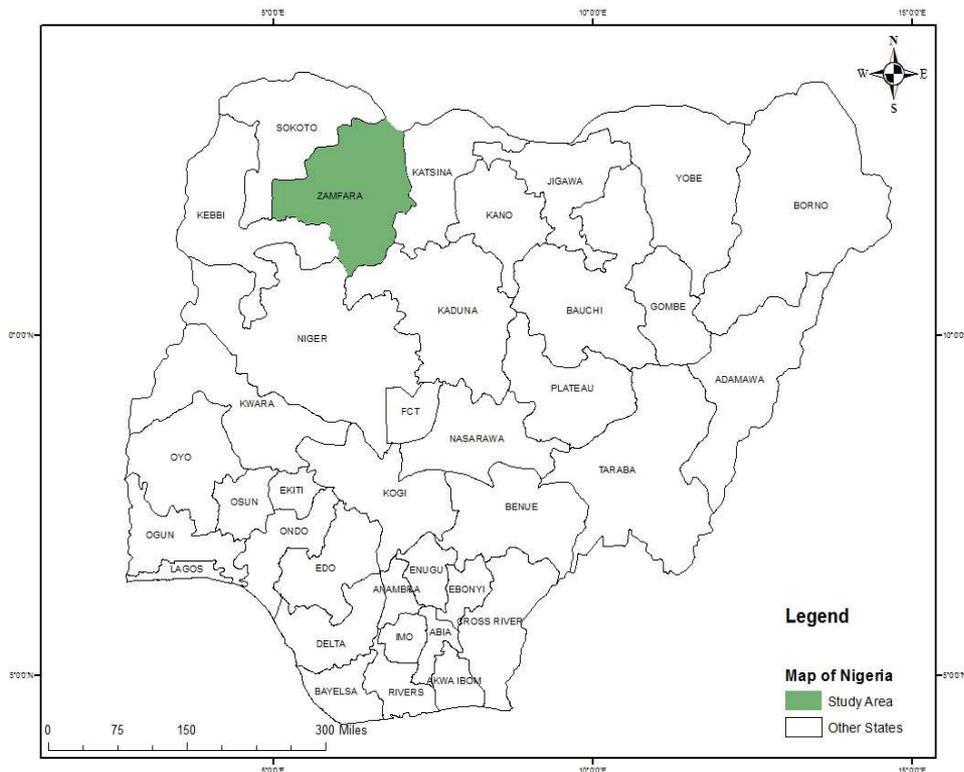


Figure 1

Population and Sampling Design

600 soybean farmers out of 2034 were selected for the study at this stage 29% was taken, as a large sample is reasonable enough to give accurate data. Multistage random sampling technique was employed for the study four local governments were purposively selected for this study because of the good physical conditions of the soils and high concentration soybean farmers in the area. Four districts from each local government were selected randomly and three villages from each district. These districts included: Magmi, Mayana Mada and Wonaka in Gusau LGA, Dansadau, Y/Galadima, Bingi, and Maru in Maru LGA, Tsafe, Chediya, Bilbis, and Keta in Tsafe LGA, Kwatarkwashi k/waje, k/mota and Bingi in Bungudu LGA.

Logit regression was used to determine the influence of socio-economic factors in the participation of farmers Idrisa *et al.* (2012) used inferential statistics to analyze the data on the relationship between the likelihood of participation agricultural development. In

$$Y = \left(\frac{1}{1 + pe(x)} \right) \quad (2)$$

Theoretically, the Logit model is expressed as: 1

Where: $e = a + b + u$

$a = \text{intercept};$

$b = \text{slope of the logit regression}$

$x = \text{independent variable included in the model}$

$u = \text{error term}$

$p = \text{parameter in exponential form.}$

Maximum likelihood estimation model

$$Y = \text{Ln} \left[\frac{p_i}{1-p_i} \right] = b_0 + b_1 X_1 + b_2 X_2 + b_n X_n + e \dots \dots \dots (3)$$

$$\text{Ln} Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_n X_n + e \dots \dots \dots (4)$$

Where: $e = \text{Error term}$

Logit Regression Analysis

Logit regression was used in this study to examine the determinant of socio-economic factors in participation in the programme. Logit regression model operates in the form of least square regression. It is a linear probability model for binary response where the response probability is evaluated as a function of the explanatory variable (Maddala 1983; Wooldridge 2001). Adoption studies uses types of logistic model to analyze survey data. The recognize adoption as a dependent variable.

$X_1 = \text{Age of the respondents in years}$

$X_2 = \text{Sex: Sexes of Soybean Farmers was either male or female.}$

X_3 = Level of Education.

X_4 = marital status: marital status of the respondents was assessed as married and single.

X_5 = Household size (number of persons in the house)

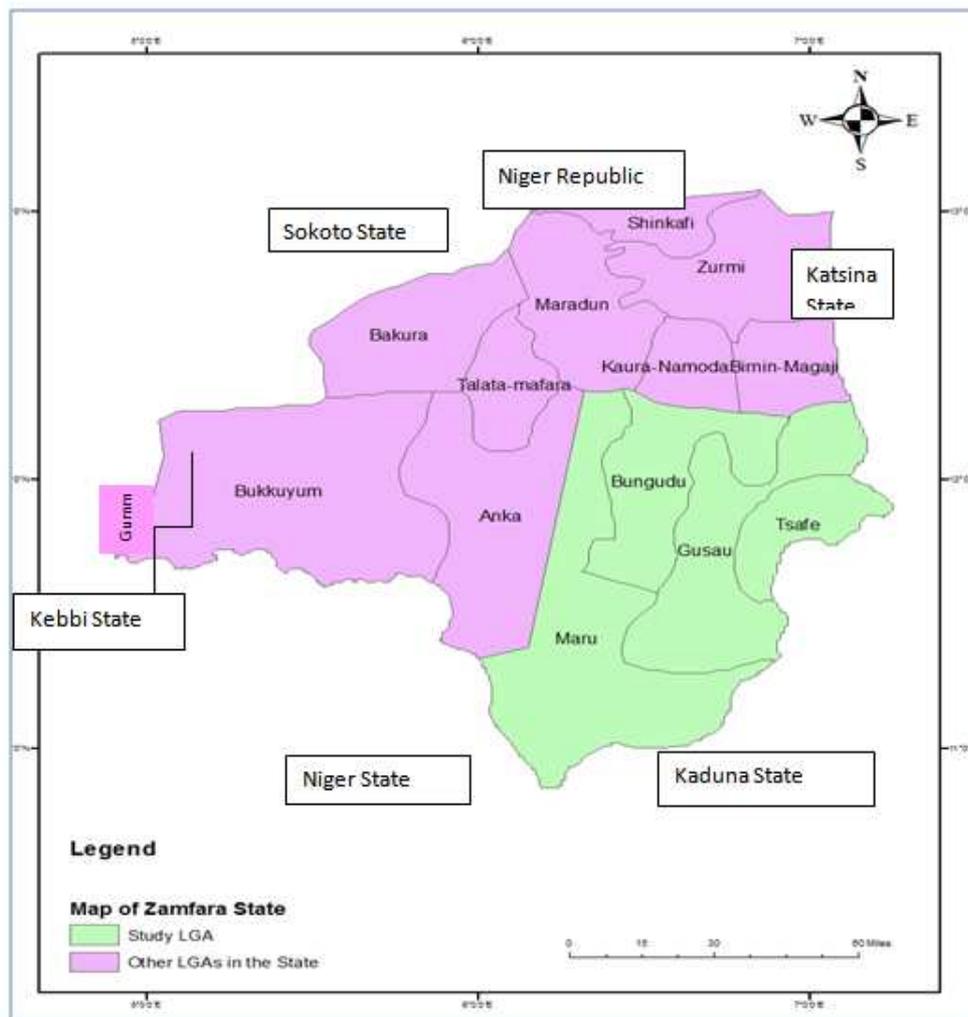
X_6 = years in ZACAREP programme measured in years

X_7 = Sources of labour: this was measured in reliance on hired labour or family labour.

X_8 = Farming experience of the respondents in years of soybean production.

X_9 = farmers' farm size measured in hectares

X_{10} = Membership in soybean cooperative farmers group/association



Source: ZMSG (2016).

Figure 1: Map of Zamfara State, Showing the Study Area

Table 1: Distribution of Respondents by LGA and Villages

LGA	Sample size	Number of Districts	Villages	Total
Bungudu	135	Bungudu Kwatarkoshi Kuran Mota Kekun Waje	Gidan Dan Gwari	11
			Damba	11
			Kuga	11
			Tazame	11
			Gidan Jaki	12
			Sabon Gida	11
			Kango	11
			Rowan Mesa	11
			Kungurmi	11
			Gidan Saro	11
			Bingi	11
			Yar Katsina	11
Gusau	145	Mada Magami Mayana Wonaka	Mada	12
			Fegin Baza	12
			Rowan Bore	12
			Kunkelai	13
			Zonai	12
			Tofa	12
			Kolo	12
			Yan Yashe	12
			Karal	12
			Lilo	12
			Ajja	12
			Wonaka Yamma	12
Maru	150	Maru Bingi Dan Sadau Yar Galadima	Kadauri	13
			Jabaka	13
			Lugga	13
			Markau	13
			Dan Marke	13
			Bindin	13
			Mai Tukunya	12
			Yar Kura	12
			Dan sadau	12
			Kwakwaci	12
			Hannu tara	12
			Tsafe	170
Wanzamai	14			
Kucheri	14			
Unguwar Rogo	14			
Dan Jibga	14			
Nasarawa	14			
Kizara	14			
Magazawa	14			
Gidan Giye	14			
Unguwar Chida	14			
Dan mane	14			
Kware Kwabri	14			
Saukiya Dutse	16			
TOTAL	600			600

Source: Field Survey, 2016

RESULTS AND DISCUSSIONS

Socio-Economic Factors Influencing Participation in an Agricultural Programme

The Study examined the socio –economic factors affecting participation in the agricultural programme. Nxumalo and Oladele (2013) used a Regression model to determine socio-economic factors affecting farmer participation in agricultural projects. In (Table 2). Logit regression model was estimated and 70.5% variation in participation was influenced by effects of socio – economic characteristics of the farmers’ individual household size by 5%, labour sources at 1%, membership at 1%. Adoption index at 1% was found to significantly increase participation positively. This in agreement with the report that Family size has been recognized to play a vital role in the adoption of any particular technology or farm practice (Bamire *et al.*, 2002; Idrisa *et al.*, 2012).

Age, education, primary occupation, experience were found to decrease the way of participation. The negative influence of age could be expected as a result of the fact that as farmers grow old, there is a tendency to reduce the level of adoption as their ability to cope with various farm operation diminishes (Mustapha *et al.*, 2012). Education decrease of participation correlate with the report by Asres (2013) said there could be cases that educated households have the high chance of engaging themselves in other non-farm related activities such as sideline business, involvement in the administration that leave them with little time to spend on their farming activities. Other factors that increases participation but not significant were sex, marital status and farm size. This finding agrees with Beyene (2008) who found that agricultural projects were mostly dominated by men. He stated that the sex of the household head influences household participation since the male-headed households have more access to opportunities than female-headed households.

Therefore from the result, it is seen that socio–economic factors are very important parameters in the participation of projects or otherwise. This is in line with Martey, *et al.* (2013). Participation in irrigation schemes is an important platform for joint learning and technology transfer. Shittu *et al.* (2005) in his study off-farm labour participation and farm household livelihood strategy in Yewa division, Ogun State, used logistic regression methods to analyze and compare the socio-economic data. For the purpose of determining the influence of socio-economic factor on decisions whether or not to work off-farm.

Table 2: Socio-Economic Factors Affecting Participation in An Agricultural Development Programme

Variables	Coef.	Std. errr	z-vae		p> z
Intercept	-10.95	2.82	-3.87		0.000**
Age	-0.02	0.03	-0.72		0.47
Sex	0.45	0.61	0.74		0.462
Education	-0.08	0.27	-0.28		0.776
Marital status	1.35	0.83	1.63		0.103
House hold size	0.09	0.05	1.77		0.077**
Pri. Occupation	-0.11	0.12	-0.92		0.359
Farm size	0.15	0.18	0.82		0.411
Labour source	1.59	0.47	3.38		0.001***
Experience	-0.04	0.08	-0.48		0.631
Membership	5.41	0.44	12,25		0.000***
Number of obs	500				
LR Chi square (11)	488.9				
Prob>Chi square	0.000				
Pseudo R-Square	0.705				
Loglikelihood	-102.12				

Source: Field survey data, 2016. *= P<10, **=P<0.05 ***=P<0.01

The result of the major constraints faced in the programmes' activities by the farmers was presented in Table 3 which shows that 38.7% of the participating farmers agreed that late disbursement of inputs was the major constraints. While the high cost of chemicals, supply fertilizer late were agreed by farmers which constitute as well 6.0%, 21.2%, lack of access to loan by women accounted for 3.2% late farmers registration accounted for 1%, low campaign awareness was 1%, Lack of female extension agents accounted for 3.2%. Other notable constraints also listed by farmers were low tractor hiring, the high cost of chemicals, funding stopped, late disbursement of cash, a problem of payment of insurance claims and poor market pricing. This implies that the adoption level of the respondents could be affected negatively. This agreed with Mustapha *et al.* (2012) constraints of credit facilities, unavailability of a market for produce, poor extension services, the high cost of fertilizer among others, a majority of them are seriously handicapped in adopting new and profitable farm technologies.

Table 3: Constraint Faced by Respondents in the Programme

Variables	Participating Farmers	
	Frequency	Percentage
Late disbursement of inputs	77	38.7
Late disbursement of cash	3	1.2
High cost of chemicals	12	6
Poor access to good inputs	23	9.2
Late supply of fertilizer	36	21.2
High percentage of loan deposit	11	4.2
Lack of access to loan by women	16	6.4
Late farmers Registration	2	1
Poor market pricing	3	1.4
Low Campaign Awareness	2	1
Funding stopped	12	4.8
Low Tractor Hiring	6	3
Lack of good Seed supply	5	2
Lack of Female extension agents	8	3.2
Payment of insurance Claims	12	8
Work bull not given in time	10	4
Poor extension supervision	1	0.4

Source: Field survey data 2016

CONCLUSIONS

Socio-economic characteristics of respondents such as; age, sex, education and marital status, were determinant of participation in the agricultural development programme. The study revealed that, there was a great influence on participation to increase in production level and income from extension production technologies.

RECOMMENDATIONS

A farmer should be encouraged to form viable corporative societies to enable them to participate in the development programme. Participation in agricultural development programme is a mechanism to attract services that encourage farmers to benefit with the skills essential to their agricultural activities in order to increase high production. Therefore strengthen youth and women to participate in such viable programmes,

REFERENCES

1. Aref, F. (2011). *Farmers' participation in agricultural development: The case of Fars province, Iran*. *Indian Journal of Science and Technology*, 4(2):155-158.
2. Asres, E. (2013). *Effect of Agricultural Extension Program on Smallholders' Farm Productivity: Evidence from Three Peasant Associations in the Highlands of Ethiopia*. *Journal of Agricultural Science*, 5(8):1916-9752.
3. Bamire, A. S., Fabiyi, Y. L. and Manyong, B. (2002). *Adoption pattern of fertilizer technology among farmers in the ecological zones of south western Nigeria: a Tobit analysis*. *Australian Journal of Agricultural Research*, 5, 901- 910.
4. Beyene, A. D. (2008). *Determinants of off-farm participation decision of farm households in Ethiopia*.
5. European Market Research Centre, (2004). *ZACAREP promoting development through agricultural reform*. *Dialogue the magazine for developing world quarterly winter*, 14-16.
6. Etwire, P., Dogbe, W., Wiredu, A., Martey, E., Etwire, E., Robert, K., and Wahaga, E. (2013). *Factors Influencing Farmer's Participation in Agricultural Projects: The case of the Agricultural Value Chain Mentorship Project in the Northern Region of Ghana*. *Journal of Economics and Sustainable Development*, 4(10):1-9.
7. Geng, X. Grether, D, and Plott, M., (2008). *Measurement of customers involving dimensions, driving factors and the mechanism of customer satisfaction*. *Zhejiang University, Dissertation Abstract International*. Retrieved February 1, 2012 from: www.ccsenet.org/jas
8. Hashmi, A. A and Sial, M. M. (2007). *Trends and Determinants of Rural Poverty: A Logistic Regression Analysis of Selected Districts of Punjab*. *Poverty Impact Analysis Selected Tools and Applications*. Asian Development Bank.
9. Idrisa, Y. L., Ogunbameru, B. O. and Amaza, P. S. (2010). *Influence of Farmers Socio-economic and Technology Characteristics on Soybean Seeds Technology Adoption in Southern Borno State, Nigeria*. Department of Agricultural Economics and Extension Services, University of Maiduguri, Maiduguri, Nigeria.
10. Iqbal, M. (2007). *Concept and implementation of participation and empowerment: Reflection from coffee*. *Makara social humaniora*, 11(2): 58-57.
11. Li, X., and Li, B. (2005). *Study of the teaching mainstay's participating degree*. *Research in Teaching*, 3: 8-11.
12. Maddala, G. S. (1983). *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge, UK: Cambridge University Press.
13. Mahabub, H. And Manik, L. B. (2004). *Nature and Impact of Women's Participation in Economic Activities in Rural Bangladesh: Insights from Household Surveys*. Centre for Policy Dialogue – CPD Occasional paper Series 41. Bangladesh: CPD, 90pp.

14. Martey, E. Asante, O., Al-Hassan, R., Dogbe, C. (2013). *Factors influencing participation in rice development projects: The case of small holder rice farmers in northern Ghana*. *International Journal of Development and Economic Sustainability*, *1*(2):13-27.
15. Mohammed, A., and Jema, H. (2013). *Impact analysis of Mede Telila small scale irrigation scheme on house poverty alleviation: Case of Gorogutu District in Eastern Haratghe Oromia National Regional State Ethiopia*. *International Journal of Development and Economic Sustainability*, *1*(1):15-30.
16. Mustapha, S. B., Makinta, A. A., Zongoma, B. A. and Iwan, A. S. (2012). *Socio- Economic Factors Affecting Adoption of Soybean Production Technologies in Takum Local Government Area of Taraba State, Nigeria*, *Asian Journal Agriculture and Rural Development*, *2*(2): 271-276.
17. NPC (2006). **Census Facts Sheet Issued April 2006**. Abuja: National Population Commission
18. Nxumalo, K. K. S. and Oladele, O. I. (2013). *Factors Affecting Farmers' Participation in Agricultural Programme Zululand District, Kwazulu Natal Province, South Africa*, *Journal of Social Science* *34*(1):83-88
19. Oladele, O. I. and Kareem, A. I. (2003). *Adoption Rate and Continued Use of Selected Arable Crop Technologies among Farmers in Oyo State, Nigeria*. *Journal of Food, Agriculture and Environment*, *1*(3 & 4), 291-294. <http://www.world-food.net/jfae/index.php?url=2003/issue1/>
20. Orji, P.O (2015) *Factors Influencing Farmers' Attitude and Participation in Community-Based Agriculture and Rural Development Programme (CBARDP) In Selected Areas of Kaduna State*. A Dissertation Submitted to the School of Postgraduate Studies, Ahmadu Bello University, Zaria, in Partial Fulfilment of the Requirements for the award of the degree of Master of Science in Agricultural Extension and Rural Sociology
21. Pal, V., Shiyani, R., & Ardesna, N. *Spatio-Temporal Analysis Of Agricultural Development In Gujarat*.
22. Sithole, L. N., Job, K., Lagat, M. and Micah, B. M. (2014). *Factors Influencing Farmers Participation in Smallholder Irrigation Schemes: The Case of Nfonjeni Rural Development Area*. *Journal of Economics and Sustainable Development*, *5*(22): 2222-2855 www.iiste.org
23. Shittu, A. M. Ashaolu O. F and Odusanya O. S. (2005). *Off-farm labour participation and farm household livelihood strategy in Yewa division, Ogun State, Nigeria*, pp18-20
24. Tsado, J. H. 2004. *Women's Involvement in farming Activities and Household food Security in Dako Local Government Area of Niger State Unpublished Master's Thesis, Faculty of Agriculture, University of Ilorin, Nigeria*,
25. Woodridge, J.M. (2002). *Econometric analysis of cross sectional data and panel data*. Cambridge and London: MIT press.
26. Yakubu, A. A. (2005). *Risk and Risk Management in Cotton Production among Farmers in Zamfara State, Nigeria*. Unpublished Master's Thesis, Usman Danfodio University, Sokoto
27. ZADP (2012). *Monitoring and Evaluation Year Report*. PME, Department of the Zamfara Agricultural Development Project PMB 1020, Samaru, Gusau. Zamfara State.

28. ZMSG (2001). *Zamfara State Government Bureau of Information. Ministry of Information and culture Zamfara state, Nigeria*www.zamfarastate.net.
29. ZMSG (2010) *Zamfara State Government Bureau of Information.,Nigeria* www.zamfarastate.net.
30. ZMSG (2012). *Zamfara State Government Bureau of Information. Ministry of Information and culture Zamfara state, Nigeria*www.zamfarastate.net.
31. ZMSG (2016) *Zamfara State Government Bureau of Information., Nigeria* www.zamfarastate.net.
32. ZASIDEP (2004).*Zamfara state intergrated development programme: technical coordinating committee report(TTC). Zamfara seeds.* www.zacarep.com

