Rural Women's Skill Acquisition in the Processing of Locust Bean in Ipokia Local Government Area of Ogun State, Nigeria

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Abstract—This study was carried out to assess rural women's skill acquisition in the processing of locust bean in Ipokia Local Government Area of Ogun State, Nigeria. Simple random sampling technique was used to select 90 women locust bean processors for this study. Data were analyzed with descriptive statistics and Pearson Product Moment Correlation. The result showed that the mean age of respondents was 40.72 years. Most (70.00%) of the respondents were married. The mean processing experience was 8.63 years. 93.30% of the respondents relied on information from fellow locust beans processors and friends. All (100%) the respondents did not acquire improved processing skill through trainings and workshops. It can be concluded that the rural women's skill acquisition on modernized processing techniques was generally low. It is hereby recommend that the rural women processors should be trained by extension service providers through series of workshops and seminars on improved processing techniques.

Keywords—Locust bean, processing, skill acquisition, rural women.

I. INTRODUCTION

AFRICAN locust bean tree "*Parkia biglobosa*" belongs to the family "*Fabaceae*" sub-family "*Mimosoidea*" and genus "*Parkia*". The tree is widely recognized in West Africa as an important multipurpose tree of West Africa Savannah land. The most important part of the tree is found in its seeds and the processed seed is used as condiment for soup. It is a source of natural nutritious condiment which features frequently in the traditional diet of the people [1].

Apart from the flavoring attribute of the processed locust bean "*Iru*", it also contributes significantly to the intake of protein, essential fatty acids, particularly Vitamin B, riboflavin and Vitamin A [2]. Locust bean is native to West Africa and it is also called by different local names in different localities; for instance, it is referred to as "*kinda*" in Serria Leone, "*kpalugu*" among the inhabitants of Northern Ghana, "*Nere*" in Burkina Faso, "*Igi Igba*" in Yorubaland, and "*worku*" in Ghana [3]. Also in the dry area, locust bean trees serve as potential sources of food, edible oil, fodder lumber, fire wood and green manure. It was estimated that about 200,000 tonnes of Africa locust beans seeds are gathered each year in Nigeria alone, as well as large quantities are produced in the savannah region of South west, Nigeria [3], [4]. The seeds are the most valued product of the tree. It generates reliable and dependable income for the farmers and women who are involved in its processing and marketing. It is estimated that the total national demand for various types of food condiments and seasonings in Nigeria is 5,475 Tonnes per annum (Federal Institute of Industrial Research [5]. Popular brands in Nigeria market include "Magi", "Royco", "Ajinomoto", "Iru" or "Ogiri" (locust bean based), Curry, Thyme, etc. It is unfortunate that locust bean is fast losing its popularity to some other flavoring agents whose nutritive value cannot be compared with it [5]. This situation may be a result of short life of the product, the product odor and the poor product quality due to the processing practices. Locust bean processing has been facing a lot of challenges despite the dawn of science and technology. Processing is still largely done in a traditional and crude way by women; the production has not increased substantially due to problems associated with processing operations. Hence, it is therefore imperative to assess the rural women's skill acquisition in the processing of locust bean in Ipokia Local Area of Ogun State, Nigeria.

Specific objectives are to:

1. describe the socio-economic characteristics of the respondents in the study area
2. identify sources of capital to the respondents
3. determine the sources of information on locust bean processing in the study area
4. ascertain the rural women's skill acquisition activities in the study area
5. identify constraints militating against locust bean processing in the study area

Hypothesis

H_{01}: There is no significant relationship between socio-economic characteristics and rural women's skill acquisition activities.

II. SAMPLING TECHNIQUES AND SAMPLE SIZE

The study area was Ogun State, Nigeria. The State has twenty (20) Local Government Areas with its capital at Abeokuta. Ipokia Local Government Area consists of 12 wards. A simple random sampling technique was used to select 50% of the wards (i.e. 6 wards): Agosasa, Ijofin/Idosa, Tube, Maun, Tube, Idi-Iroko, and Ihunbo. Fifteen (15) women

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locust bean processors were randomly selected from each of the selected wards to make up 90 women locust bean processors for the study.

A. Data Collection Method

Data collection was through primary sources using interview instruments, observations and memory recall. The instrument used for the data collection was subjected to content validity by consulting experts in the field of Agricultural Extension and Rural Development. Items found ambiguous were removed. Test-retest was carried out with ten (10) women locust bean processors who were not part of this study to ascertain the reliability of the instrument.

B. Measurement of Variables

Age and years of processing experience were measured at interval level while educational level and marital status were measured at nominal level. Constraints to locust bean processing were ranked based on degree of severity. Skill acquisition on improved locust bean processing was measured with respect to the training received or workshop attended by the respondents.

C. Data Analysis

Descriptive statistics such as frequency counts, percentage, and mean was used to analyze the objectives while Pearson Product Moment Correlation (PPMC) was used to test the hypothesis.

III. RESULTS AND DISCUSSION

A. Socio-Economic Characteristics of the Respondents

The result showed that the mean age of respondents was 40.72 years. A large proportion of locust bean processors (94.40%) were less than 50 years of age. This is also in line with [6] who states that most Nigerian farmers are within this age group and they are the economically active part of the population. Most (70.00%) of the locust bean processors were married except few (16.70%) that were single. About 63.00% of the respondents had one form of formal education or the other while 37.80% had no formal education. This finding implies that despite moderate level of education women are more likely to be more motivated to be more responsible to engage in economic activities related to food security for their families. The result further showed that 57.80% of the respondents had household size between 1 – 5 members while 11.10% had more than 10 members. The mean household size was 6.00 people. Also, the result revealed 55.60% of the respondents were Christian while 32.20% were Muslims. This means that Christianity predominate in the study area. The mean processing experience was 8.63 years. Many (57.80%) of the respondents had spent 6 – 10 years in the locust bean processing business between while 28.90% had been in the business for more than 10 years. This indicates that the respondents are not new in locust bean business.

TABLE I
SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS (N = 90)

Variables	Frequency	Percentage	Mean
Age			
Less than 30	10	11.10	40.72
31-40	28	31.10	
41-50	47	52.20	
Above 50	05	5.60	
Marital status			
Single	15	16.70	
Married	63	70.00	
Divorced	12	13.30	
Educational level			
No formal education	34	37.80	
Primary education	20	22.20	
Secondary education	27	30.00	
Tertiary education	09	10.00	
Household size			
1-5	52	57.80	6.00
6-10	28	31.10	
Above 10	10	11.10	
Religion			
Christianity	50	55.60	
Islam	29	32.20	
Traditional	11	12.20	
Years of experience			
Less than 5	12	13.30	8.63
6-10	52	57.80	
Above 10	26	28.90	

Source: Field survey, 2013

B. Sources of Capital

The money used in the business is sourced from Personal savings, Cooperative Banks and borrowing from Friends and Family. Result in Table IV revealed that almost half (48.90%) of the respondents got their capital from personal savings while 31.10% sourced the capital from their co-operatives and 12.20% borrowed from their friends and relatives. A few (7.80%) respondents obtained loans from commercial banks were. The result showed that commercial and microfinance banks have not made significant impact as their credit facilities are not readily available to the locust bean processors in the study area. This supports the findings of [7] that poverty among women is heightened by limited access to land, employment, and credit.

TABLE II
DISTRIBUTION ACCORDING TO THE SOURCES OF CAPITAL (n = 90)

Sources of capital	Frequency	Percentage
Personal savings	44	48.90
Friends and relatives	11	12.20
Cooperative /Association	28	31.10
Commercial/ Microfinance Banks	07	7.80
Total		**100.00**

Source: Field survey, 2012

C. Sources of Information

Information is one of the most valuable resources for the development and progress of any enterprise. Reference [8] opined that farmers sources of information have influence in

the decision to accept or reject a technology. This study identified various sources of information available to respondents in the study area. The result revealed that 93.30% of the respondents relied on information from fellow locust beans processors and friends and neighbors. However, information on locust beans processing from extension agents, health workers, radio/television, research institutes, internet and newspapers/magazines were not readily accessible by the respondents.

TABLE III
DISTRIBUTION ACCORDING TO SOURCES OF INFORMATION (N = 90)

S/N	Sources of information	Always (3)	Occasionally (2)	Not at all (1)
1	Fellow locust beans processor	84(93.30)	4(4.50)	2(2.20)
2	Extension agents	0(0.00)	0(0.00)	79(87.80)
3	Friends and neighbors	67(74.40)	23(25.60)	0(0.00)
4	Processor union	44(48.90)	31(34.40)	15(16.70)
5	Health workers	0(0.00)	0(0.00)	90(100.00)
6	Radio/television	0(0.00)	29(32.20)	61(67.80)
7	Research institute	0(0.00)	0(0.00)	90(100.00)
8	Internet	0(0.00)	0(0.00)	90(100.00)
9	Newspapers/magazine	0(0.00)	0(0.00)	88(97.80)

Source: Field survey, 2013

D. Skill Acquisition in Locust Bean Processing

Processing is the transformation of raw materials to the finished products. It adds value to the form in which locust bean is offered and thereby improves its acceptability and consumption. It also lengthens the period of availability of food, creating the potential for income generation and it also provides a way of using surplus produce [9]. Various processing operations in locust bean include deppoding, cleaning, boiling, dehulling, salting, washing, re-cooking, fermentation, and packaging. The result revealed that all (100%) the respondents did not acquire improved processing skill through trainings and workshop hence all the processing operations were carried out manually with rigorous labour in the study area. This supports the findings of [10] that most processors that produce fermented locust beans on a large scale still use the traditional method for dehulling, although machine has been developed to ease dehulling process. The implication of this is that the continuous using of crude processing techniques cause low productivity, lesser quality, low demand and regretfully poor sales.

TABLE IV
DISTRIBUTION BASED ON SKILL ACQUISITION ACTIVITIES IN LOCUST BEANS PROCESSING (N = 90)

Processing activities	Yes	No
Training on depodding using machine	0 (0.00)	90 (100.00)
Modernized cleaning method	0 (0.00)	90 (100.00)
Training on boiling using pressure cooker	0 (0.00)	90 (100.00)
Training on dehulling using machine	0 (0.00)	90 (100.00)
Workshop on improved washing technique	0 (0.00)	90 (100.00)
Training on re-cooking with powered pressure pot	0 (0.00)	90 (100.00)
Training on use of improved fermentation (air tight container)	0 (0.00)	90 (100.00)
Training on hygienic salting practices	0 (0.00)	90 (100.00)
Seminar on better packaging	0 (0.00)	90 (100.00)

Source: Field survey, 2013
Note: The values in parenthesis are percentages

E. Constraints to Locust Bean Processing

Myriads of problems are militating against the use of improved processing system for locust bean in the study area. Lack of modern processing facilities was ranked first. This is followed by lack of technical know-how, low demand of processed locust bean, and water scarcity among others. The low demand of processed locust bean (i.e. *iru pete* or *woro*) may be attributed to the age of civilization and increase in the production of modern condiments like maggi, curry, time etc. This result agreed with the findings of [5] that it is unfortunate that locust bean is fast losing its popularity to some other flavoring agents.

TABLE V
CONSTRAINTS TO LOCUST BEANS PROCESSING (n = 90)

s/n	Variable	Frequency	Percentage	Rank
1.	Inadequate capital	64	71.10	6th
2.	Processing of locust bean is strenuous	79	87.80	4th
3.	Inaccessible raw materials	56	62.20	7th
4.	Low demand of *iru pete* or *woro*	82	91.10	3rd
5.	Inadequate market for the processed produce	55	61.10	8th
6.	Scarcity of water/flowing river	70	77.80	5th
7.	Lack of modern processing facilities	86	95.50	1st
8.	Lack of technical know-how	85	94.40	2nd

Source: Field survey, 2013
*Multiple responses

F. Testing of Hypothesis

The result of hypothesis showed non-significant relationships between age (r = 0.66, p = 0.47), household size (r = 0.00, p = 1.00), processing experience (r = 0.07, p = 0.42) and rural women's skill acquisition activities. This implies that the age, household size and experience of the respondents had no influence in the acquisition of improved processing skill if they are trained. The respondents are more likely to adopt innovation in locust bean processing and do away with strenuous manual processing method. Hence, the null hypothesis that "*there is no significant relationship between personal characteristic of the respondents and rural women's skill acquisition activities*" is accepted.

TABLE VI
RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS AND SKILL
ACQUISITION ACTIVITIES

Variable	r	p-value	Decision
Age	0.66	0.47	NS
Household size	0.00	1.00	NS
Processing experience	0.07	0.42	NS

Source: Field survey, 2013
NS – Not significant at $p < 0.05$

IV. CONCLUSION

It can be concluded that the rural women's skill acquisition on modernized processing techniques was generally low. Also, the socio-economic characteristics of the rural women processors could not affect adoption of innovations in locust bean processing.

V. RECOMMENDATIONS

Based on the findings of this study, it is hereby recommend that:

i.   the rural women processors should be trained by extension service providers through series of workshops and seminars on improved processing techniques

ii. subsidized processing machine should be made available by the government

iii. cultivation of locust bean tree needs to be given adequate attention and encouraged by government so as to boost availability of the locust bean seeds

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