Yam Farmers' Attitude Towards Training Programmes of Agricultural Development Programme for Increased Production in Delta North Agricultural Zone

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Abstract

The study assessed yam farmers' attitude towards training programmes of Agricultural Development Programme In Delta North Agricultural zone, Nigeria.. A Total of 134 respondents used in the study were selected from 3 LGAs in Delta State, through multi-stage sampling procedure. Interview schedule was used to obtain information from the respondents and weighted mean scores, frequency, percentages and standard deviation derived from likert type rating scale were used to achieve the objectives. The findings revealed that majority (77.6%) were male, had secondary education (55.2%) with a mean age of 45 years, a mean years of farming experience of 11 years and mean annual income of ₦100,052. training programmes delivered to yam farmers by agricultural development programme were; storage systems of yam products (60.4%) among others. Yam farmers attitudes towards the training programmes were; training helps to acquire skills which improve farming activities ($\bar{x}$ = 3.60), training enhances knowledge and it improve farming activities ($\bar{x}$ = 3.26). The findings revealed that yam farmers' had positive attitude towards training programme and was significantly affected by income level, land ownership and nature of farming and training programme is beneficial to increased yam production. Based on the findings, the study recommended that more workshops/seminars should be organized by Agricultural Development Programme (ADP) to enlighten/teach farmers on the benefits of yam farmers' training programmes of agricultural development programme for increased production.

Keywords: Yam Farmers', Attitude, Training Programmes, ADP, Delta North Agricultural Zone

INTRODUCTION

Yam (Dioscorea spp) which is one of the essential tuber crops is a traditional food crop that is appreciated for its taste and cultural role in West Africa, especially in Nigeria. Nigeria is the world largest producers of yams, with annual production estimated at 45 million metric tons (UN Food & Agriculture Organization, 2017). Yam is regarded as a socio-cultural crop and is becoming expensive in urban areas as production has not kept pace with population growth leading to demand rising over and above supply (Kushwala and Polycarp, 2012). The main types of yam (Dioscorea spp.) such as the white yam (D. rotundata), yellow yam (D. cayenensis),

water yam (D. alata), three leaf Yam (D. dumetorum) and the aerial yam (D. bulbifera) grow best in the wet-and-dry tropics of West Africa.

Yams have very high yield potential, although their protein, mineral and vitamin contents are generally low compared to cereals. However, yams contain up to 6% protein of good quality and provide some minerals and vitamin C. They are recognized for their high dry matter production, with a potential of 2.1 tons per hectare from underground storage organ (O'Hair, 2012). Yam has been termed under-exploited and worthy of considerable more research input. In fact, this crop remained neglected in terms of scientific input until the establishment of the International Center for Tropical Agriculture (CIAT) in Colombia 1967, the International Institute for Tropical Agriculture (IITA) in Nigeria in 1968, and the International Potato Center (CIP) in Peru in 1971 (O'Hair, 2012). Even with the establishment of these International centres and extension organizations/agencies, yam production is still under-exploited in the states where they are highly consumed as staple and it's production as major occupation by the farmers. From available evidences, yam farms are still at subsistence level in the area with vast fertile lands and the outputs are very low to meet the local demand for them.

Agricultural Development Programme means a public or private enterprise programme that will promote profitable and sustainable family farms through assistance to farmers in developing and implementing plans for the production of food, fiber, forest, and value- added products, agritourism activities, marketing and sales of agricultural products produced on the farm, and other agriculturally related business activities (Akinola, Issa, & Sanni, 2015). In 1986 ADP was established in the defunct Bendel State with emphasis on extension through training and visitation but with the creation of Delta State, the Delta Agricultural Development Programme centers on rural development programmes in the field of agricultural facilities, the development of rural farm families, thereby raising standard of living (Delta State Ministry of Agriculture and Natural Resources, 2011). According to Okowea (2016) the schemes included loan disbursement to farmers, distribution of input to farmers and provision of extension packages for teaching farmers, supervising farmers and motivating farmers' interest for result oriented and teaching to increase production as well as income generation characterized by minimal risk.

Training is a planned process to modify attitude, knowledge, skill or behavior through learning experience to achieve effective performance in an activity or range of activities to farmers is one of the objectives of Delta State Agricultural Development Programme. The types of training programmes carried out by Delta State Agricultural Development Programme for yam farmers included, subsidies/ incentives to aid yam production, storage systems of yam products, yam multiplication methods, processing of yam tubers to yam flour, time of planting, organic yam farming among others (Uwe, 2016). A sustained agricultural extension practice has been seen as a panacea to all agricultural and technological problems of the developed nations of the world like America, Europe, Germany, etc. It is expected that third world countries should properly and practically embrace it for their own success (Elenwa et al, 2021). This is because Agricultural Development Programme is geared towards bringing to the rural people the knowledge and help that will enable them farm more efficiently and to increase their income; encouraging the farmers to grow their own food, set a good habit and live well. Assessment of yam farmers' training

programme of Delta State Agricultural Development Programme is important as it will help to know how yam farmers demonstrate what they are trained for providing feedback on the errors they've been making, know their attitudes towards training and help provide opportunities to better their performance.

Objective of the Study

The study focused on the following specific objectives;

    i.   describe the socio-economic characteristics of yam farmers' in the study area;

    ii.   identify training programmes delivered to yam farmers' by Agricultural Development Programme; and

    iii.   examine yam farmers' attitudes towards the training Programmes of Agricultural Development Programme delivered.in the study area.

Hypothesis

The following null hypothesis was tested to guide the study:

HO₁: There is no significant relationship between the socio-economic characteristics of yam farmers and yam farmers' attitudes towards training programmes of Agricultural Development Programme in the study area.

METHODOLOGY

The study was carried out in Delta North agricultural zone of Delta State. Delta State is a state that is comprised of mainly of Igbo (Anioma people), Urhobo, Isoko, Ijaw and Itsekiri ethnic groups (Okorie et al, 2021). All the ethnic groups are administratively grouped into three (3) Senatorial/Agricultural Districts namely Delta North, Delta South and Delta Central for easy administrative purposes. The State has an estimated area of 17,698 Km2, thus ranking 23rd in terms of area out of the 36 states of the country, Nigeria. The study area is geographically located between latitudes 5˚00'N -5˚45'N and longitudes 5˚30'E -60˚00'E, in Delta State of Nigeria. The States capital is Asaba while the economic nerve centre and most populated town is Warri (Nigeria Atlas of Electoral Constituencies [NAEC, 2008).
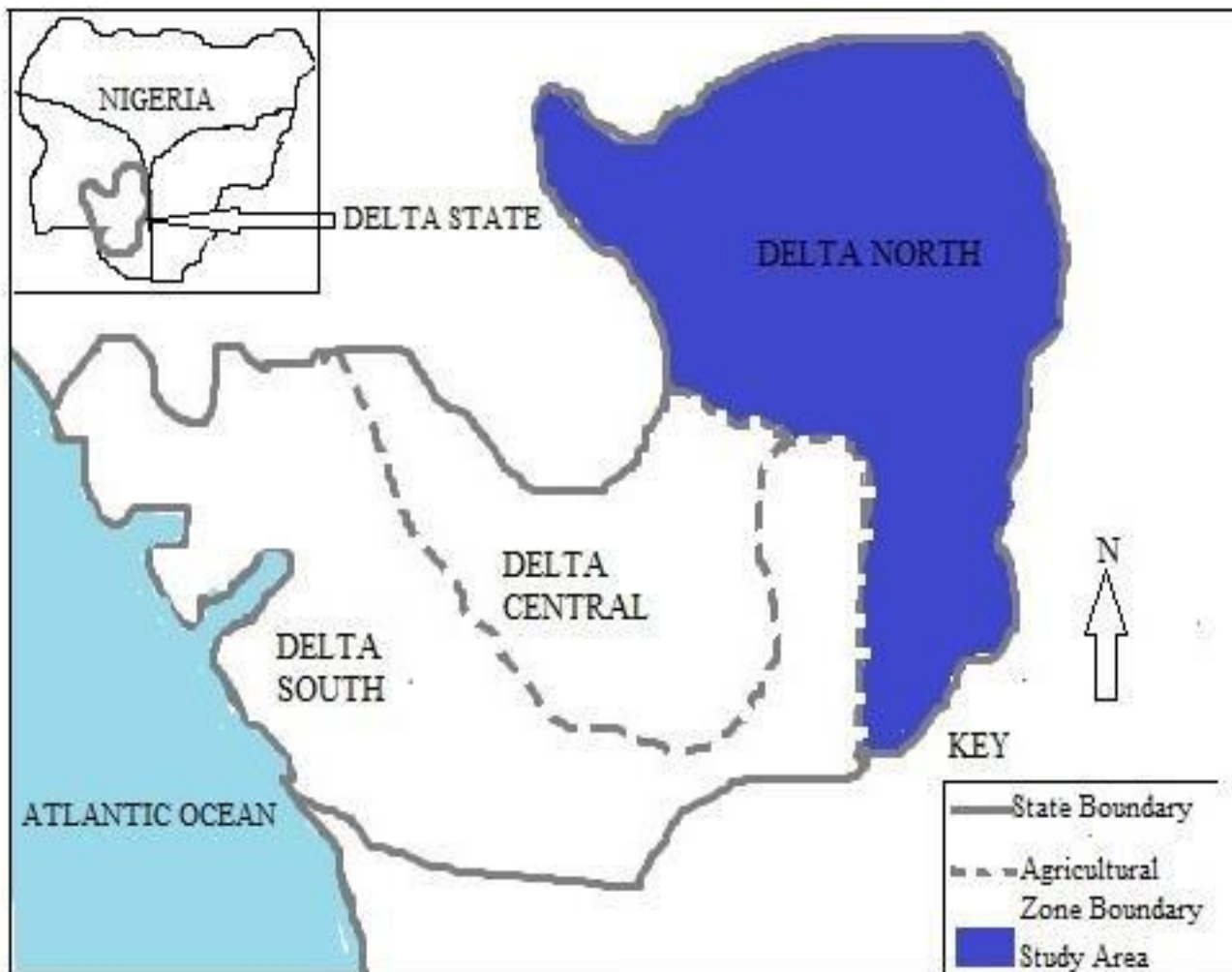
Figure 1: Map of Delta State Showing the Study Area

Source: Research Gate, 2023

The study adopted the multi-stage sampling procedure. Delta State is divided into 3 agricultural zones, namely: Delta North Agricultural Zone, Delta Central Agricultural Zone and Delta South Agricultural Zone. In the first stage, Delta North Agricultural Zone was purposively selected for this study because of its prominence in yam production. The zone is made up of nine Local Government Areas (LGAs) namely Ika North-east, Ukwuani, Ika South, Oshimili North, Ndokwa East, Oshimili South, Aniocha North, Ndokwa West and Aniocha South. The second stage involved the purposive selection of three (3) LGAs that are notable for production of yam; these are Ika South, Ika North-east and Oshimili North. In the third stage, from each of the three selected LGAs, Four (4) major yam producing communities were selected. From each of the selected communities, 134 yam farmers in contact with extension were randomly selected using lists of farmers provided by extension agents covering the communities. This sampling

procedure gave rise to 134 yam farmers that served as sample size for the study. Data for this study were collected from primary source. The instrument that was used for data collection was interview schedule. The data collected were analyzed using descriptive and inferential statistics. Descriptive include mean, frequency, tables and percentage while the hypothesis was analysed using inferential statistics such as simple linear regression. For hypothesis, any probability level less than 0.05 is significant and rejected for the null hypothesis, while probability level greater or equals 0.05 is not significant and retained for the null hypothesis. The model of the Linear Regression analysis is presented thus;

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 ....$$

Where: Y = yam farmers' training programmes of agricultural development programme.

a = Intercept

$\beta_1, ... \beta_{12},$ = coefficient of the regression

μt = the error term capturing other explanatory variables not explicitly included in the model.

X_1 = Age (in years); X_2 = Sex (dummy variable; Male =1, Female =0); X_3= Marital Status (dummy variable; Single = 4, Married = 3, Divorced = 2, Widowed/Widower = 1, Separated = 0); X_4 = Household Size (in number); X_5= Educational Level (dummy variable; Primary = 3, Secondary = 2, Tertiary = 1, Non formal = 0); X_6 = Years of farming experience (in Years).

X_7 = Level of income (in Naira); X_8 = Nature of Farming (dummy variable; Full time=1, Part time=0).; X_9= Farm Size (Hectare); X_{10}= Types of Yam cultivated (dummy variable; White yam=5, Yellow yam=4, Water yam=3, Cocoyam=2, Three leaf yam=1, Combination= 0).

X_{11}= Regularity of contact with Ext. Agent (dummy variable; Yearly= 6, Quarterly=5, Bimonthly=4, Monthly = 3, Forth-nightly=2, weekly=1, None= 0); X_{12}= Landownership status (dummy variable; rent=4, Gift=3, Communal=2, Bought=1, Inheritance=0).

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Yam Farmers' in Delta North Agricultural Zone

Table 1 showed that the male gender dominated yam farming with a percentage value of (77.6%) as against the female gender with percentage value of (22.4%). This shows that the male gender was actively involved in yam farming more than their female counterparts. This is in agreement with the finding by Odinwa, Emah and Albert (2016) who reported more males in yam production in Rivers and Imo States. The mean age was 45 years; this implies that the respondents in the study area that were into yam production were the middle adults and their age has negative effect on yam production leading to the dwindling status of yam production. Majority (62.7%) of the respondents were married followed by (15.7%) who were single, (14.2%). Educationally, majority (55.2%) had secondary education followed by (17.2%) that had tertiary and primary education while (10.4%) had no formal education. Aggregately, 89.6% of the respondents had one form of formal education or the other. This agrees with Okorie et al (2021) that majority of the farmers that participated in SEEFOR grogramme were educated. Education enhances farmers participation in programmes and trainings (Albert-Elenwa, 2017;

Elenwa and Igbokwe, 2018) Result on household size shows that majority (49.3%) of the yam farmers had household sizes between 5 – 8 persons followed by (27.6%) with a mean household size of eight (8) persons. The result indicates that the household size was quite large. Based on farming experience, majority (50.0%) had been into yam farming for 13 years with a mean year of 11 years. This implies that yam farmers have been into the farming for quite a long period of time and will embrace trainings that will improve their production. Result on land ownership shows that majority (35.1%) owned land communally, (30.6%) rented the land used for yam farming.. Result on monthly income shows that majority (41.8%) earned between ₦111,000 - ₦130,000 with a mean monthly income was one hundred thousand and fifty-two naira (₦100,052). Also, majority (47.8%) of the yam farmers had farm size between 1.1 – 1.5 hectares, they cultivate white yam (42.5%) and are visited fortnightly by extension agents.

Table 1: Socio-Economic Characteristics of Yam Farmers' in the study area

Variables	Freq. (n =134)	%	Mean
Sex			
Male	104	77.6	
Female	30	22.4	
Age (years)			
21 – 30	8	6.0	
31 – 40	11	8.2	
41 – 50	88	65.7	45 years
51 – 60	27	20.1	
Marital status			
Single	21	15.7	
Married	84	62.7	
Divorced	19	14.2	
Widow/Widower	10	7.5	
Educational Level			
No formal education	14	10.4	
Primary education	23	17.2	
Secondary education	74	55.2	
Tertiary education	23	17.2	
Household size			
1-4	37	27.6	
5-8	66	49.3	8 persons
9-12	20	14.9	
13 and above	11	8.2	
Years of Experience			
1-4	8	6.0	
5-8	25	18.7	
9-12	34	25.4	11 years
13 and above	67	50.0	

Land Ownership

Rent	41	30.6	
Gift	15	11.2	
Communal	47	35.1	
Bought	23	17.2	
Inheritance	8	6.0	

Annual income (₦)

Less than 50,00	10	7.5	
51,000-70,000	16	11.9	
71,000-90,000	19	14.2	₦100,052
91,000-110,000	22	16.4	
111,000-130,000	56	41.8	
131,000 and above	11	8.2	

Farm Size (Ha)

0.1-0.5	19	14.2	
0.6-1.0	34	25.4	1 ha
1.1-1.5	64	47.8	
1.6-2.0	17	12.7	

Yam Cultivated

White yam	57	42.5
Yellow yam	6	4.5
Water yam	17	12.7
Cocoyam	15	11.2
Combination	39	29.1

Extension Contact

None	24	17.9
Weekly	13	9.7
Forth nightly	53	39.6
Monthly	10	7.5
Bimonthly	16	11.9
Quarterly	8	6.0
Yearly	10	7.5

Source: Field survey, 2023

Training Programmes Delivered to Yam Farmers' by Agricultural Development Programme

Result in Table 2 shows that the various training programmes delivered to yam farmers by Agricultural Development Programme were labour control in yam production (81.3%), how to source money/credit for farming (67.9%), storage systems of yam products (60.4%), subsides/ incentives to aid yam production (56.7%), marketing arrangements for yam (57.5%), risk aversion techniques insurance (52.2%), processing of yam tubers to yam floor (34.3%), time of planting yam (26.1%), seedbed preparations for yams (20.9%), yam production practice (17.9%), soil requirement for yams (16.4%), practice of zero staking of yam (14.9%), possible intercrops

with yam (12.7%), cooperative farming (11.9%), seed yam treatment against insect pests (11.2%), organic yam farming (10.4%), introduction of high yielding yam varieties (9.7%) and yam minisett production technology (6.0%). This implies that the major training programmes delivered to yam farmers by Agricultural Development Programme was labour control in yam production. This may be attributed to the fact that yam farming requires much labour and for a farmer to be profitable, labour cost has to be minimal. This finding is different from the finding of Odinwa, Emah and Albert (2016) who found that labour control in yam production have not been delivered to the farmers in Rivers and Imo States, Nigeria.

Table 2:   Training Programmes Delivered to Yam Farmers' by Agricultural Development Programme

Training programmes	Freq. (n=134)	%	Ranking
Introduction of high yielding yam varieties	13	9.7	17th
Yam Minisett production technology	8	6.0	18th
Yam production practice	24	17.9	10th
Seedbed preparations for yams	28	20.9	9th
Soil requirement for yams	22	16.4	11th
Possible intercrops with yam	17	12.7	13th
Labour control in yam production	109	81.3	1st
Seed yam treatment against insect pests	15	11.2	15th
Organic yam farming	14	10.4	16th
Cooperative farming	16	11.9	14th
Practice of Zero staking of yam	20	14.9	12th
Subsides/ incentives to aid yam production	76	56.7	5th
How to source money/credit for farming	91	67.9	2nd
Storage systems of yam products	81	60.4	3rd
Processing of yam tubers to yam floor	46	34.3	7th
Marketing arrangements for yam	77	57.5	4th
Risk aversion techniques insurance	70	52.2	6th
Time of planting yam	35	26.1	8th

Source: Field survey, 2023   * multiple responses

Yam Farmers' Attitudes Towards Training Programmes of Agricultural Development programme

Table 3, result shows that the respondents (yam farmers) agreed to the following statements; that training helps them to acquire skills which will improve their farming activities ($\bar{x}$ = 3.60), training should be done in one location ($\bar{x}$ = 3.46), training increases my knowledge on the improved agricultural technologies ($\bar{x}$ = 3.40), training helps me to identify different improved agricultural technologies that could be of use in the farming activities ($\bar{x}$ = 3.38), training enhances knowledge and improves the farming activities ($\bar{x}$ = 3.26), Willingness to invite others to attend a similar training ($\bar{x}$ = 3.25), Satisfied with the training programmes ($\bar{x}$ = 3.14),

the training helps develop much interest in improved agricultural technologies ($\bar{x}$ =3.11), training is usually time-consuming ($\bar{x}$ =3.09), equipment and facilities for the training are not in good condition ($\bar{x}$ =3.02), Willingness to attend similar trainings in the future ($\bar{x}$ =2.73), training is clear and understandable ($\bar{x}$ =2.63), training should be conducted in more than one location ($\bar{x}$ =2.60), and venue of the training is not conducive (=2.56). However, the respondents disagreed to following attitude statements; Satisfied with the outside exposure visit ($\bar{x}$ =1.60), Willingness to invite others to attend a similar training ($\bar{x}$ =2.37). The relationship among the trainees during the training is cordial ($\bar{x}$ =2.36), Satisfied with the distance of the training center ($\bar{x}$ =2.05), materials used for the training are adequate ($\bar{x}$ =2.31). Trainer do not listen or entertain views during the training ($\bar{x}$ =2.46), The grand mean of 2.80 in the study area shows that respondents had supportive attitude towards yam farmers' training programmes of agricultural development programme for increased production. This finding agrees with the finding of Aromolaran *et al*. (2017) who found that farmers had both positive and negative attitudes to extension training on improved agricultural technologies in Ogun state.

Table 3: Yam Farmers' Attitudes Towards Training Programmes of Agricultural Development Programme

Yam Farmers Attitudes	SA	A	D	SD	Sum	$\bar{x}$	SD	Remark
Training helps to acquire skills which will improve farming activities	83	49	2		483	3.60	0.521	VHA
The training helps develop much interest in improved agricultural technologies	28	93	13		417	3.11	0.544	VHA
Training enhances knowledge and improves farming activities	49	74	8	3	437	3.26	0.671	VHA
Training helps to identify different improved agricultural technologies that could be of use in farming activities	51	83			453	3.38	0.487	VHA
Training increases knowledge on the improved agricultural technologies	54	80			456	3.40	0.492	VHA
Satisfied with the outside exposure visit	80	54			214	1.60	0.492	NA
Satisfied with the training programmes	36	81	17		421	3.14	0.615	VHA
Willing to invite others to attend a similar training	11	52	46	25	317	2.37	0.880	NA
Training is usually time-consuming	39	68	27		414	3.09	0.699	VHA
Venue of the training is not conducive	23	46	48	17	343	2.56	0.922	VHA
The relationship among the trainees during the training is cordial	17	46	39	32	316	2.36	0.984	NA
Training should be done in one location	61	73			463	3.46	0.500	VHA
Training is clear and understandable	24	57	33	20	353	2.63	0.946	VHA
Training should be conducted in more than one location	34	38	37	25	349	2.60	1.062	VHA

	SA	A	D	SD		Mean	SD	Remark
Satisfied with the distance of the training center	15	23	50	46	275	2.05	0.983	NA
Materials used for the training are adequate	19	30	59	26	310	2.31	0.945	NA
Equipment and facilities for the training are not in good condition	32	75	25	2	405	3.02	0.699	VHA
Willing to attend similar trainings in the future	30	56	30	18	366	2.73	0.959	VHA
Trainer do not listen or entertain views during the training	17	46	52	19	329	2.46	0.890	NA
Willing to invite others to attend a similar training	47	73	14		435	3.25	0.631	VHA
Grand mean						**2.8**	**0.75**	

Source: Field survey, 2023. ≥ 2.5- *Very High Attitude (VHA)***;   <2.5-** *Not an Attitude (NA)*
SA=Strongly Agreed, A=Agreed, D=Disagreed, SD=Strongly Disagreed

HO₁: There is no significant relationship between yam farmers' socio economic characteristics and their attitude towards training programmes of Agricultural Development Programme for increased production of yam in the study area. Table 3 shows that yam farmers' attitude towards training Programmes Agricultural Development Programme was significantly affected by gender, age, marital status and yam type cultivated at 0.01 and 0.05 level of significance. The coefficient of determination (R^2) was (0.883) which implied that about 88.3% of the variations in yam farmers' attitude towards Agricultural Development Programme training was accounted for by the joint action of the socio-economic characteristics of the respondents while the remaining 11.7% may be as a result of other factors not included in the model. The coefficient (48.003) of Sex with P value 0.000, age (-2.297 with P-value of 0.032), marital status (3.343 with p-value of 0.013) and yam type cultivated (1.356 with p-value of 0.001) were statistically significant ($p <$ 0.01 and < 0.05 respectively) which means that they were important factors determining yam farmers' attitude towards Agricultural Development Programme training. Sex of the household head had a significant positive effect on attitude towards Agricultural Development Programme training at 1% level. If a farm household was headed by a male; it increases the attitude towards Agricultural Development Programme training compared to their female counterparts. The result is consistent with Albert and Emodi (2016) findings that being a male-headed household increased the chances of adopting yam consumption patterns that are best for their households in Emuohua Local Government of Rivers state.. Age of respondents negatively influenced their attitude towards Agricultural Development Programme training. This result indicates that an increase in age will decrease farmers attitude towards Agricultural Development Programme training. This may be due to the fact that yam farmers who are older will not be interested in any form of training organinsed by Agricultural Development Programme. Marital status had a positive and significant relationship with attitude of yam farmers towards agricultural development programme training. This implies that being married leads to an increase in attitude of yam farmers towards agricultural development programme training. This is true since marriage confers on an individual the responsibility of fending for a family and will always

source for means of improving yam production. The coefficient of yam type cultivated had a positive and significant relationship with attitude towards Agricultural Development Programme training implying that attitude towards agricultural development programme training increased with the type of yam cultivated. Four variables (gender, age, marital status and type of yam cultivated) out of the eight socio-economic variables had significant influence on attitude of yam farmers towards agricultural development programme training. The null hypothesis which states that there is no significant relationship between the socio-economic characteristics of yam farmers and yam farmers attitudes towards training programmes of agricultural development programme was therefore rejected.

Table: 4   Regression on the Relationship between Socio-Economic Characteristics and Yam Farmers' Attitudes Towards Training Programmes of Agricultural Development Programme

Variables	B Statistic	Standard Error	P-Value
(Constant)	-37.444	6.983	0.000***
Sex	48.003	2.042	0.000***
Age	-2.297	1.059	0.032**
Marital Status	3.343	1.324	0.013**
Educational Level	-1.961	1.383	0.159
Income	0.217	0.541	0.690
Household Size	-1.648	2.345	0.484
Expeience	2.167	2.316	0.351
Yam Type Cultivated	1.356	0.392	0.001***
Extension Contact	-0.526	0.489	0.285
R square (R^2)	0.883		
F-Value	103.869		
Prob. F	0.000		

Source: Field Survey, 2023   ***Significant at 1%, ** Significant at 5%

CONCLUSION AND RECOMMENDATION

The Assessment of Yam Farmers' Training Programmes of Agricultural Development Programme (ADP) in Delta North Agricultural Zone reveals several key insights. Overall, the training initiatives have made commendable strides in enhancing the knowledge and skills of yam farmers', contributing positively to agricultural development in the region. Furthermore, the collaborative and participatory nature of the training sessions has fostered a sense of community among yam farmers. Through knowledge-sharing platforms, farmers have had the opportunity to exchange experiences, challenges, and innovative solutions.

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