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FACTORS INFLUENCING THE LEVEL OF PARTICIPATION OF IRISH POTATO FARMERS OF THEWOMEN-IN-AGRICULTURE AND YOUTH EMPOWERMENT (WAYE) PROGRAMME IN-PLATEAU STATE

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ABSTRACT
This study examined the factors influencing the level of participation of irish potato farmers of the women-in-agriculture and youth empowerment (waye) programme in plateau state, Nigeria. A multi-stage sampling method was employed to select 256 respondents. Primary data were collected through the use of questionnaires and were subjected to both descriptive and inferential statistics. The mean farming experience was 10and 16 years for participating and non-participating farmers while mean farm size for participating farmers and non- participating farmers was 1.4 and 0.5 ha.The result of the findings reveals that,(55%) and (47%) of the participating farmers and non-participating farmers had secondary school education, which constituted the largest number of educational qualification attained in the study area. Factors influencing the level of participation of irish potato farmers in (waye) programme in Plateau State: marital status (3.72, P<0.01), sex (2.25, P<0.05), years of irish potatoes production (9.85, P<0.01), household size (10.92, P< 0.01), awareness of WAYE (4.93, P< 0.01), a unit increase in these factors will subsequently influence the level of participation of irish potato farmers in (WAYE) programme. The result of the SWOT analysis on the effective implementation of WAYE programme reveal that majority of the famers age fall within the younger and the Middle age group, this two groups comprises more than 80% of the respondents but the participants and the WAYE Project tends to take the largest portion; education Level: 64% of the participants have secondary or tertiary education, while only 59% from the none participants have the secondary or tertiary education. It was recommended that, WAYE programme be extended to other farming communities in Plateau State, so as to accelerate the irish potato production among farmers in the State.

Keywords: Factors, participation, irish potatoes, WAYE and Plateau State.

INTRODUCTION

Irish potato (Solanum tubersun) belongs to the solanaceae family. The (Solanum tubersun) is a native of western hemisphere and is believed to have originated somewhere between Mexico and Chile possibly in Andes highlands of Bolivia and Peru. It later spread to other places like England and Ireland where it is predominantly cultivated. The planting stock was also received from Ireland by other nations, hence the origin of the popular name Irish potato. It is also known as white potato some South America countries (Burton, 2000). Irish potato was introduced into Nigeria in the later part of the 19th century and early 20th century by Europeans notably the tin miners in the Jos Plateau (Mado, 2013). It has a high nutritive value and it is grown for food purposes as well as livestock feed. It is also used for industrial purposes (Okeowo, 1999; Burton, 2000). Mado (2013) stressed that many of the rural farmers are poor, and thus look to roots and tubers as contributing if not the major source of food nutrition and cash income. Irish potato has been described as being very important and consumed by those who traditionally use them for food and feed, as well as those who use its processed by-products (Horton, 2001). Irish potato is, therefore, an important crop not only as food crop, but also its social, economic and environmental relationships with the people who grow, sell and consume it (Alimba and Mgbada, 2003).

The empowerment of women and youths that are involved in potato production in Plateau State is therefore crucial to poverty reduction.Women-in-Agriculture and Youth Empowerment (WAYE) programme aims at encouraging Irish potato production through participation of the target group as a strategy to combat rural poverty. This is because in Nigeria and particularly Plateau State, potato is by far the most efficient tuber crop in terms of tuber yield and days of maturity. It matures in about 80-90 days as compared to 9 and 12 months for yam and cassava respectively. Irish potato yield of 15 to 30 tonnes has been reported under the Mambilla Plateau condition

(Okeowo, 1999). In recent times, poverty reduction and improvement on the level of living in rural communities have been burning issues among world leaders. This was reflected in the theme of the World Vision 2020 Africa Conference held in Uganda, (IFPRI, 2004). In this regard, successive governments in Nigeria have initiated and implemented various programmes at Federal, State and Local government levels and also collaborated with NGOs and civil societies to achieve these goals. Therefore, Women-In-Agriculture Programme (WIA) and Youth-In-Agriculture Programme (YIAP) were both initiated and implemented towards reducing poverty, improvement on the income and raising the level of living of rural dwellers to achieve the first goal of the MDGs (Sharma, 2004). However, the non-interaction between and among stakeholders, delay, embezzlement, misappropriation and inadequate funding, inadequate technical advisory/extension services and inadequate monitoring and evaluation of the programmes were among the notable factors that militated against the effectiveness of these laudable programmes (Casley and Ekpo, 2008). The high level of poverty among women and youth in Nigeria today therefore posed a key challenge to investigate the performance of some of these intervention programmes with the aim of redirecting both government and viable NGOs' efforts through appropriate policies and programmes that will be channeled towards reducing rural poverty in Nigeria and Plateau State in particular (Ogunbaremu, 2001).

In Plateau State, there are a number of non-governmental organizations that are not only operational but also partner with the State government in order to empower both women and youths in the State to live more productive lives, contributing positively to the economic and moral fabric of our society and keeping off vices that could lead to destruction of lives and properties. They include: Women Initiative for Sustainable Development (WISD), Alheri Development and Skill Acquisition Initiative (ALDESAI), Ai-Saleh Women and Youth Development Foundation (AWYDF) and Center for Gender and Rural Development (CEGERD) and, Women-In-Agriculture and Youth Empowerment (WAYE) programme.

The WAYE programme is among the recognized non-governmental organizations in the State which was established in 2007 to promote sustainable social and economic development of the target group.The major objective of WAYE programme is to ensure complete involvement of both women and youths in agriculture with the aim of improving the living condition of households in Plateau State.

A number of studies have been carried out by different scholars (Shittu, 2012; Kotter and Petras, 2012; Mado, 2013; Shittu and Panan, 2014) to assess the Women-In-Agriculture and Youth Empowerment(WAYE) programme. Their main focus, however, was on women and men and only few Local Government Areas were covered, thus limiting the scope on WAYE programme objectives. Similarly, Dankat (2015), in his study on the impact of WAYE programme, concentrated his efforts more on reproductive health (HIV/AIDS and rehabilitation) while the agricultural component and other aspects of the programme were greatly ignored. What is almost lacking in these studies, however, is any direct involvement of youth in the programme and assessment of impact of the programme on the livelihood of the participating farmers. Therefore, their studies have left a knowledge gap on impact of Women-In-Agriculture and Youth Empowerment programme objectives. Furthermore, these studies are empirically shallow in their analysis and left much to be desired as reliable sources of information to develop specific theories of programmes to alleviate rural poverty and improvement on the livelihoodof the rural people. This has indeed created knowledge or information gap in the literature.It is based on this, that the study, therefore, intended to provide empirical analysis on women and youth that will be useful for re-assessment and re-orientation of the program's objectives and focus. And thus, the study would make an attemptto find solutions to the following research questions:

i. What are the socio-economic characteristics of Irish potato farmers in the study area?

ii. What is the level of participation of Irish potato farmers in the WAYE programme?

iii. What are the socio-economic characteristics and institutional factorsinfluencing the level of participation of the Irish potato farmers in the programme?

Objectives of the Study

The broad objective of the study is to determine, the factors influencing participation of Irish potato farmers in the WAYE programme on livelihood of Irish potato farmers in Plateau State. The specific objectives are to:

i. describes the socio-economic characteristics of Irish potato farmers in the study area;

ii. examine the level of participation of Irish potato farmers in the WAYE programme;

iii. determine the socio-economic characteristics andinstitutional factors influencing thelevel of participation of Irish potato farmers in the programme.

METHODOLOGY

Study Area

This study will be conducted in Plateau State, Nigeria. The State was created in 1976 from the defunct Benue-Plateau State. The name "Plateau State" was derived from the State's spectacular geographical landscape, with the high lands rising from 1,200 meters above sea level at the low lands to a peak of 1,829 meters above sea level. It is located in Nigeria's middle belt and lies between latitude $80.24^0\ N$ and longitudes $80.32^0\ E$ and $100.38^0\ E$ ofthe Greenwich Meridian. The State is situated in the tropical zone, with a higher altitude ranges from 12 meters, about 400 feet to a peak of 1829 meters above sea level (Plateau Agricultural Development Programme, 2000). Plateau State has a boundary with Bauchi State to the north-east and Kaduna State to the north-west. It is also bounded to the south-east and south-west by Taraba and Nasarawa States, respectively. The State has a landmass covering nearly 53,585 square kilometers with a population of 3, 577, 669 people as per 2006 census (NPC, 2006). The present population of the state can be determined using the population projection formula as expressed below:

$Fv = Pv(1 + r)^n$……1

Where:

Fv= Future value of the population., *Pv* = Present Value i.e. baseline population = 3,577,66 ., *r* = is Population growth rate (2.6%), (World Bank, 2016)., *n* = Number of years being projected = 10 years (2006 – 2017).Therefore, the population of the state as at 2017 is about 4,808,088 people.

Sampling Procedure and Sample Size

A multi-stage sampling procedure was used to select participating farmers for the study. There are nine (9) Irish potatoes producing LGAs in Plateau State and they are given a priority consideration for the programme. In the first stage, all these nine Local Government Areas were used for the study. This was because of their high level of production of potatoes in State. In the second stage, two villages were randomly selected in each Local Government Area and this was based on the level of participation in the programme as well as in potato production. This gave a total of eighteen (18) villages. During a reconnaissance survey of the study area in 2016, the list of WAYE potato farmers in the chosen villages was compiled with the help of the programme coordinating officers in each LGA and the total number obtained was seven hundred and eleven (711) farmers. This formed the sample frame. Finally, the sample size (n_0) was calculated using the Slovian (1967) formula adopted by Momoh (2015)on the assumption of 5% expected margins for error, 95% confidence interval and applying the finite population correction factor expressed as follows:

$n_0 = \frac{N}{1+N(e^2)}$……2

Where: $n_0 =$ the sample size

e = 0.05,

N = total number of observation = 711

Hence,

$$n_0 = \frac{711}{1+711(0.05^2)}$$

$$n_0 = 256$$

Therefore, a total number of two hundred and fifty-six (256) Irish potato farmers were selected randomly using the random number table method. Equal number of potato farmers was also randomly selected from other villages not included in the study as shown in Table I

Table I: Samples Size on LGAs and Village Basis

L.G.A.	Participating farmers			Non-participating farmers		
	Village	Sample frame	Sample size 36%	Village	Sample frame	Sample size 36%
Jos South	Kuru	39	15			
	Zawan	37	14	Doruwa	78	28
Barkin Ladi	Rakung	41	15			
	Heipang	43	16	Du	69	22
Bokkos	Mushere	47	18			
	Manguna	35	13	Maitako	88	32
Mangu	Mangu Halle	44	17			
	Kerang	29	11	Bwai	86	31
Langtang North	Pilgani	49	19			
	Gazum	33	12	Zamko	90	33
Shendem	Kwande	40	14			
	Shimanta	42	14	Yelwa	66	23
Pankshin	Maraba Pushit	28	09			
	Mile 8	42	14	Chugwong	100	37
Riyom	Vom	47	16			
	Farin Lamba	33	11	Ganawuri	48	16
Bassa	Jengere	44	15			
	Rukuba	38	13	Maingo	86	31
TOTAL		**711**	**256**		**711**	**256**

Methods of Data Collection

Both primary data and secondary information was used for the study. The primary data were obtained by the use of well-structured questionnaire and administered to the participating farmers and non-participating farmers by the researcher and to be assisted by well-trained enumerators from the Plateau State Agricultural Development Project (PADPs). However, the instrument was first subjected to content validation by the supervisors, each contributing his opinion on the relevance of the items. In addition, a pre-test of the validity of the questionnaire was also adopted with few number of the target group in the study area. The essence was to determine the ease with which the respondents understand the information required. This helped to identify faulty questions in the draft and necessary modifications and adjustments were made for easy administration. The secondary information was obtained as base-line information from WAYE head office and the coordinating liaison offices. Also, information from other related studies were used to support the discussion of results of the findings.

Analytical Techniques

Data were analyzed using both descriptive and inferential statistics. Descriptive statistics was used to achieve objectives (i) – describe the socio-economic characteristics of participants in the programme (iii) – identify and describe the strengths, weaknesses, opportunities and threats (SWOT) to effective implementation of the programme in the study area. Inferential statistics. Was used to achieve objectives (ii) –. determine the socio-economic characteristics and institutional factors influencing the level of participation of Irish potato farmers in the WAYE programme.

Tobit regression model

Tobit regression model was used for objective (iv) - determine the socio-economic characteristics and institutional factors influencing the level of participation of farmers in the programme and test hypothesis (i) Farmers' socio-economic characteristics and institutional factors have no significant influence on participation in the WAYE Irish potato production programme in the study area. Tobit regression was used because it will reveal the probability of participation in the WAYE programme and also the intensity of participation in the programme. The Tobit model is a hybrid of the discrete and continuous dependent variable proposed by Tobin (1958) adopted by Momoh (2015) and shows the link between a non-negative exogenous variable Y_i and independent variable (or vector)X_i. The Tobit model assumes a latent unobservable Y_i which linearly depends on X_i via a parameter vector β and normally distributed error term $U_i$that captures the random influence of this relation. The tobit model is thus expressed:

$$Y^*i = \beta_0 + \beta_i X_i + U_i$$

$Y_1 = Y^*I$ if $\beta_0 + \beta_i X_i + U_i > 0$…… …3

$Y_1 = 0$ if $\beta_0 + \beta_i X_i + U_i \leq 0$

Where: = the ratio of level of participation index for i^{th} farmer.Y^*i = the latent variable and the solution to utility maximization of intensity of level of participation. X_i= the vector of factors affecting the level of participation. β_i= the vector of unknown parameters and U_i = the error term which is normally

distributed with a mean of 0 and a varianceσ^2. The estimation of the model parameters is done by maximizing the tobit likelihood function:

$Y^*_1=\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + U$……..…….4

Where: Y^*_1= the level of participation, X_1 is the age (years), X_2 is the marital status (married = 0, single = 1), $X_3$is gender (male = 0, female =1), X_4 is the household size (number), X_5 is the farm size (hectares), $X_6$is the formal education (years), $X_7$is farming experience (number of years), $X_8$is the information source (number of sources), $X_9$is the amount of credit received (₦), $X_{10}$is membership of cooperative associations (years), and $X_{11}$is the access to extension services (number of extension visits). $U_i$is the error term, β_0 is the constant $\beta_0 - \beta_{11}$ is regression coefficients.

Double Hurdle Model

Decision to participate

$$Y_i = \begin{cases} 1 \text{ if } Y_i = 1 \quad = Yes \\ 0 \; if \; Y_1 = 0 = No \end{cases} \text{----------(5)}$$

Level of participation

$$Y^*_i = \begin{cases} 1 \text{ if } Y_i \geq \mathcal{F}_1 \quad = Level \\ 0 \; if \; Y_1 < \mathcal{F}_1 = zero \end{cases} \quad \text{……..…… . (6)}$$

Y^*_i= Level of Participation

X_1= Livelihood index, X_2= Marital status, X_3 = Sex, X_4 = Age (years), X_5 = Years of formal education of the farmer (years), X_6 = Irish potatoes production (years), X_7 =Total Farm size (Ha) , X_8 = Household size (no), X_9 = Credit (₦), X_{10} = Profit (₦), X_{11} = Perception (5= Strongly Agreed, 4= Agreed, 3= Undecided, 2= Disagreed, and 1= Strongly Disagreed), X_{12} = Awareness of WAYE programme(total number of information sources)

RESULTS AND DISCUSSION

Socio-economic Characteristics of Participating and Non-ParticipatingFarmers

In this section, data on socio-economic characteristics and institutional factors of WAYE programme participating and non-participating Irish potato farmers in Plateau State are provided. The result of the analysis presented in Table 2 shows that (68%) of the participating farmers were between the ages of 31- 40 years and (46%) were between the ages 41- 50years for the non-participating farmers. The mean age of the participating farmers was 38 years while that of the non-participating farmers was 43 years. This means that the participating farmers were younger in age than the non-participating farmers. This is in line with the major objective of WAYE programme to engage both young men and women in agricultural activities with the aim of improving the living conditions of households in the study area. Age has been found to be an important variable in agricultural productivity; hence both categories of the farmers were within the agricultural productive age range of 30-50 years quoted by Food and Agriculture Organization (FAO, 2000; 2008). The younger farmers form a cream of work force, signifying the capability and willingness to adopt new innovation and utilize it effectively to a higher degree. This finding is in line with that of Ekong (2003) who reported that most of the farmers involved in Irish potato farming were below 50 years. Similarly, Yahaya (2002) validated this assertion when he reported that farmers between the ages of 30 – 50 years are the most active age group in agricultural production.

The result in Table 2 reveals that (65%) and 60 (23%) of the participating farmers were married and singlewhile (66%) and (17%) of the non-participating farmers were also married and single respectively. Thehigher percentage of married farmers in both categories could be attributed to the culture of the people in the area, which encourages early marriage. The results show that being married is an attribute that is associated with family responsibilities, which is highly valued and cherished among farmers in the study area. The significance of marital status on agricultural production can be best explained in terms of the supply of family labour (Adewale, 2005). This study corroborates the findings of Okunade and Ibrahin (2011) who found that married farmers adopt new varieties of Irish potato and cassava more than farmers that are single. The result also in tandem with that of Nsoanya and Nenna (2011) who found that large proportion of small-scale farmers in Nigeria are male and married. The implication of this is that both categories of the farmers can make effective use of family labour to increase Irish potato production in the study area.

The result of the study shows, that (67%) and (33%) of the participating farmers were males and females while (77%)and (33%) of the non-participating farmers were males and females respectively. This shows that males dominate Irish potato production in the study area. The high percentage of males obtained in the non-participating Irish potato farmers may be attributed to the land ownership system that prevails in the study area, which allows only male members of the society to inherit and own land. This agrees study with the findings of Ayandiji and Adeniyi (2011) who reported that males have dominance potato production activities unlike their female's counterparts because agricultural activities are regarded as labour intensive. However, Okunade (2006) opined that

gender pose no barrier to active involvement in farming activities as revealed in the percentages of the participating Irish potato farmers. This could be as a result their accessibility to credit which enabled them hired enough farmland for Irish potato farming in the study area.

The result in Table 3 indicated that majority (63%) of the participating farmers cultivated between 1-1.5ha for Irish potato production while (75%) of non-participating farmers used less than 1ha.Thismean farm size cultivated by both categories of farmers was 1.4 ha and 0.5ha respectively. According to Ajani (2011) and Adamu (2019) classification of farm size of 0.1 - 5.9 hectares as small farms implies in this study that all the farmers were small scale farmers. This may be due to the inheritance system of land ownership practiced in the study area which results in land fragmentation among farmers, leading to small farm holdings. The implication of small farm size affects the quantities of Irish potato output produced which in turn affect both the income and food security status of the farmers. The result agrees with the finding of (Nwosu, 2007) who reported that majority (82%) of the farmers acquired the farmland through renting with farm sizes ranging from 0.5-4hetares. Land ownership influences agricultural productivity because farmers with small farmland are sometimes reluctant to use it for agricultural production (Subedi, 2008).

Farming experience in Irish potato, the result in Table 2 indicated that, (67%) and (54%) of both the participating farmers and non-participating farmers had Irish potato farming experience between 1-10years and 11-20years respectively. This shows that the non-participating farmers had many years of experience in Irish potato farming than their participating counterparts. Therefore, with many experience in farming, farmers are less likely to oppose the adoption of new technologies. A farmer's experience can also generate more confidence, thus, farming experience can have positive or negative effect on a farmer's decision. Abonge (2012) opined that farming experience is an important factor in determining both the productivity and the production level in farming.

The result in Table 2 reveals that (55%) and (47%) of the participating farmers and non-participating farmers had secondary school education, which constituted the largest number of educational qualification attained in the study area. Adewale (2005) had identified literacy among other factors as a variable that positively influenced the use of improved agricultural inputs by farmers. Also Asika (2001) and Ani (2004) in a separate studies found that formal education has a positive influence on adoption of innovation. Badiru (2011) validated this assertion when he reported that majority (79%) of his farmers were literate. The study of Edward (2011) also affirm this assertion when he reported that education play an important role for easy understanding of improved methods of agricultural production and makes farmers more receptive to advice from extension agency. The implication is that education provides a platform for participation and adoption of available innovations and also easy access to information (Mougeot, 2005). This agrees with Alimba and Mgbada (2003) who found that the level of literacy among the participating farmers significantly influenced the adoption of recommended potato production practices in the study area.

According to the distribution of respondents in Table 5.1. The result shows that majority (77%) and (73%) of the participating and non-participating farmers have a family size of 1-10 members respectively. This finding agrees with that of Ifenkwe (2012) and Adamu *et.al* (2021). who reported that the average family size in Africa is between 8 and 9 people in a household. The implication of large number in a household can be a motivation to the adoption of innovations because members will provide the required family labour for Irish potato production. This will reduce the cost of production.

Table 2: Distribution of respondents according to age, marital status, Gender, farm size, farm experience, educational level and household size.

	Participating farmers		Non – participating farmers	
	Frequency	Percentage	Frequency	Percentage
Age(Yrs)				
20 – 30	17	6.64	8	3.13
31 – 40	173	67.57	96	37.50
41 – 50	56	21.88	118	46.09
51 – 60	8	3.13	23	8.98
61 – 70	2	0.78	11	4.30
Total	256	100	256	100
Mean	38		43	
Marital Status				
Single	60	23.44	43	16.80
Married	166	64.84	169	67.58
Divorced	8	3.13	11	4.30
Widow	22	8.59	33	12.89
Total	256		256	100
Gender				
Male	171	66.80	196	76.56
Female	85	33.20	60	23.44
Total	256	100	256	100
Farm size(ha)				
Less than 1	36	14.06	192	75.2
1 – 1.5	162	63.28	35	13.68
1.6 – 2.5	47	18.36	21	8.20
2.6 – 3.5	8	3.13	7	2.73
3.6 and above	3	1.17	1	0.37
Total	256	100	256	100
Mean	1.4		0.5	
Farming Experience(Yrs)				
1 – 10	172	67.19	72	28.13
11 – 20	64	25.00	138	53.91
21 – 30	14	5.46	26	10.16
31 – 40	5	1.95	14	5.46
41 – 50	1	0.40	6	2.34
Total	256	100	256	100
Mean	10		16	
Educational level				
No education	10	3.91	6	2.34
Qur'anic/Adult .	7	2.73	11	4.30
Primary	71	27.73	88	34.38
Secondary	141	55.08	120	46.88
Tertiary	27	10.55	31	12.10
Total	256	100	256	100
Household size				
1 – 10	198	77.34	187	73.05
11 – 20	55	21.48	64	25.00
21 – 30	3	1.18	5	1.95
Total	256	100	256	100
Mean	8		8	

Source: Field Survey, 2017

Institutional factors of WAYE programme participating and non-participating Irish potato farmers in Plateau State

The resulting Table 3 reveals that only (2%) of the participating farmers had no contact with extension agents while (68%) of the non-participating farmers had no contact with extension agents. The result further revealed that (76%) and (70%) of the participating farmers and non-participating farmers respectively had contact with extension agents between 1-2 times in 2017 cropping season. This suggests that extension contact was high among the participating farmers compare to the non-participating farmers in 2017. The inference of extension contact on the study is that frequent contacts between farmers and extension agents create more awareness and reduces difficulty in the adoption process. Ango (2013) reported that frequent contact with extension workers help in informing and educating farmers on sources of inputs, train them on

the use of new technologies and also removes superstitious beliefs of improved technologies. This assertion is in line with Kabeer (2001) who found that about 79% of his farmers were receptive to new technologies due to frequent contact and the influence of extension workers. This implies that farmers with access to extension services are likely to be technically efficient than those with no contact with extension agent. It also means that lack of extension services hinders farmers from adopting new innovation.

The result of membership of cooperatives show, (95%) and (27%) of the participating farmers and non-participating farmers were members of different cooperative organizations while (5%) and (73%) of both the participating and non-participating farmers respectively were not members of any cooperative organization. The study further revealed that majority (50%) and (36%) of both the participating farmers and non-participating farmers were in cooperative organizations between 1-10years respectively. This implies that most of the participating farmers had long duration of experience as members of cooperative association which can facilitate understanding of the programme activities due to interaction among members. This implies that the farmers under WAYE programme were properly organized for easy access to subsidy and credit facilities. This is an indication that the more farmers participate in cooperative societies, the better the idea, knowledge and benefits derived from among members. This finding agrees with Mijindadi(2001) whose state that, farmers' membership of associations provide both information and credit to the farmers and encouraged adoption of recommended farm practices. It is also in line with Aladeokun (2009) who reported that cooperatives are the best-suited institutions for economic and rural development. According to the distribution of respondents, the result of the findings shows that (86%) of the participating farmers had access to credit while only (35.45%) of the non-participating farmers had access to credit. In addition, majority (60%) of the participating farmers received credit loan ranging between ₦251,000-₦500,000 while about (79%) of the non-participating farmers received credit that was between ₦50,000-₦250,000 in the same year. This implies that the participating farmers had more access and also received higher amount of credit than the non-participating farmers. Ekong (2003) reported that credit is a very strong important factor that is required for the development of farm enterprise. The availability and accessibility could largely determine the extent of production capacity of a farmer. Nwaru (2004) also found that the performance of an enterprise such as agriculture in Nigeria could be greatly influenced by credit accessibility.

Findings further revealed that most (27%) of the participating farmers obtained their credit from the WAYE Micro Finance Bank while the same financial institution seldom grantsfinancial assistance to the non-participating farmers. The major sources of funds for the non-participating farmers for Irish potato farming in 2017 cropping season were from their personal savings (36%), adashe (34%) and money lenders (20%) respectively. The implication is that non-participating farmers had insufficient funds to expand their production which will increase their Irish potato output and income. The finding agrees with Das (2012) who reported that well organized farmers had easy and direct access to agricultural loan and advances to expand agricultural production and other activities related to agriculture. Small-scale and unorganized farmers residing in rural communities are known to be at disadvantage in terms of getting free and direct access to many sources of credit facilities to meet their capital need in farming. The result in Table 3 shows, that (100%) of the participating farmers had access information on the WAYE Irish potato production activities while majority (64%) of non-participating farmers had no access to the same information about the WAYE activities. Das, (2012). Opined that rural farmers have various ways of obtaining information required for agricultural practices. These sources of information according to him are thus crucial in adoption process because before an innovation can be adopted, farmers must know, understand and act on this information.

Table 3: Distribution of Farmers according to extension contact, membership of group association, credit accessibility and sources of information

	Participating farmers		Non – Participating farmers	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Extension contact				
Yes	252	98.44	83	32.42
No	4	1.56	173	67.58
Total	256	100	256	100
Number of visit in 2017				
1 – 2	192	76.19	58	69.88
3 – 4	54	21.43	24	28.92
5 – 6	6	2.33	1	1.20
Total	**252**	**100**	**83**	**100**
Membership of cooperative organization				
Yes	244	95.31	69	26.95
No	12	4.69	187	73.05
Total	256	100	256	100
Years of membership				
1 -10	121	49.59	25	36.29
11 – 20	70	28.69	18	26.09
21 – 30	40	16.39	11	15.94
31 – 40	11	4.51	9	13.04
41 – 50	2	0.82	6	8.70
Total	244	100	69	100
Number of organizations				
1 – 2	178	72.95	40	57.97
3 – 4	52	21.31	23	33.33
5 – 6	14	5.74	6	8.70
Total	**244**	**100**	**69**	**100**
Accessibility of credit				
Yes	220	85.94	101	39.45
No	36	14.06	155	60.55
Total	256	100	256	100
Amount received	**(n=220)**		**(n=101)**	
50,000 - 250,000	13	5.91	80	79.21
251,000 -500,000	133	60.45	18	17.82
501,000 -750,000	62	28.18	3	2.97
751,000 -1,000,000	10	4.55	0	-
1,001,000 -1,250,000	2	0.91	0	-
Total	220	100	101	100
Source of credit				
WAYE Micro Finance	218	27.05	13	2.03
Commercial bank	32	3.97	3	0.47
Cooperative groups	209	25.93	27	4.21
Money lenders	18	2.23	129	20.12
Family/friends	6	0.75	22	3.43
Adashe	92	11.41	219	34.17
Personal savings	231	28.66	228	35.57
Total	**806***	**100**	**641***	**100**
Information source				
Yes	256	100	91	35.55
No	0	-	165	64.45
Total	256	100	256	100

Source: Field Survey, 201. Multiple Response Allowed

Examine the level of participation of Irish potato farmers in the WAYE programme

The findings in Table 4. reveals that, 84% probability on decision to participate or not was explained by all the variables included in the model. Individually, age, level of profit amount of credit accessed were found to be significant at 1% level of probability whereas livelihood index, marital status and perception were found significantly affect this decision at $P<0.05$. The implication of these were age decision to participate is found to be decrease by increase in age thus younger farmers make more decision to participate than older farmers. It was found that as age increases by 1-year participation

decision to participate reduces by 49.2%. For amount of credit accessed as the amount access is increases by ₦1 decision to participate is equally increase by 7.4%, this is equally same for level of profit as it increases by ₦1 farmers' decision to participate increase by 29%. Similarly, Ogunbameru *et.al*.(2006) identified extension contact, access to market, level of education, access to credit, access to land and taking part in decision making as the factors affecting women participation in urban agriculture, Borno State, Nigeria.

Table 4: **Estimates Factors influencing farmers' decision to participation in WAYE**

Variables	Coefficints.	Std.rr.	Z-vale	P>|z	
Age	-0.49176	0.145392	-3.38***	0.001	***
Livelihoodindex	0.630784	0.318028	1.98**	0.047	**
Marital status	1.097346	0.575742	1.91**	0.057	**
Sex	-2.35148	1.635329	-1.44	0.15	
Fsize	-0.99613	0.697274	-1.43	0.153	
Years in irishpotatoes prod	0.057172	0.074085	0.77	0.44	
Household Size	0.12353	0.185541	0.67	0.506	
Creditedamount	0.0744	0.027	2.76**	0.006	**
Profit	0.29	0.0727	3.99***	0.000	***
Perception	3.850192	1.897224	2.03**	0.042	**
_cons	0.185696	7.074221	0.03	0.979	
Number of Obsertion				346	
Log likelihood				-32.6072	
LR				333.5	
Prob				0.000	
Pseudo R				0.8364	

Source: Field Survey, 2017 *** P< 0.01, ** P<0.05 and * P<0.10

Farmers make an important decision to participate in a project after they started the level of commitment to the project varies between the participants. Therefore, the hurdles analysis examines factors influencing level of participation inWAYE plateau state.The result in Table 5 indicates that, commutatively about 17.6% of the variation in level of participation is explained by the variable included in the model. It shows that marital status, years in irish potatoes production, household size, awareness of WAYEP were found to significantly influenced the level of participation at 1%, level of probability whereas only sex, is found significantly influence the level of participation at P<0.05. The implication of this finding is that, the level of participation increases by variation in marital status thus as farmers' marital status changes from single to married, the level of participation equally increases from 1 to 27.6%. It was also observed that as years in Irish potatoes production increase by 1unit the level of participation increases by 34.7%. Thus more experience farmers tend to participate more than new in-experienced farmers. So also as household size increase by 1 person the level of participation increase by 78%. Nonetheless as level of awareness of the existence of WAYEP increases by 1 the level of participation is equally increases by 30%. Based on these findings marital status, sex, years in irish potatoe production, household size, and awareness are the major factors influencing farmers' participation in WAYEP. This finding is in congruent with the study of Adamu (2019), factors influencing women farmers' participation in Development Exchange Centre (DEC) microcredit programme of Kaduna State, Nigeria. In his study the Logit regression analysis showed that level of education (1%), age (1%), house size (5%), credit (10%), farm experience (10%), extension (5%) and years of involvement in cooperative society (5%) were significantly related with level of participation in (DEC) microcredit programme.

Table 5: Estimates Factors influencing farmers' level of participation in WAYE

Variables	Coefficients	Std.Err.	T-value	P>|t|
Livelihoodindex	0.2763	0.1769	1.56	0.119
Marital status	0.6472	0.1738	3.72***	0.000
Sex	1.1465	0.5099	2.25**	0.025
Farm size	0.1742	0.3384	0.51	0.607
Years in irishpotatoes production	0.3474	0.0353	9.85***	0.000
Household Size	0.7805	0.0715	10.92***	0.000
Creditedamount	0.0000	0.0000	0.13	0.897
Profit	0.0000	0.0000	-1.59	0.112
Perception	-0.7914	0.7003	-1.13	0.259
Awareness of wayep	3.0301	0.6150	4.93***	0.000
_cons	21.2049	3.5333	6***	0.000
Age	14.4942	0.9059	12.82	16.388
Number of Obsertion				512
Log likelihood				-1410.98
LR				602.16
Prob				0.0000
Pseudo R				0.1759

Source: Field Survey, 2017 *** P< 0.01, ** P<0.05 and * P<0.10

CONCLUSION AND RECOMMENDATION

Based on the findings, the study concludes tha,t marital status, sex, years in irish potatoe production, household size, and awareness are the major factors influencing farmers' participation in WAYEP programme. It was recommended that, It was recommended that, WAYE programme be extended to other farming communities in Plateau State, so as to accelerate the irish potato production among farmers in the State.

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