

Enhanced Livelihood for Women Through Women – In - Agriculture Unit (WIA) Training Activities on Sweet Potato Processing in Nigeria

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Abstract: This paper examined the extension activities of Women-In-Agriculture unit of the Agricultural Development Programme of Nigeria, for the economic empowerment of low-income women through sweet potato snacks production. Stratified random sampling technique was used to select three out of six (south-east, south-west, north-west) geo-political zones in the country. Five states were purposively selected from each geo-political zone. Both qualitative and quantitative methods of data collection were used to elicit information from the respondents. In-depth interviews were conducted or fifteen (15) directors of the Women-In-Agriculture unit in all these states. Eight sweet potato processors were sampled and interviewed during field survey from each of the 15 states, making a total of 120 processors from the three geo-political zones. A focus group discussion was conducted for female groups in each state. Frequency counts and percentages were used to summarize the data while a multiple regression statistical tool was used to analyze the data. Findings on the socio-economic characteristics revealed that the variables that were significant in determining the number of times of extension training activities in sweet potato across these geopolitical zones include educational level, secondary occupation of processors, duration of time and benefits derived from sweet potato processing at 5 percent level of significance. ($R^2=0.141$, $p<0.05$) The result further showed that the extension activities of the Women-In-Agriculture unit include teaching on sweet potato processing, several uses of sweet potato, Problems encountered with the processing of sweet potato products, teaching of nutritional value of sweet potato and identification of sweet potato products. In conclusion, women participating in the Women-In-Agriculture programme enjoy a number of advantages over the non-participants. This is because they have a greater knowledge of and easier access to training and technologies through Women-In-Agriculture extension agents.

Key words: Women-In-Agriculture Unit % Low Income women % Sweet potato Snacks % Nigeria

INTRODUCTION

In Nigeria, extension has been an important unit of the Agricultural Development Project since 1988. The World Bank recognized the roles of rural women and so employed and trained few female extension agents.

In the last two decades, a lot of attention has been drawn to the important role of rural women in agricultural production in developing countries, especially Nigeria. However, prior to the realization that rural women constitute an “economically active population”, they were largely not considered productive because they usually worked as unpaid family labour [1]. Women are involved in many activities relating to food production. They

should therefore be empowered economically to improve the standard of living of rural households for enhanced food security in Nigeria.

Food processing is defined as any activity, meant to increase the economic value of a crop by improving its consumer appeal, quality, storability, uses and availability over time and space [2]. Longe [3] pointed out that rural women are involved in food production, processing and preservation. According to her, food processing is necessary for reduction of wastage, conservation of food crops into forms that are acceptable to different socio-economic classes depending on their dietary habits.

Sweet potato is one of the crops processed by the rural women for income generation. It has tremendous

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potentials for providing food for human beings. It is consumed as part of the main meal or as a snack. They are fried into chips or roasted as whole roots. Though processed products are very attractive to customers, fresh use is the major form of utilization in Nigeria [4].

Sweet potato is high in calorific value and can be processed into flour, (which can be fortified with wheat flour) and fried into puff-puff, chin-chin, cake and buns. It can also be fermented into industrial alcohol, vinegar, yeast and acetone [5]. It therefore has a potential of playing an important role as a food security crop and provides a variety of human food, animal feed and industrial products for empowering the low-income women producers in Nigeria.

Enhancing women productivity will improve the chances of achieving the overall, economic and social objectives of the WIA unit thus increasing their income and bringing them into the mainstream of development.

Women involvement in agriculture is significant not only in terms of labour input, but also in terms of decision-making. Despite the high involvement of Women-In-Agriculture and other related activities, limited agricultural extension services are extended to them. Most of the extension messages have been geared towards male farmers [6].

In Nigeria, all agricultural development projects in the country have integrated Women-In-Agriculture component under the extension sub-programme in order to meet the need of women in all aspects of agricultural production and to increase the income and standard of living.[7, 8].

Agricultural extension is an on-going process of getting useful information to people assisting these people to acquire the necessary knowledge, skills and attitudes to use information technology effectively [9]. The aim of the extension process is to enable people to use these skills, attitudes and knowledge to utilize effectively information in order to improve the quality of life.

The Integrated Agricultural Development Programme (IADP) led to the establishment of Agricultural Development Projects (ADPs), which are now present in each of the thirty-six (36) states and the Federal Capital Territory of the country[6].

The Agricultural Development Projects (ADPs) constitute the single largest agency, charged with the responsibilities of agricultural extension services in Nigeria. The ADPs started a decade before the WIA (Women-In- Agriculture) was introduced.

The Unified Agricultural Extension System is designed to use one extension agent to bring modern technology to farmers in more than one agricultural discipline, to remove the current practice of parallel extension services. This paper, therefore examined the extension activities of the Women-In-Agriculture (WIA) unit of the Agricultural Development Projects of Nigeria for enhancing low-income earning women through the intervention of sweet potato snacks

The Women-In-Agriculture (WIA) unit is operated under the extension departments and fully incorporated into the United Agricultural Extension System.

The main objective of the Women-In-Agriculture (WIA) unit of the Agriculture Development Project (ADP) is to improve the standard of living standard of rural women farmers in the areas of increased crop production, introduction of improved technology for food crops processing and marketing of farm produce.

Other Objectives of the Women-in-agriculture (Wia) Unit of the Agriculture Development Project (Adp), Nigeria Include:

- C Improvement of extension services through increase in number of female extension agents;
- C Introduction of improved and appropriate technology, which are labour saving and can remove drudgery, yet are affordable by the women farmers.
- C Organization of women groups and encouragement of women to register as viable cooperative groups so as to have access to credit facilities.
- C Introduction of newly recommended farm technologies by conducting SPATs and establishing women's groups.
- C Updating and up-grading the skills of Women-In-Agriculture (WIA) agents in agricultural/food production, preservation, storage, processing, utilization and nutrition;
- C Training of women farmers to increase their agricultural food production income and to improve their nutritional status;
- C Development of local recipes from farm produce;
- C Provision of assistance to women in post-harvest technologies and imitation of technologies that will reduce the drudgery associated with day-to-day activities of women.

This paper therefore examined how the number of times of training on sweet potato processing enhance low-income women productivity and improve the chances of achieving the overall, economic and social objectives

of WIA unit, thus increasing their income and bringing them into the mainstream of development .

Objective of the Study: The main objective of this study is to examine the place of extension-training programme of the WIA unit of the ADPs in enhancing low-income women through sweet potato snacks production in Nigeria. .

The Specific Objectives:

1. To examine the effect of some selected socio-economic characteristics of the sweet potato snacks processors on the number of times they attend training programmes of the WIA unit of the ADPs in the study area.
2. To examine the level of participation of respondents in extension training programme in the study area.

Hypothesis of the Study:

1. There is no significant relationship between effect of selected socio-economic characteristics of respondents and the number of times respondents attend extension training programmes on sweet potato processing of the WIA unit of the ADPs.

MATERIALS AND METHODS

Study Area: The study was conducted in three geopolitical zones of Nigeria – Southeast, Southwest and North Central. This is to ensure a national coverage as it is necessary to sample several areas to capture the socio-cultural and ecological differences as they affect rural dwellers in various localities sampled for sweet potato training in sweet potato growing zones (a brief description of the selected communities is shown in Table 1 below).The natural vegetation of these areas is characterized by the mixed moist tropical rainforest lowland in the central and the southern parts of the geopolitical zones which is good for the growth of sweet potato unlike the semi-deciduous rainforest of the north.(Table 1) The population for this study include all the women involved in sweet potato processing training programme in all the selected sweet potato growing geopolitical zones (Southeast, Southwest and, Northcentral).

The primary data were collected, using both quantitative and qualitative data collection methods. The qualitative methods used in the study include Focus

Group Discussion (FGD), In-depth Interviews (IDI) with the officials of the state ADPs and the women leaders, community mapping and seasonal calendars (Table 1). The secondary data were in the form of official documentation at the local government area, state and national levels. This was in order to gain insights into the perspective of the local population in three states where sweet potato is being grown and consumed,. Structured interview schedule was used to collect data from respondents. Simple random sampling was used to select 80 percent of each of the processors from three out of the six geo-political zones of Nigeria, to give 120 processors proportionately. The questionnaires were analyzed using multiple regression statistical tools.

The middle belt has socio-cultural diversity. The major ethnic groups include the Tiv, Idoma, Nupe and Kwari, Wagga, Mudang, Kilba etc. The southwest is dominated by the Yorubas and the women are generally involved in processing of crops to make a living.

Table 1 presents the breakdown of sampled states and the number of processors surveyed, Focus Group Discussions (FGDs) and In-depth Interviews (IDIs) conducted.

The Qualitative Methods Used in the Study Are

Focus Group Discussions (FGDs): The Focus Group Discussions (FGDs) were held with 15 women groups participating in Women-In-Agriculture activities from fifteen states. Eight (8) women processors were interviewed per group and different topics on sweet potato processing and products were raised with the assistance of a moderator per group. 15 groups of 8 women each per state were used for the FGDs in the study areas covered. The focus group discussions helped to get information on sweet potato production and processing from the respondents across geopolitical zones to be able to proffer solutions to identified problems to enhance the respondents income across geo-political zones

In-depth Interviews (IDI): with the officials of the state Agricultural Development Projects and the women leaders involved in sweet potato processing intervention programme. This also helped in eliciting information on sweet potato processing techniques from the ADP officials and the women leaders to identify variability in their responses and to enquire from officials and women leaders who have been working for long in these zones .These information will help in supplying further information on sweet potato production and processing

to enhance the income of the low-income women in the sweet potato growing zones identified.

Community Mapping: The community mapping was used as a tool to provide enough and adequate information on the physical linkages of communities with sweet potato farms, rivers, roads, electricity and other infrastructural facilities across geo-political zones. Knowledge of the physical linkages will enhance how the products are transported and marketed within and across geo-political zones. Major rivers will be identified to know where sweet potato would be planted since sweet potato production will be increased when it is planted near where there is regular water supply. Increased production will lead to increase in processing activities and income subsequently.

Seasonal Calendar: The seasonal calendar helped in providing information on the activities the women were engaged in different seasons i.e. it helped in knowing the season-specific nature of their production and processing activities for enhanced income.

Structured interview schedule was used to collect data from respondents. Simple random sampling was used to select 80 percent each of processors from three out of the six geo-political zones of Nigeria to give 120 processors. The questionnaires were analyzed using multiple regression statistical tools.

Analytical Technique: The quantitative data were described using the frequency counts and percentages and analyzed using multiple regression statistical analysis.

One hundred and twenty sweet potato processors were randomly selected for the purpose of this study from sweet potato growing states. The multiple regression analytical tool was then used to find out whether there is any association between the sweet potato processors selected social-economic/ personal characteristics and the training received by the Women-In-Agriculture unit of the ADPs in Nigeria.

RESULTS AND DISCUSSION

Table 1 presents the breakdown of sampled states and the number of processors interviewed: Focus group discussions [FGDs] and In-depth Interviews [IDIs] conducted.

Table 2 shows the extension training activities of the Women-In-Agriculture unit of the Agricultural Development Programme of Nigeria. Most of the training activities include teaching on sweet potato processing, several uses of sweet potato, (4%). Problems encountered with the processing of sweet potato products (8%) teaching of nutritional value of sweet potato (46%) and identification of sweet potato products (29%)

Table 1: Distribution of sweet potato processors according to geo-political zones and states

Geo-political Zones	State	ADP States Selected for Study	Dominant Ethnic Groups	Ecological Zones	WIA Directors	ADP Female Location	FGDs Women Group(s)	IDIs for WIA Leaders	IDIs, Officials
South East	Imo	Imo	Mostly Igbo	Forest	1	Owerri	1	1	1
	Anambra	Anambra			1	Oka	1	1	1
	Abia	Enugu			1	Enugu	1	1	1
	Enugu	Abia			1	Umuahia	1	1	1
	Ebonyi, Cross River	Ebonyi			1	Abakaliki	1	1	1
South West	Lagos	Lagos	Mostly Yoruba	Derived	1	Ikeja	1	1	1
	Ogun	Ogun		Savannah, Forest	1	Abeokuta	1	1	1
	Oyo	Oyo			1	Ibadan	1	1	1
	Osun	Osun			1	Osogbo	1	1	1
	Ekiti	Ekiti			1	Ado-Ekiti	1	1	1
	Ondo								
	Edo								
North Central	Benue	Kwara	Many Groups	Savannah, Derived	1	Ilorin	1	1	1
	Kogi	Kogi			1	Lokoja	1	1	1
	Kwara	Benue		Savannah, Forest	1	Makurdi	1	1	1
	Niger	Plateau			1	JosLafia	1	1	1
	Kaduna	Nassarawa			1		1	1	1
	Plateau								
	Nassarawa								
	20	15			15	15	15	15	15

Source: Field Survey, 2006

Table 2: Distribution of respondents based on participation in extension activities of Women-In-Agriculture Unit

Extension Activities of the Women-In-Agriculture Unit during Sweet potato training programme	Frequency	Percentage
1. Teaching of Sweet potato processing	15	13.0
2. Teaching of several uses of sweet potato	5	4.0
3. Teaching of problems encountered with processing of sweet potato products.	10	8.0
4. Teaching of nutritional values of sweet potato	55	46.0
5. Identification of sweet potato products	35	29.0
5. Total	120	100.0

Source: Field Survey, 2006

Table 3: Distribution of sweet potato processors by age

	State	20-29	30-39	40-49	50-59	60 and above	Total	Mean age
1	Imo	1 (12.5)	5 (62.0)	2 (25.0)	–	–	8(100)	37.75
2	Anambra	2 (25.0)	4 (50.0)	1 (12.5)	1 (12.5)	–	8(100)	35.75
3	Enugu	1 (12.5)	6 (75.0)	1(12.5)	–	–	8(100)	34.50
4	Abia	–	3 (37.5)	3 (37.2)	1 (12.5)	1 (12.5)	8(100)	40.75
5	Ebonyi	–	5 (60.5)	2 (25.0)	–	1 (12.5)	8(100)	40.75
6	Lagos	–	4 (50.0)	3 (37.5)	–	1 (12.5)	8(100)	42.00
7	Ogun	–	6 (75.0)	1(12.5)	1 (12.5)	–	8(100)	31.44
8	Oyo	–	5 (62.5)	2 (25.0)	1 (12.5)	–	8(100)	39.50
9	Osun	–	6 (75.0)	1 (12.5)	1 (12.5)	–	8(100)	38.25
10	Ekiti	–	5 (62.5)	2 (25.0)	1 (12.5)	–	8(100)	39.50
11	Kwara	–	7 (87.5)	1 (12.5)	–	–	8(100)	35.75
12	Kogi	2 (25.0)	4 (50.0)	1 (12.5)	–	1 (12.5)	8(100)	35.19
13	Benue	1 (12.5)	3 (37.5)	2 (25.0)	2 (25.0)	–	8(100)	40.75
14	Plateau	2 (25.0)	5 (62.5)	1 (12.5)	–	–	8(100)	33.25
15	Nassarawa	1 (12.5)	6 (75.0)	–	–	1 (12.5)	8(100)	37.00

Source: Field Survey, 2006 Mean X = 37.48

Table 4: Distribution of sweet potato processors (producers) by education

	State	Non-formal education	Functional literacy	Primary education	Secondary education	Islamic education	Total
1	Imo	–	4 (50.0)	2 (25.0)	–	2(25.0)	8 (100.0)*
2	Anambra	–	6 (75.0)	1 (12.5)	1(12.5)	–	8 (100.0) *
3	Enugu	–	4 (50.0)	3 (37.5)	1(12.5)	–	8 (100.0) *
4	Abia	1(12.50)	5 (62.5)	1 (12.5)	1 (12.5)	–	8 (100.0) *
5	Ebonyi	–	4 (50.0)	1 (12.5)	3 (37.5)	–	8 (100.0) *
6	Lagos	1 (12.5)	5 (62.5)	1 (12.5)	1 (12.5)	–	8 (100.0) *
7	Ogun	2 (25.0)	3 (37.5)	2 (25.0)	1 (12.5)	–	8 (100.0) *
8	Oyo	4 (50.0)	2 (25.0)	1 (12.5)	1 (12.5)	–	8 (100.0) *
9	Osun	4 (50.0)	2 (25.0)	1 (12.5)	1 (12.5)	–	8 (100.0) *
10	Ekiti	3 (37.5)	2 (25.0)	2 (25.0)	1 (12.5)	–	8 (100.0) *
11	Kwara	5 (62.5)	1 (12.5)	1 (12.5)	1 (12.5)	–	8 (100.0) *
12	Kogi	5 (62.5)	2 (25.0)	–	1 (12.5)	–	8 (100.0) *
13	Benue	4 (50.0)	2 (25.0)	1 (12.5)	–	1 (12.5)	8 (100.0) *
14	Plateau	3 (37.5)	1 (12.5)	1 (12.5)	3 (37.5)	–	8 (100.0) *
15	Nassarawa	3 (37.5)	1 (12.5)	–	1 (12.5)	3 (37.5)	8 (100.0) **

Figures in parentheses are percentages Source: Field Survey, 2006



Fig. 1: Typical women training programme in a Nigerian community

All the sweet potato processors were trained on how to process sweet potato ‘spari’ (roasted granules), sweet potato puff-puff and sweet potato cakes. The methods and recipes, used during the training programme, are stated in Fig. 2 to 5.

Age Distribution of Respondents: Table 3 presents the ages of the sampled women in years. Most of the processors in each state were middle aged. The percentages of the younger processors are small. There is the need to encourage more middle-aged women and the younger women to participate in this type of training

Table 5: Linear Regression results of factors affecting the Level of the extension training activities of sweet potato processors of the Women-In-Agriculture programme of the ADPs

Variable	B Coefficient	t- value	Standard Error	Remark
Constant	2.414	11.523	0.123	0.000
X ₁ Educational level	0.2136	2.0294	0.021	S*
X ₂ Age of Respondent	-0.952	-2.252	0.423	NS**
X ₃ Religion	-0.483	-0.628	0.769	NS**
X ₄ Household size	0.066	0.669	0.053	NS**
X ₅ Marital status	-0.099	-1.023	0.210	NS**
X ₆ Secondary Occupation	0.0640	1.152	0.052	S*
X ₇ Benefits derived from sweet potato processing	0.817	1.054	0.781	S*
X ₈ Ethnicity	-0.952	-2.252	0.4233	NS**

R² = 0.141; Adjusted R² = 0.376 NS** = Not Significant; S = Significant at 0.05

programme. This is because a lot of financial gains will be achieved through the sale of sweet potato snacks.

Education is an important parameter in training through extension education. This is because a literate population is easier to reach than an illiterate population. The highest educational level among the processors is the primary school.

Functional education is higher in the southern states of Nigeria than in the north-central states (Table 4).

Results of Focus Group Discussion Interviews:

Agricultural extension activities involved in during sweet potato training include teaching of sweet potato processing, the several uses of sweet potato, the nutritional values of sweet potato, the identification of sweet potato products etc., all of which fall in line with the agricultural extension activities of the ADPs. This agrees with the findings of Ladele and Ogunlade (1999) of the services rendered by agricultural extension in Nigeria.

Moreover, females in all the study areas engaged in food crop processing and sales of snacks and cooked foods.

Results of Multiple Regression Analysis:

Regression analyses include four functional forms: linear, semi-log, double-log and exponential. These were applied to analyze the data to achieve the main objective. The functional models are as follows:

The implicit function for the regression model was

$$Y=f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U)$$

- Y = Number of times respondents attended WIA unit extension training on sweet potato processing
- X₁ = Age of the sweet potato processors (in years)
- X₂ = Religion of the sweet potato processors: Dummy: 1= Christian 0=Muslim

- X₃ = Duration of training activities Dummy: 1= Length of time 0=Otherwise
- X₄ = Marital status of the sweet potato processors: Dummy: 1=Married 0=Otherwise
- X₅ = Secondary occupation of the processors If farming =1; Otherwise=0
- X₆ = Educational level of the processors. Formal Education=1; No Formal Education=0
- X₇ = Benefits of sweet potato to the processors. Financial Benefit=1; Otherwise=0
- X₈ = Ethnicity If Yoruba=1; Otherwise =0
- U = Error term

Linear

$$Y=a+b_1X_1+b_2X_2\dots b_nX_n$$

Double-Log Function

$$\text{Log } Y= a + b_1 \log X_1 + b_2 \log X_2 + \dots + b_n \log X_n + u$$

Semi-Log Function

$$Y= a + b_1 + \log X_1 + b_2 \log X_2 + \dots + b_n \log X_n + u$$

Exponential Function

$$\text{Log } Y= a + b_1 X_1 + b_2 X_2 + \dots + b_n X_n + u$$

The model that provides the best fit was chosen for further discussion on the basis of the following:

- ∩ The magnitude of the coefficients of multiple determination (R²),
- ∩ The magnitude and statistical significance of the regression coefficients,
- ∩ Signs of the regression coefficients as they conform to a priori expectation.

Table 6: Seasonal Calendars of farming / processing activities of sweet potato processors in studied geo-political zones

Month	Farming activities		
	South East	South West	North Central
January	Land Preparation	Land Preparation	Land Preparation
February	Land Clearing, Processing of sweet potato	Land Clearing	Land Clearing / Ridge making
March	Ridge making / Planting of Sweet Potato	Ridge making / Planting of Sweet Potato	Planting of Sweet Potato vines
April	Weeding, Planting of Sweet Potato vines	Weeding, Planting of Sweet Potato vines	Weeding, sweet potato processing
May	Weeding, processing of sweet potato	Weeding, processing of sweet potato.	Weeding
June	Harvesting of Sweet Potato	Harvesting of Sweet Potato	Harvesting of Sweet Potato root
July	Harvesting of Sweet Potato Sweet potato processing	Harvesting of Sweet Potato	Harvesting of Sweet Potato root continues sweet potato processing
August	Planting of Sweet potato Vines	Planting of Sweet potato Vines	Planting of Sweet potato Vines
September	Weeding / Harvesting of other crops, sweet potato processing	Weeding / Harvesting of other crops	Planting of Sweet potato Vines
October	Weeding of Sweet potato plot/land	Weeding of Sweet potato plot/land	Weeding of Sweet potato plot/land, sweet potato processing
November	Harvesting of Sweet Potato root Sweet potato processing	Harvesting of Sweet Potato root	Weeding of Sweet potato plot/land
December	Harvesting of Sweet Potato / Land Clearing	Harvesting of Sweet Potato / Land Clearing, processing of sweet potato	Harvesting of Sweet Potato / Land Clearing

Results show that there is a significant relationship between the number of times respondents attended extension training and some selected personal characteristics of sweet potato processors. At 5 percent level of probability. R^2 is 0.141, which shows that the variation in the number of times respondents attended extension training programmes is explained by 14% of the independent variables. It explains that 14 percent of the variations in the number of times of extension training from sweet potato processors are caused by the independent variables such as age, education, duration of training, religion etc. The results show that there is a significant relationship between the number of times of extension training programme on sweet potato processing and education, secondary occupation and benefit derived from sweet potato processing. This implies that each of the variables influences the number of times of extension training by the WIA unit of the ADPs.

Education exercised the greatest influence in the prediction of the dependent variable by the independent variables with a beta value of 0.2136 ($t = 2.0294$, $P < 0.05$). This shows a positive relationship with the dependent variable. This indicates that if the women have a high level of education, it will improve number of times they attend trainings on sweet potato processing. This is because education is one of the powerful tools in the teaching-learning process. Hence, the highest education, the highest the level of understanding of extension

training activities and the higher the number of times of attendance of training programmes on sweet potato processing activities.

The next contribution to the number of times of training level of extension is secondary occupation ($t = 1.152$, $P < 0.05$). Those who have secondary occupations also gain from the extension training activities and attendance of training programmes on sweet potato processing. This shows that secondary occupation reinforces the number of times of training attendance by respondents on sweet potato processing. Moreover the duration of training ($t = 0.669$, $p < 0.05$) has a positive but non-significant effect on the number of times of training on sweet potato processing. This implies that the longest the duration of training, the less the tendency of the respondents to attend a training programme and vice-versa. Age ($t = -2.252$, $p > 0.05$), religion ($t = -0.628$, $p > 0.05$), marital status (-1.023 , $p > 0.05$) and ethnicity (-2.252 , $p = 0.05$) are negatively related to the dependent variable; hence do not contribute to the variation in the number of times sweet potato training programmes are attended by the respondents. The results further show that age, religion, marital status and ethnicity have no influence on the number of times respondents attend training on sweet potato processing training activities. This means irrespective of the age, religion, marital status and ethnicity, the respondents will still attend extension training on sweet potato, hence, their none significance in

the regression model. The secondary occupation of respondents significantly affect the number of times that respondents can attend extension training because she has more income generating capacity to build on whatever new techniques she has been trained at such extension training programmes, hence the positive coefficient of the variable in the regression equation. Benefits derived from sweet potato processing must have been on the respondents, thereby resulting in the significant positive relationship it has with the dependent variable (number of times respondents attended extension training)

The regression activities used to find the relationship between the selected demographic characteristics and number of times respondents attended extension training on sweet potato processing programme in the Women-In-Agriculture unit of Agricultural Development Programmes in Nigeria shows that 14% variance in the level of training could be explained by the selected socio-economic characteristics. Since the functional form that best fits the model is double log, by implication, the coefficient of education, secondary occupation, duration and benefits derived from sweet potato processing are the direct elasticities showing the rate of change in $Y(a+b_1\log X_1+b_2\log X_2+\dots+b_n\log X_n+u)$ any of these aforementioned variables. Hence the respondents' attendance of training can be improved by this elasticity margin if these variables are improved by 1 unit. This implies that training enhances respondents' potentials to generate income.

Information on Seasonal Calendars in All the States Are Revealed Below: The seasonal calendars in all the selected states stated below provide information on which activities are engaged in at particular times. It also indicates the season –specific training –demand on sweet potato processing. The calendars show variability in the number of times training activities will be organized by the WIA unit. These activities include production, processing and marketing activities since the time at different geo-political locations in Nigeria are different. The knowledge of the calendar will guide the WIA unit on the time of training and also will affect the number of times of attendance by the respondents as indicated below. There are variations in the seasons of production, processing and land preparation in the three geo-political zones selected. It is very essential to know that training enhances the potential to generate more income. If the season of production and processing vary according to geo-political zones. Training organized during a wrong

season will not be effective as it will affect the number of times of attendance by the respondents.

Variabilities exist in some zones especially in the drier north. Problems, identified by the sweet potato processors during the focus group discussion in order of severity include lack of capital; lack of control over land; food insecurity, lack of market; bad roads and irregular visits by extension agents. .

CONCLUSION

The main conclusion of this study is that the Women-In-Agriculture unit of Agriculture Development Programme in Nigeria provides several teaching services to farmers in Nigeria.

Moreover the number of times of attendance of training by respondents on sweet potato processing involved in by the Women-In-Agriculture programme does not depend on the sweet potato processors' age, religion, marital status and ethnicity. However education exercised the greatest influence on the number of times respondents attend training programmes on sweet potato, since it enhances the number of times of training attendance. This is because of the knowledge about the benefits derivable from such attendance. Education also enhances the potential of women to generate income through the training attendance

Participants in the Women-In-Agriculture programme enjoy a number of advantages. They have greater knowledge and easier access to new information through training programme.

Government at the Federal State and Local levels should ensure that all agricultural programmes and projects include women in both planning and execution stages, since a large proportion of the rural women were involved in agricultural activities. The Women-In-Agriculture unit of the Agricultural Development Project should give all round educational services to all rural women.

It is recommended that the policy promoting women education should be encouraged since education has a positive effect in the training of sweet potato processors in Nigeria. Furthermore, farming activities should be encouraged since it has a positive influence on the sweet potato processing training.

Regular training programmes should be organized for both staff in WIA program to update them on improved processing techniques to enhance their performance.

SWEET POTATO CAKE

Materials	Quantity
Whole Wheat flour	350 gm
Sweet Potato flour	50 gm
Baking powder	1 Tablespoonful
Sugar	200 gm
Fat	350 gm
Eggs	4
Lemon rind a little Milk	150 ml to mix
Water	10 ml

Method

- C Sieve all dry ingredients together i.e. wheat flour, sweet potato flour and baking powder.
- C Add sugar to margarine and beat until mixture turns cream colour.
- C Mix wheat flour, baking powder and sweet potato flour.
- C Add beaten eggs in bits by degree.
- C Add water little by little to mixture until the mixture is flowing consistently.
- C Take two-table spoons of the dough and put into each hole of green tray.
- C Bake in a moderate oven until brown.



Fig. 2.0: Sweet potato cake

SWEET POTATO PUFF-PUFF

Materials

- C Wheat flour
- C Sugar
- C Yeast
- C Sweet potato flour
- C Margarine
- C Vegetable Oil
- C Salt
- C Water



Fig. 3.0: Sweet potato puff-puff

Method

- 1) Dissolve yeast in lukewarm water for 15 minutes
- 2) Sieve flour in a bowl
- 3) Add sugar and milk
- 4) Add margarine to the dough and mix
- 5) Make a well in the centre of the bowl, add beaten egg, dissolve yeast and mix well.
- 6) Leave the dough to relax for 20 minutes
- 7) Knead the dough again, mould into small balls and put on greased baking tray.
- 8) Bake in a hot oven at 250° for 20 – 25 minutes
- 9) Remove from oven and cool on a wire rack. (OR) Place the thin dough (covered with a white cloth) in a warm place, for 30 minutes and fry puff-puff until golden brown.

Other Snacks produced include sweet potato chin-chin, buns and biscuits.



Fig. 4.0: Sweet potato



Fig. 5.0: Sweet potato flour chin-chin

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