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Effectiveness of training of cassava processors in Oriire local government area of Oyo state

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ABSTRACT

The processing of cassava into garri and pellets is no more new in Nigeria. However, the effectiveness of improved processing techniques must be considered as there have been several trainings given to cassava processors. This study assessed the effectiveness of training of cassava processors in Oriire Local Government Area of Oyo State, Nigeria. Simple random sampling technique was used to select eighty respondents from the selected LGA. Data were collected with the aid of structured interview guide and analysed with Weighted Mean Score and Pearson Product Moment Correlation. The mean age of cassava processors was 37 years, 91.2% were female and 68.8% married. The average household size was 6 members. Purchasing of cassava processing equipment was ranked lowest effective of the 11-items with WMS 0.48. Similarly, lack of improved technology (WMS 2.90), inadequate capital (WMS 1.90), and high cost of packaging (WMS 1.76) were serious constraints to the effectiveness of cassava processing trainings. Age (r = 0.65) and years spent in school (r = 0.71) were significantly correlated with the effectiveness of trainings. The study concluded that socio-economic factors and constraints affected the effectiveness of the trainings on improved cassava processing techniques. The study therefore recommends provision of subsidized cassava processing equipment in the study area.

Keywords: cassava, effectiveness, capital, garri, processors, training, improved technology

1. BACKGROUND OF THE STUDY

Nigeria is an agrarian society with about 70% of her over 140 million population engaged in agricultural production (CBN 2006). Agriculture is the most assured engine of growth and development and or reliable key to industrialization Nigeria is the largest producer of cassava in the world (Ogbe *et al*., 2003) Cassava is grown throughout the tropic and could be regarded as the most important root crop in terms of area cultivated and total production (Ano, 2003; Mazza Mary-Ann, 2019). It is the third most important source of calories in the tropics after cereal crops (FAO, 2008) Cassava production has been increasing for the past 20 years in area cultivated and in yield per hectare (FAO, 2004). Cassava is virtually grown in all parts of Nigeria with rainfall greater than 100mm and accounts for over 70% of the total production of tuber crops in Africa. This achievement has

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been attributed to the improved, high yielding, pest and disease resistant varieties produced through research collaboration of International Institute of Tropical Agriculture (IITA), Ibadan, National Root Crop Research Institute (NRCRI). It is a drought resistant crop and thrives well in dry areas; it contributes significantly to the nutrition and livelihood of many households (Sewando, 2012; Uwandu et al. 2019). According to Echebir (2008), cassava has gained popularity because of its tolerance to extreme weather conditions, its low production resource requirements, its biological efficiency in the production of food.

Cassava is a versatile crop and can be processed into a wide range of products such as garri, starch, flour, tapioca, beverages and cassava chips for animal feed. According to Adejumo and Raji (2012), garri is the most popular form in which cassava is consumed by several millions of people in Africa, especially in the West Africa sub region. Cassava is an important staple crop in Sub-Saharan Africa (SSA).

The growth in cassava production in Nigeria has been primarily due to a number of factors: rapid population growth, large internal market demand complemented by the availability of high yielding improved varieties of cassava. The majority (88%) of cassava produced in Africa is used for human food, with over 50% used in the form of processed products (Westby, 1991; Oyewole and Eforuoku, 2019). The crop has become a basic raw material for many small scale businesses such as cassava flour mills, bakeries, fast food firms, restaurants, gari processing firms and is currently an income generating activity (Odii, 2012).Although the crop is considered as a staple in many countries, this situation is changing in some countries where cassava is now an industrial and cash crop (Reincke *et al*., 2018).

Cassava processing by traditional methods is labour intensive but the increasing application of improved processing technology has reduced processing time and labour and encouraged increased production. Industrial utilization of cassava products is increasing but still accounts for less than 5% of the total production (Shittu *et al*., 2016). At farm level, the production costs for cassava in Nigeria are high, relative to other countries, production is not oriented towards commercialization, but instead farmers produced and processed cassava as a subsistence crop (Ugwu, 2008). A major limitation of cassava production is the rapid postharvest deterioration of its roots which usually prevents their storage in the fresh state for more than a few days (Tonukari, 2004). Specific objectives are to:

1. describe the socio-economic characteristics of the cassava processors in the study area.
2. examine the effect of training on the processing of cassava in the study area.
3. investigate the constraints militating against cassava processing in the study area.

Hypothesis of this study was stated in an alternative form as

H_{01}: Selected socio–economic characteristics of the respondents have significant relationship on the effectiveness of training of cassava processors.

2. RESEARCH METHODOLOGY

Description of the study area

The study was carried out in Oriire Local Government Area of Oyo State, Nigeria. The Local Government Area has its headquarters in the town of Ikoyi. It has an Area of 2116km^2 and a population of 150,628 at the 2006 census (NPC, 2006). It is bordered by Atiba, Olorunsogo, and Surulere Local Government Areas. The council area comprises of the district and villages such as Ikoyi-Ile, Oolo, Abaja, Aipo, Saamo, Afun, Afun-Ile, Tewure, Agbeni, Agidi, Ago-Fulani, Aiyetoro, Ajegunle, Iluju and Ajibowu among others. The major objective of the LGA is to improve the well-being of people at the grassroots. Oriire LGA is subdivided into 10 wards having 10 elected councilors as representatives of each ward. Each of these towns have their own traditional leaders with a given royal titles. The local government area is located in the tropical rainforest zone and the main economic activity of the resident of the town is farming. They engage in agricultural activities such as crop production, livestock, processing and marketing of farm produce The produce from the farm activities are eggs, maize, yam, potato, tomatoes and cassava.

Sampling procedure and sample size

A multi stage sampling procedure was adopted in the selection of representative of cassava processors for this study. The first stage involved simple random selection in Oriire LGA. The second stage involved the selection of four villages where cassava processing is very commont in Oriire LGA. The third stage involved random selection of (20) processors from the list of cassava processors given a total of 80 respondents.

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Data collection method

The data for this study was obtained from primary source with the aid of structured interview. The schedule was divided into sections which are designed in line with the objectives of the research work. Questions were asked and tape recorder was likewise used for collecting data during the interview schedule section.

Measurement of variables

Age, level of education and household size were measured at ratio level while gender and marital status were measured at nominal level.

Data analysis

Descriptive statistics tool were used to analyse the objectives while PPMC was used for the hypothesis testing.

3. RESULTS AND DISCUSSION

Personal characteristics of the respondents

Results in Table 1 show that 31.3% of the respondents were between the age range of 21-30 years 30% were between the ages of 31-40, 26.2% were between the ages of 41-50 years, while 12.5% were between the ages of 51-60 years. The mean age of the respondents is 37.41 years.(Fifty – five) percent had primary education, 41.2% had secondary education while 3.8 % had tertiary education. Majority of them have low literacy level which has effect on their production level. Sofoluwe et al. (2011) confirmed that education can influence people's perception and adoption of innovations. Furthermore, the finding reveals that the average household size was 6 members.

Table 1: Distribution of respondents (n=80) according to their socio-economic characteristics

Characteristics	Frequency	Percentage	Mean	Standard deviation
Age in years				
< 30	25	31.3		
31-40	24	30		
41-50	21	26.2		
51-60	10	12.5	37.41	10.538
Marital status				
Single	5	6.2		
Married	55	68.8		
Widowed	10	12.5		
Divorced	4	5.0		
Separated	6	7.5		
Sex				
Male	7	8.8		
Female	73	91.2		
Religion				
Christianity	55	68.8		
Islam	25	31.2		
Highest level of education				
Primary	44	55.0		
Tertiary	3	3.8		
Years spent in school				
1 – 4	1	1.2		
5 – 8	43	53.8		
9 – 13	33	41.2		
> 13	3	3.8	8.49	2.998
Household size				
1 – 4	24	30		

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5 – 8	42	52.5		
9 – 12	14	17.5	6.18	2.443
Primary occupation				
Farming	47	58.8		
Trading	18	22.5		
Garri processor	9	11.2		
Artisan	6	7.5		
Secondary occupation				
Farming	4	5		
Trading	12	15.0		
Garri processor	61	76.2		
Artisan	3	3.8		

Source: Field survey 2019

Effect of training on cassava processor

The result in Table 2 shows the distribution of respondents according to the effectiveness of training on processing of cassava into garri and pellets. It was found that selection of improved variety for processing (1.91) was ranked the highest. Production of high quality garri and pellets (1.81), new method of processing cassava (1.30), and increase in income (1.29) were ranked second, third and fourth respectively. This implies that the major effect of training on cassava processors are effective and it would facilitate better packaging and increase availability of cassava products in the market. It would also save time and increase access to credit facilities. The training has positive influence on cassava processing in the study area.

Table 2 Distribution of respondents (n=80) according to the effect of training on cassava processor into the processing of cassava into garri and pellets.

Training	Highly effective	Fairly effective	Not effective	W .M. S	Rank
Selection of improved variety for processing	73(91.2)	7(8.8)	0(0.0)	1.91	1st
Production of high quality garri	65(81.2)	15(18.8)	0(0.0)	1.81	2nd
New method of processing cassava	31(38.8)	42(52.5)	7(8.8)	1.30	3rd
Increase in Income	30(37.5)	43(53.8)	7(8.8)	1.29	4th
Better packaging	14(17.5)	58(72.5)	8(10.0)	1.08	5th
Increase in availability of market	4(5.0)	68(85.0)	8(10.0)	0.95	6th
Time Saving	15(18.8)	34(42.5)	31(38.8)	0.80	7th
Access to credit facilities	10(12.5)	42(52.5)	28(35.0)	0.78	8th
Reduction of Labour	10(12.5)	25(31.2)	45(56.2)	0.56	9th
Reduction in cost of processing	2(2.5)	36(45.0)	42(52.5)	0.50	10th
Ease of purchasing cassava processing equipment	1(1.2)	36(45.0)	43(53.8)	0.48	11th

Source: Field Survey 2019. WMS = Weighted Mean Score

Constraints militating against cassava processing

Result in Table 3 shows the distribution of respondents by constraints to the effectiveness of training on cassava processing techniques. The constraints identified are lack of improved technology (WMS =2.90), inadequate capital (1.90), high cost of packaging (1.76), and lack of extension services (1.45). This implies that lack of improved technology, inadequate capital, high cost of packaging , lack of extension services, high cost of processing, poor market characterized and high transportation cost are the major constraints hindering the effectiveness of training of cassava processor in the study area.

Test of Hypothesis

Test for significance relationship between some selected socio–economic characteristics of the respondents and the level of effectiveness of training given to the cassava processor. Pearson Product Moment Correlation was used and the result is shown in Table 4. The result indicates that years spent in school (r = 0.413) was significantly and positively related to the effectiveness of

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training on cassava processing techniques. The positive correlation may be associated with the fact that education is a means of enlightenment, exposure and acquisition of knowledge which invariably influence the rate of use of training received. The relationship was positive which implies that the higher the years spent in school the higher the higher the effectiveness of training. Also, Age (r = -0.265) exhibited a significant but inverse relationship which implies that the lower the age the higher the level of effectiveness of training. The inverse relationship may be associated with the fact that young people are liable to use training effectively because they are in their productive age. Therefore the null hypothesis is rejected. Hence, the alternative hypothesis is accepted.

Table 3: Distribution of respondents by constraints militating against cassava processing

Constraints	Very Severe	Severe	Mild Constraint	Not a Constraint	W.M.S	Rank
Lack of improved technology	73(91.2)	6(7.5)	1(1.2)	0(0.0)	2.90	1st
Inadequate capital	13(16.2)	48(60.0)	17(21.2)	2(2.5)	1.90	2nd
High cost of packaging	6(7.5)	50(62.5)	23(28.7)	1(1.2)	1.76	3rd
Lack of extension services	1(1.2)	37(46.2)	39(48.8)	3(3.8)	1.45	4th
High cost of processing	8(10.0)	11(13.8)	55(58.8)	6(7.5)	1.26	5th
Poor market characterized	7(8.8)	9(11.2)	51(63.7)	13(16.2)	1.13	6th
High transportation cost	3(3.8)	12(15.0)	47(58.8)	18(22.5)	1.00	7th
Low pricing of product	3(3.8)	11(13.8)	47(58.8)	19(23.8)	0.98	8th
Lack of storage facilities	1(1.2)	12(15.0)	44(55.0)	23(28.7)	0.89	9th
Inadequate processing equipment	1(1.2)	8(10.0)	41(51.2)	30(37.5)	0.75	10th
Lack of steady supply of cassava	0(0.0)	6(7.5)	44(55.0)	30(37.5)	0.70	11th

Source: Field survey, 2019. WMS = Weighted Mean Score

Table 4: Results of Pearson Product Moment Correlation showing relationship between socio-economic characteristics and the effectiveness of training on cassava processing techniques

Variables	Correlation coefficient(r)	p–value	Decision	Remark
Age	-0.265*	0.017	Reject Ho	S
Years spent schooling	0.413**	0.00	Reject Ho	S
Household size	0.109	0.334	Accept Ho	NS

Source: Field survey, 2019

NS = Not significant; *Correlation is significant at 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

4. CONCLUSION

The study concluded that the training was highly effective as processors were able to select improved varieties for processing and also able to produce high quality garri.

Recommendations

Based on the findings of this study, the following recommendations were advanced towards alleviating the constraints encountered by cassava processors in order to increase their profitability.

- Government and non-governmental organizations/agencies should assist in the provision of better and affordable technologies to the cassava processors in the study area.
- Inadequate capital was also another constraint of the respondents. The women cassava processors should form cooperative societies through which they can put in their financial resources together for members to borrow for reinvestment. Cooperative societies can also purchase machines e.g. pelleting machine and mechanical sifter that can be used by all members. Also through the cooperative societies they can benefit from government and non-governmental micro-credit scheme to boost their cassava processing enterprise.

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- Although, the use of hydraulic jack / dehydrating press was high, the study still revealed that it needs to be improved by converting its manual operation to mechanical powered engine. This will reduce the drudgery of forceful pulling and pushing of the machine. Therefore, Power screw dehydrating press should be improved accordingly.

Conflict of interest

The authors declare that they have no conflict of interest.

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Ethical approval

This article does not contain any studies with human participants performed by any of the authors.

Data and materials availability:

All data associated with this study are present in the paper.

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