



Socioeconomic determinants of training needs of cassava farmers in the Niger Delta region of Nigeria

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Abstract

The study examined the socioeconomic determinants of training needs of cassava farmers in the Niger Delta Region of Nigeria. The study engaged a multistage sampling technique in collecting data from 270 farmers using structured questionnaire and interview schedule. Frequency counts, percentages, mean score, Chi square and Pearson Product Moment Correlation were used to analyse the data collected. The result showed that the mean age of farmer's was 48 years and there were more male (55.9%) cassava farmers with only 24.8% having no formal education in the study area. Results of the skill gap analysis (training needs) indicated that out of 24 cassava production activities, respondents needed training in 16 areas including Packaging of cassava products mean weighted discrepancy score (MWDS) = 7.61, Soil Management strategies (MWDS = 6.70) and Chemical application (MWDS = 3.93) among others. The Chi square test shows that there is a significant relationship between training needs and marital status ($\chi^2 = 18.46$, $p < 0.05$) and the variety of cassava planted ($\chi^2 = 6.397$, $p < 0.05$). The Pearson Product Moment Correlation also revealed that Age ($r = 0.181$), Farm experience ($r = 0.199$) and Household size ($r = 0.125$) had significant relationship with farmers training needs. It concluded that the socioeconomic characteristics of farmers influenced considerably their training needs.

Keywords: Training Needs; Cassava Farmers; Niger Delta Region

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1. Introduction

Cassava is an important crop in the agricultural productivity value chain. Majority of people living in the lowland tropics and much of the sub humid tropics of West and Central Africa uses cassava as a chief source of dietary food energy (Tsegia and Kormawa, 2002). Considering the importance of cassava to family livelihood, there is the need to continuously boost productivity through innovative concepts. To keep abreast with innovations that can boost productivity, there is the need for continuous training and capacity building programmes to assist farmers understand new concepts and apply new knowledge in farming (Ibitoye and Onimisi, 2013) because productivity in agriculture is enhanced when farmers learn and apply new skills, knowledge and attitude. Thus, to improve agricultural productivity, farmer's competencies need to be up-scaled through appropriate intervention and trainings that could lead to improvement in their skill, knowledge and attitude. For this to be successful, farmer's training needs or shortfall in knowledge, skill and abilities have to be assessed.

(Adeogun et al., 2013), in their study on the training needs of cocoa farmers revealed an existing significant relationship between farmers farming experience, income level, educational status and their training needs. In their study of training needs of rubber farmers in South Western region of Cameroon, (Pierre-Andre et al., 2010) reported that the regression result indicated that the training needs of rubber farmers were significantly negatively correlated with age, level of education and socio economic status. Farmers socioeconomic characteristics are important considerations in farmers training need hence the study seeks to evaluate the socioeconomic determinants of training needs of cassava farmers. The specific Objectives are to: ascertain the socio-economic characteristics of cassava farmers in the Niger Delta region and determine their training needs. The study seeks to test the following hypotheses which was stated in null form; there is no significant relationship between selected farmers socioeconomic characteristics and their training needs.

2. Methodology

2.1. Study area

The study was carried out in the Niger Delta region located in the South-South zone of Nigeria. It is bordered in the South by the Atlantic Ocean, to the East, by the Republic of Cameroon, to the West by Osun and Ogun States and to the North by Ekiti, Kogi, Anambra and Ebonyi States. The region is made up of nine states which include Abia, Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers. The Niger Delta Region lies between Latitudes 4°10' and 7°30' North and Longitudes 4°30' and 9°45' East. Agriculture is the dominant economic activity in the area with crop farming and fishing activities accounting for 80% of all forms of agricultural activities. The region falls within the tropical rain forest zone with high rainfall and thick vegetation cover. The study was however carried out in three states of Ondo, Delta and Edo.

2.2. Sampling procedure

The study population comprises all cassava farmers in the study area and the list of all cassava farmers was the sampling frame. A multi-stage sampling procedure was used for the study as follows: Three States (Delta, Edo and Ondo) were purposively selected from the nine states in the region because they are the first three with high cassava production in the region. From the Sampling frame, three (3) selected states, Ondo (18 Local Government Areas), Delta (25 Local Government Areas) and Edo (18 Local Government Areas), 25% proportional samples were purposively selected based on the intensity of cassava farming, resulting to the total of sixteen (16) Local Government Areas for the study. A random selection of Five (5) communities each from the selected 16 Local Government Areas was done. From the 80 communities, another random selection of 4 respondents from each of the communities was carried out. On the whole, a total of 320 respondents were used for the study out of which 270 had completed information deemed suitable for analysis and presentation. Primary data were collected for the study through the use of a well-structured questionnaire/interview schedule and were analysed using inferential and differential statistics. Training needs of cassava farmers was the dependent variable of the study. For this study, the Skill-gap analysis as described by Wentling (1992) was used to ascertain the training needs.

According to Borich Model, training need is calculated by finding farmer's Mean Weighted Discrepancy Scores (MWDS) of Perceived Competence and Importance and each differences is multiplied with the Mean Importance rating. On the basis of the weighted scores, the competencies are then ranked. The greater or higher the differentials, the higher the need for training and extension education (Abdel-Maksoud, 2010). For the purpose of this study, a threshold of two-third of Mean Weighted Discrepancy Score (MWDS) as used by (Omotesho et al., 2012) was used to determine and establish the training needs of respondents. Thus a variable with MWDS of less than two-third of the entire respondents mean will not require training.

The independent or explanatory variables for the study include the socioeconomic and demographic characteristics of respondents such as sex, age, farming experience, farm size, marital status and religion

3. Results and discussion

3.1. Socioeconomic characteristics of respondents

3.1.1. Sex

From Table 1, the numbers of male cassava farmers (55.9%) were relatively higher than female farmers (44.1%). Thus there were more male cassava farmers in the study area. This finding was corroborated by (Nweke et al., 2002) in their work on collaborative study of cassava farmers in Africa (COSCA) that more males are involved in cassava farming in Nigeria. Majority (83.7%) of the respondents were married with only 10.4% singles. The result that majority of the respondents are married agrees with the findings of (Edeoghon et al.,

2008), that agriculture is mostly practiced by married people to make ends meet and cater for their children. The implication of majority of respondents being married is that members of their household could be of great assistance in farming activities and also form a valuable part of farm labour. Furthermore, the result shows that 47.8% of respondents fell in the age bracket of 31– 50. Those in the ages of 30 and below were 5.2% with another 47% aged 51 years and above. The mean age was 48.4 years. The mean age shows that the farming population is relatively agile and will have implication for productivity. Going by this, the study area has a strong and active farming population and therefore has the prospect of increased productivity.

3.1.2. Religion

Respondents who are Christian were 73.3%, Muslims 25.9% and Traditionalist 7.0%. The high number of Christians in the study area could be adduced to early missionary activities that were very predominant in the Southern and Western parts of Nigeria (Akintade, 2014). This finding is important in the sense that government and agricultural agencies could leverage on the religious platforms in reaching a high number of people to disseminate agricultural information and mobilise people for agricultural intervention activities.

3.1.3. Farming experience

The mean farming experience was approximately 24 years which is relatively long time in farming and therefore should equip them with better knowledge of cassava farming. (Ani et al., 2004) explicated that farming experience will affect farm management expertise and decision making process. The mean age of 24 years agrees with the findings of (Akintade, 2014), in his work on the Adoption and utilization of improved technologies among small holding farmers in Edo and Ondo States, Nigeria.

3.1.4. Farm size

77.0% of respondents have farm less than 2 hectares and 23.0% had farms 2 – 5 hectares. The mean farm size was 1.8 hectares. Thus, respondents were small scale cassava growers. The mean farm size compares relatively with the finding of (Mafimisebi, 2008) in his work on Cassava Enterprise in Ondo State, Nigeria, where sampled farmers have an average farm size of 1.66 hectares. Farm sizes in the study area are small and the implication is that the level of output and agricultural development may be affected negatively.

3.1.5. Household size

Farmers with household size 0 – 3 persons were 30%, 62.96% had between 4 – 7 persons and those having above 7 were 7.04%. The mean household size is 4.4 persons. In their study on factors associated with water treatment among rural farm families in Oyo State, Nigeria, (Olajide et al., 2015) asserted that household size is an important socioeconomic factor among farm families. They further stated that the higher the household size, the higher the productivity. The household size in the study area is moderate and will affect the number of persons available for farm labour and may consequently increase farm expense especially on farm labour.

3.1.6. Variety planted

Improved varieties of cassava cuttings were predominantly planted (84.1%) as can be gleaned from Table 1. Respondents that planted local varieties were 5.6% and 10.4% planted both local and improved varieties. (Dipeolu, et al., 2000), reported in their study on Cassava processing in South Western Nigeria that the adoption of improved varieties of cassava by farmers has led to a tremendous yield increase. With the high level of cultivation of improved varieties, it is expected that output will be high all other soil and environment conditions equal.

Table 1. Distribution of Farmer's according to their Socioeconomic Characteristics

Variable	Frequency	(%)	Mean
Sex			
Male	151	55.9	
Female	119	44.1	
Marital Status			
Single	28	10.4	
Married	226	83.7	
Divorced	2	7.0	
Separated	6	2.2	
Widowed	8	3.0	
Age			
30 and less	14	5.2	
31 – 50	129	47.8	48.4
>50	127	47.0	
Religion			
Christian	198	73.3	
Muslim	70	25.9	
Traditionalist	2	7.0	
Household size			
0 – 3	81	30	
4 – 7	170	62.96	4.4
>7	19	7.04	
Variety Planted			
Improved	227	84.1	
Local	15	5.6	
Both	28	10.4	
Farming Experience			
1 – 10	33	12.2	
11 – 20	100	37.0	

21 – 30	54	20.0	23.6
31 – 40	51	18.9	
>40	32	11.9	
Farm Size			
Less than 2 ha	208	77.0	
2 – 5 ha	62	23.0	1.8

Source: Field Survey, 2016.

4. Training needs ranking

Table 4 shows the results of the skill gap analysis of cassava farmers and their ranking using Mean Weighted Discrepancy Score (MWDS). The value of ($\bar{x} = 2.29$) which represent two/third of Mean Weight was used to determine farmer's training needs. From twenty four (24) cassava production activities, sixteen (16) areas required training with making of cassava flour (MWDS = 6.11), making of pellets (MWDS = 6.33), handling of cassava chip machine (MWDS = 6.49), soil management strategies (MWDS = 6.70) and Packaging of cassava products (MWDS = 7.61) ranking high. Farmers' high need for training in packaging of cassava products, making of pellets and flour and the handling of chip machine could be attributable to the recent quest for improvement in cassava quality for local consumption, industrial use and export. The production and income capacity of farmers is expanded when they are skilled in processing. However, when processed products are not properly packaged, it could be a limitation hence the high need for training. It could also be inferred that the need for training as on handling chip machine, making of pellet and cassava flour as indicated from the result could also be as a result of the need to gain expertise in packaging, cassava product making and marketing. Effective management of soil is a fundamental requirement for cassava farming. Farmers needs to be educated on soil parameters such as acidity and alkalinity, soil preservation, nutrient status or fertility, drainage, soil type and tillage hence it was expressed as a skill gap.

Farmers also indicated the need for training in making of chips (MWDS = 4.42) and tapioca (MWDS = 4.02), record keeping (MWDS = 4.73) and cassava rapid multiplication techniques (MWDS = 5.18), Record keeping is a vital part of any profitable farming venture as it help farmers to keep track of their productivity and performance. Other expressed areas of training needs were in pest identification and control (MWDS = 3.83), chemical application (MWDS = 3.93), marketing of cassava products (MWDS = 3.82), disease identification and control (MWDS = 3.17), processing technique (MWDS = 2.67), reading of cassava leaflets/information (MWDS = 3.22), preparation and handling of cuttings (MWDS = 2.39). For farmers to manage their enterprise profitably, it is important that they are able to identify the pest and diseases that attack their crops and also have good knowledge on the specific chemicals for control.

Hypothesis 1: There is no significant relationship between training needs and respondents socioeconomic characteristics. The hypothesis was tested using Chi square. The results in Table 5 indicate that there is a significant relationship between marital status of farmers ($\chi^2 = 18.46$, $p < 0.05$), Variety planted ($\chi^2 = 6.397$, $p < 0.05$) and their training needs. The implication is that farmers that are married will need more training than those not married. Similarly, the variety planted will influence the training needs of respondents.

Table 4. Skill Gap Analysis of Cassava Farmers

Cassava Production Activities	Mean \bar{x}					
			Importance	S.D.	Competence	S.D
	MWDS	Rank				
Packaging of cassava products	7.61	1	4.04	0.97	2.16	1.04
Soil management strategies	6.70	2	3.99	0.98	2.32	1.12
Handling of cassava chip machine	6.49	3	3.84	0.90	2.16	1.05
Making of pellets	6.33	4	3.83	0.98	2.17	1.13
Making of cassava flour	6.11	5	3.61	1.07	1.91	1.08
Cassava stem rapid multiplication technique	5.18	6	3.85	0.93	2.51	1.21
Record keeping	4.73	7	4.00	0.85	2.81	1.08
Making of chips	4.42	8	2.65	0.83	2.44	1.15
Making of tapioca	4.02	9	3.81	0.88	2.75	1.51
Chemical application techniques	3.93	10	3.98	0.81	3.00	1.07
Pest identification/control	3.83	11	4.13	0.74	3.20	0.94
Marketing of cassava/products	2.82	12	4.08	0.79	3.15	0.82
Reading of cassava/ agricultural information leaflets	3.22	13	3.76	0.91	2.90	1.31
Disease identification/control	3.17	14	3.98	0.71	3.18	0.93
Processing techniques	2.67	15	3.50	0.82	4.14	0.70
Preparation/Handling of cuttings	2.39	16	4.35	0.60	3.80	0.63
Fertilizer/Organic manure application	1.89	17	3.99	0.82	3.51	0.76
Identification of healthy cassava stem cuttings	1.79	18	4.32	0.58	3.90	0.35
Identification of improved varieties	1.44	19	4.37	0.60	4.04	0.70
Cassava planting space	1.06	20	4.25	0.60	4.01	0.75
Selection of site	0.81	21	4.40	0.56	4.21	0.57
Intercropping pattern	0.64	22	3.76	0.97	3.59	0.96
Orientation of planting materials	0.22	23	3.96	0.90	3.90	0.48
Planting depth	0.09	24	4.03	0.71	4.01	0.64

Cut off mean weighted discrepancy score = 2.29. Source: Field Survey, 2016

Table 5. Chi-Square Relationship between Socioeconomic Characteristics and Training Needs

Socioeconomic Characteristics	χ^2 Value	Degree of Freedom	P Value	Decision
Sex	0.13	1	0.719	NS
Marital Status	18.46	4	0.001	S
Religion	3.195	2	0.202	NS
Variety Planted	6.397	2	0.041	S

Significant at $P < 0.05$

Source: Field Survey, 2016

There is a significant relationship between training needs and household size ($r = 0.125$, $p < 0.05$). Farmers age ($r = 0.181$, $p < 0.05$), farm experience ($r = 0.199$, $p < 0.05$) as shown in Table 6. Thus, farmers' age, their farming experience and household size of farmers can impact their training needs. In a study on Training needs of cassava processors, (Ogunleye, *et. al.*, 2012), reported of a significant relationship between age of respondent and training needs. In the same vein, a significant relationship between farming experience and training needs of Cocoa farmers association in Cross River state was reported by (Adeogun, *et. al.*, 2013). A positive correlation for age means that as farmers' grows in age, they will require more training to keep them updated with current innovation in cassava production. This also applies to farming experience and household size. The larger the household and the more years spent in farming, the more training farmers' will need.

Table 6. Correlation Analysis between Respondents Socioeconomic Characteristics and Training Needs

Socioeconomic Characteristics	Correlation (r)	Prob. Level	Decision
Age	0.181	0.003	S
Farm Experience	0.199	0.001	S
Farm Size	-0.023	0.702	NS
Household Size	0.125	0.040	S
Farm Output	-0.020	0.747	NS

Significant at $P < 0.05$

Source: Field Survey, 2016

5. Conclusion

The study concludes that there were significant relationships between farmers' characteristics and their training need. It is important therefore to consider farmers socioeconomic characteristics when making decisions on training needs as it will help to channel training effort rightly for maximum results.

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