*Economy*
*Vol. 6, No. 1, 7-12, 2019*
*ISSN(E) 2313-8181/ ISSN(P) 2518-0118*
*DOI: 10.20448/journal.502.2019.61.7.12*


# Rural Women Entrepreneurial Skills in Maize Value Addition in Abeokuta Metropolis, Nigeria

**Omoare, Ayodeji Motunrayo**[1]
**Oyediran, Wasiu Oyeleke**[2]✉
**Ogbonna Chinna**[3]

[1,3]*Department of Agricultural Education, Federal College of Education, Abeokuta, Ogun State, Nigeria.*
[1]*Email: ayodejiomoare@gmail.com*
[3]*Email: ogbonnafce@gmail.com*
[2]*Department of Agricultural Extension and Rural Development, Federal University of Agriculture, Abeokuta, Nigeria.*
[2]*Email: oyediran_wasiu@yahoo.com*


*(✉ Corresponding Author)*

## Abstract

Maize is a common staple food for human consumption and livestock feeds. It provides employment and means of livelihood for women in both rural areas and urban centres in Nigeria. However, the entrepreneurial skills of women engaged in its value addition have not been fully enhanced. This study was conducted to look into rural women entrepreneurial skills in maize value addition in Abeokuta metropolis of Ogun State, Nigeria. Two hundred and ten respondents were selected using snow ball sampling technique. Data were analyzed with chi-square. Results revealed that fifty percent of the respondents were 31 - 40 years of age and 60% had spent 6 – 10 years in maize processing. Most (85.7%) of the respondents' added value to maize by converting it to popcorn, 80.0% turned it to corn cake and 52.9% processed it to *kokoro*. Majority (88.6%) of the respondents acquired entrepreneurial skills through fellow processors and 62.9% got it from friends and neighbours. Serious constraints identified by 95.7% and 88.6% of the respondents were scarcity of raw materials during off season and ineffective preservation methods respectively. Results of chi-square revealed that significant association existed between sources of entrepreneurial trainings for the rural women and value addition at $p < 0.05$. The study concluded that value addition of maize is very low in the study area. It is hereby recommended that extension service providers should pay more attention to the maize processors in terms of entrepreneurial trainings for better processing and value addition of maize.

**Keywords:** Processing machines, Rural women, Entrepreneurial skills, Maize, Value addition, Livelihood.
**JEL Classification:** Q16, Q12, J26, Q10, D46, Q19.

**Citation** | Omoare, Ayodeji Motunrayo; Oyediran, Wasiu Oyeleke; Ogbonna Chinna (2019). Rural Women Entrepreneurial Skills in Maize Value Addition in Abeokuta Metropolis, Nigeria. Economy, 6(1): 7-12.
**History:**
Received: 15 April 2019
Revised: 21 May 2019
Accepted: 26 June 2019
Published: 22 August 2019

**Publisher:** Asian Online Journal Publishing Group

**Acknowledgement:** All authors contributed to the conception and design of the study.
**Funding:** This study received no specific financial support.
**Competing Interests:** The authors declare that they have no conflict of interests.
**Transparency:** The authors confirm that the manuscript is an honest, accurate, and transparent account of the study was reported; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained.
**Ethical:** This study follows all ethical practices during writing.

## Contents

**Contribution of this paper to the literature**
This study is one of the very few studies that identified low value addition for maize by the rural women in Nigeria, and listed major limitations to entrepreneurial skills of rural women in maize value chain.

## 1. Introduction

Value addition focuses on perishable crops after harvest to reduce losses, enhance financial or nutritional crop-value, and assure food safety. Entrepreneurial skills of adding value to maize offer good potentials for increasing income generation, women empowerment and utilization of the crop. However, the rural women entrepreneurial skills in maize processing is not well harnessed for value addition in Nigeria which is seriously undermine the potential benefits of the maize crop to the rural women, consumers and other chain actors. Nigeria is the largest maize producer in Africa (ITA, 2012) and currently ranked tenth largest maize producer in the world. Its cultivation started on a subsistence level and has gradually risen to a commercial crop on which many agro-based industries depend on as raw materials in Nigeria (Iken and Amusa, 2014).

Over fifty million farmers grow maize every year while over ninety million people are employed in its processing and usage daily. It has become one of the most important food, feed and industrial crops in Nigeria. It provides energy, vitamins and has some amount of protein (Onyibe *et al.*, 2014). The food products that can be obtained from maize in Nigeria include *ogi*, *eko* or *agidi*, *egbo*, *elekute*, *aadun*, *abari* and *guguru* (Okoruwa, 1997). The production of most of the indigenous food products, particularly in the developing countries, has not progressed much beyond the traditional processing techniques because of slow pace in technological development which is obviously aggravated by misplaced government priority on the importance of technology in small scale agro-processing (Vonortas, 2002; King and Nowack, 2003).

The traditional food processing methods are labour-intensive, susceptible to food losses and poor quality end-product (Kordylas, 1990). Nigerian rural women are largely involved in food processing activities from where they derived their livelihood means. They form an indispensable part of human resources for agricultural development because of their contributions to the nation economy. According to Ogunlela and Mukhtar (2009) women play a dominant role in agriculture in Nigeria and are believed to make up to 60–80% of the agricultural workforce. Charmas (2000) reported that women's activities in food processing remain underestimated because most of their activities are undertaken as secondary activities generally hidden behind subsistence agriculture. Women's contribution in creating value-added products through entrepreneurial skills acquisition need to be estimated in order to design more appropriate measures to help their empowerment.

Entrepreneurial skills in maize processing and value addition would help in changing the colour, flavour and texture to make the maize products more attractive and palatable and extending the shelf life and storage time of the products. It would bring wide range of benefits to enterprising people in Nigeria which include: promoting access to wider markets, improving small-scale producers and entrepreneurs' income-earning ability, allowing improved use and control of local resources and helping to create employment for poor people, particularly in the rural areas (Ihekoronye and Uzomah, 2011). In addition, it is expected that the rural women's activities can reduce or eradicate postharvest food losses during glut through adequate training and capacity building on value addition. It is in view of this background information that this study assessed rural women entrepreneurial skills in maize value addition in Abeokuta metropolis of Ogun State, Nigeria. This study identified the entrepreneurial skills of the respondents, sources of training for the maize value addition, and constraints to the maize value addition.

### *1.1. Hypotheses of the Study are Stated in Null Forms*

*$H_{01}$: There is no significant association between personal characteristics of the respondents and entrepreneurial skills of the women in the study area.*

*$H_{02}$: There is no significant association between sources of entrepreneurial trainings for the rural women and value addition in the study area.*

## 2. Methodology

### *2.1. Description of Study Area*

The study was carried out in Abeokuta metropolis of Ogun State, Nigeria. Ogun State is one of the six states in Southwest Nigeria. The state was created in February 3rd, 1976. It is bounded in the west by Republic of Benin, bounded in the south by Lagos State and Atlantic Ocean, in the North by both Oyo and Osun States and in the East by Ondo State. Abeokuta is the largest city and state capital of Ogun State in southwest Nigeria.

It is situated on the east bank of the Ogun River, near a group of rocky outcrops in a wooded savanna 77 Kilometres North of Lagos by railway and 130 Kilometres by water (Hoiberg, 2010). Abeokuta metropolis has a total population of 593.143 people as at 2006 (NPC, 2006).

Abeokuta metropolis has only two Local Government Areas namely Abeokuta South Local Government Area having its headquarters at Ake with 15 wards and Abeokuta North Local Government Area having its own headquarters at Akomoje with 17 wards. The agro-industrial potential of the Ogun State makes Abeokuta an important trading center for rice, maize, cassava, yam, banana, cocoa, palm-oil and palm kernel, and the largest producer and exporter of kola nuts in Nigeria. Rural women are involved in the value addition of maize across the state.

### *2.2. Sampling Procedure and Sample Size*

Primary data were used for the study. Snow ball technique was used to select 42 maize processors in five diverse products namely: popcorn, corn starch, pap processors, maize ball, and corn cake. The respondents were selected from the urban markets in Asero, Kuto, Lafenwa and Panseke. Interview guide was used to obtain information on the respondent's personal characteristics, entrepreneurial skills, sources of the trainings on value addition, and constraints to maize value addition. Frequencies, percentages and chi-square were used to analyze the data.

### 2.3. Validity and Reliability Test

The instrument used for the data collection was subjected to face validity through the efforts of experts in the field of Agricultural Extension and Rural Development. Items that lack clarity were immediately removed.

Pearson Product Moment Correlation was used to obtain the reliability result of 0.85 from test re-test method at interval of two weeks with twenty maize processors who were not included in the sample size hence, the instrument is assumed reliable.

### 2.4. Measurement of Variables and Data Analysis

Age, years of experience and household size was measured at ratio level while educational status, marital status and religion were nominally measured by assigning numbers.

Entrepreneurial skills were measured as Great (3), Little (2) and Very Little (1) while sources of capacity building were nominally measured as Yes (1) and No (0). Simple descriptive statistics such as percentage, mean and frequency were used to analyze the objectives while chi-square analysis was used to test the hypotheses of the study.

## 3. Results and Discussion

### 3.1. Personal Characteristics of the Respondents

In Table 1, the results revealed that about fifty percent of the respondents were between ages of 31 - 40 years while 21.43% were less than 30 years of age. This indicates that the maize processors are young and economically active. Fifty percent of the respondents were married while 21.43% and 17.14% were single and divorcee respectively.

The result further showed that 60% of the respondents had spent 6 – 10 years in maize processing while 22.86% had had spent more than 10 years in maize processing. It implies that maize processors have wealth of experience in maize processing activities. More than half (52.86%) of the respondents had primary school education while 21.43% attended secondary school, and only 10% attained tertiary education. This implies that the respondents had formal education which can be harnessed for entrepreneurial skills acquisition in maize processing and value addition in Ogun State.

Education is a very important determinant in adoption of innovation (Asiabaka (2002) cited in Oyediran *et al.* (2014). Majority (71.43%) of the respondents were Christians while the remaining 28.57% were practicing Islam. In addition, the result also showed that about sixty percent of the respondents have 6 – 10 people in their households while 30.0% have 1 – 5 people and 12.86% have more than 10 people as household size. This is an indication that the household size of the maize processors was relatively large. The reason for having more than 5 children among the maize processors could be attributed to the need for assistance in their economic engagement and other domestic activities which they could not satisfactorily get from outside.

**Table-1.** Distribution based on maize processors personal characteristics (n = 210).

| Variable | Frequency | Percentage |
|---|---|---|
| **Age (years)** | | |
| ≤ 30 | 45 | 21.43 |
| 31-40 | 99 | 47.14 |
| 41-50 | 51 | 24.29 |
| Above 50 | 15 | 7.14 |
| **Marital status** | | |
| Single | 45 | 21.43 |
| Married | 105 | 50.00 |
| Divorced | 36 | 17.14 |
| Widowed | 24 | 11.43 |
| **Years of experience** | | |
| Less than 5 | 36 | 17.14 |
| 6-10 | 126 | 60.00 |
| Above 10 | 48 | 22.86 |
| **Educational status** | | |
| No formal education | 33 | 15.71 |
| Primary education | 111 | 52.86 |
| Secondary | 45 | 21.43 |
| Tertiary | 21 | 10.00 |
| **Religion** | | |
| Christianity | 150 | 71.43 |
| Islam | 60 | 28.57 |
| **Household size** | | |
| 1-5 | 63 | 30.00 |
| 6-10 | 120 | 57.14 |
| Above 10 | 27 | 12.86 |

**Source:** Field survey, 2019.

### 3.2. Entrepreneurial Skills in Maize Value Addition

The results on entrepreneurial skills presented in Table 2 showed that majority of the respondents have greater skills of transforming maize into diverse products. The maize processors reported that they processed maize very well into popcorn (85.7%), corn cake (80.0%), corn balls (64.3%) and kokoro (52.9%). However, many of the respondents indicated that they have great entrepreneurial skills in making Aadun (61.4%), pap (45.7%), kokoro (22.8%).

Similarly, majority of the respondents have very little entrepreneurial skills in value addition for packaging (50.0%) and labelling (41.4%) of processed maize products. This implies that value addition to maize products in the study area was very low in terms of branding.

This result corroborates the findings of Omoare *et al.* (2014) in a study conducted on sweet potato value addition in Osun State which was found to be very low among the processors. Value addition to maize therefore requires urgent intervention from reputable organizations in form of training and capacity building to upgrade maize products packaging, acceptability, sales and consumption in the study area. This will go a long way to boost the income of the rural women and their economic empowerment.

**Table-2.** Distribution based on respondents entrepreneurial skills in maize value addition (n = 210).

| Entrepreneurial skills | Great (%) | Little (%) | Very little (%) |
|---|---|---|---|
| **Processing skills** | | | |
| Corn balls | 135 (64.3) | 60 (28.6) | 15(7.1) |
| Corn cake | 168 (80.0) | 30 (14.3) | 12 (5.7) |
| Popcorn (guguru) | 180 (85.7) | 15 (7.1) | 15 (7.1) |
| Corn starch (Ogi) | 126 (60.0) | 54 (25.7) | 30 (14.3) |
| Pap (Eko) | 45 (21.4) | 69 (32.9) | 96 (45.7) |
| Aadun | 12 (5.7) | 69 (32.9) | 129 (61.4) |
| Kokoro | 111 (52.9) | 51 (24.3) | 48 (22.8) |
| **Value addition skills** | | | |
| Packaging | 48 (22.9) | 57 (27.1) | 105 (50.0) |
| Labelling | 45 (21.4) | 78 (37.1) | 87 (41.4) |

**Source:** Field survey, 2019.

### *3.3. Sources of Entrepreneurial Training for the Maize Value Addition*

The results in Table 3 showed that majority of the respondents got entrepreneurial training on maize value addition through fellow processors (88.6%) and friends and neighbours (62.9%).

The findings are in line with that of Ajagbe *et al.* (2014) that predominant sources of information to rural households are fellow farmers, friends and relatives. This implies that the maize processors acquired entrepreneurial skills from their associates because of their closeness, rapport and business tie. Meanwhile, social organizations (38.6%), apprenticeship training (35.7%), and religious organizations (17.1%) constituted least avenue of getting skills on maize value addition in the study area.

**Table-3.** Sources of entrepreneurial training for the maize value addition (n = 210).

| Sources of entrepreneurial training for the maize value addition | Yes (%) | No (%) |
|---|---|---|
| Through fellow processors | 186 (88.6) | 24 (11.4) |
| Friends and neighbours | 132 (62.9) | 78 (37.1) |
| Social organizations | 81 (38.6) | 129 (61.4) |
| Religious organizations | 36 (17.1) | 124 (82.9) |
| Through apprenticeship training | 75 (35.7) | 135 (64.3) |

*Multiple responses recorded.
**Source:** Field survey, 2019.

### *3.4. Constraints Affecting Maize Value Addition*

It was found from the results in Table 4 that major constraints to maize value addition are scarcity of raw materials during off season periods (95.7%), ineffective preservation methods (88.6%), lack of modern processing equipment (82.9%), and high cost of processing machines (72.9%).

Omoare *et al.* (2014) reported similar findings that major impediments to food processing and value addition are high cost of processing equipment, lack of modern facilities and poor extension service support. Also, lack of training on diverse products forms (71.4%), inadequate financial support (64.3%), and poor branding techniques (61.4%) affected maize value addition in the study area.

**Table-4.** Distribution based on constraints affecting maize value addition (n = 210).

| Constraints | Yes (%) | No (%) | Rank |
|---|---|---|---|
| Lack of modern processing equipment | 174(82.9) | 36(17.2) | 3rd |
| Ineffective preservation methods | 186(88.6) | 24(11.4) | 2nd |
| Inadequate financial support | 135(64.3) | 75(35.7) | 6th |
| Low consumers acceptability | 90(42.8) | 120(57.2) | 9th |
| Poor branding techniques | 129(61.4) | 81(38.6) | 7th |
| High cost of processing machines | 153(72.9) | 57(27.1) | 4th |
| Scarcity of raw materials during off season periods | 201(95.7) | 09(4.3) | 1st |
| High cost of raw materials | 35(50.0) | 105(50.0) | 8th |
| Lack of training on diverse products forms | 50(71.4) | 60(28.6) | 5th |

**Source:** Field survey, 2019.

### *3.5. Test of Hypotheses*

#### *3.5.1. Relationship between Respondent's Personal Characteristics and Entrepreneurial Skills of the Women*

The results of chi-square as shown in Table 5 revealed that there is significant association between personal characteristics of the respondents and entrepreneurial skills of the women. Personal characteristics variables such as age ($\chi^2$ = 12.90, df = 6, p = 0.01), marital status ($\chi^2$ = 8.11, df = 6, p = 0.02), years of experience ($\chi^2$ = 25.63, df = 4, p = 0.00), educational status ($\chi^2$ = 17.42, df = 6, p = 0.00), religion ($\chi^2$ = 5.99, df = 2, p = 0.02), and household size ($\chi^2$ = 13.81, df = 4, p = 0.03) were significant to entrepreneurial skills of the women at $p < 0.05$ level of significance. This means that personal characteristics variables have relationship with entrepreneurial skills of the

women. Thus, the null hypothesis that *"there is no significant association between personal characteristics of the respondents and entrepreneurial skills of the women"* is rejected.

**Table-5.** Relationship between respondent's personal characteristics and entrepreneurial skills of the women.

| Variables | $\chi^2$ | df | p-value | Decision |
|---|---|---|---|---|
| Age | 12.90 | 6 | 0.01 | S |
| Marital status | 8.11 | 6 | 0.02 | S |
| Years of experience in maize processing | 25.63 | 4 | 0.00 | S |
| Educational status | 17.42 | 6 | 0.00 | S |
| Religion | 5.99 | 2 | 0.02 | S |
| Household size | 13.81 | 4 | 0.03 | S |

**Source:** Field survey, 2019. df – degree of freedom. Significant at $p < 0.05$ level of significance.

### *3.6. Relationship between Sources of Entrepreneurial Trainings for the Rural Women and Value Addition*

Chi-square results in Table 6 showed that there is significant association between sources of entrepreneurial trainings for the rural women and value addition. Entrepreneurial skills acquisition of the women through fellow maize processors ($\chi^2 = 78.32$, df = 2, p = 0.00), friends and neighbours ($\chi^2 = 49.25$, df = 2, p = 0.02), and social organizations ($\chi^2 = 33.30$, df = 2, p = 0.01) were significant to value addition at $p < 0.05$ level of significance. However, entrepreneurial skills acquisition through religious organizations ($\chi^2 = 1.04$, df = 2, p = 0.19) and apprenticeship training ($\chi^2 = 0.53$, df = 2, p = 0.34) were not significant to value addition because there is little contributions from these channels to the rural women.

It can therefore be said that sources of entrepreneurial trainings for the rural women have influence on the level of value added to the maize in the study area. Thus, the null hypothesis that "*there is no significant association between sources of entrepreneurial trainings for the rural women and value addition*" is rejected.

**Table-6.** Relationship between sources of entrepreneurial trainings for the rural women and value addition.

| Sources of trainings | df | $\chi^2$ | p-value | Decision |
|---|---|---|---|---|
| Through fellow processors | 2 | 78.32 | 0.00 | S |
| Friends and neighbours | 2 | 49.25 | 0.02 | S |
| Social organizations | 2 | 33.30 | 0.01 | S |
| Religious organizations | 2 | 1.04 | 0.19 | NS |
| Through apprenticeship training | 2 | 0.53 | 0.34 | NS |

**Source:** Field survey, 2019. S - Significant at $p < 0.05$ level of significance.
**NS -** Not Significant at $p > 0.05$ level of significance.

## 4. Conclusion

The study concluded that respondents have great entrepreneurial skills in maize processing but the skills for value addition was very low. Sources of entrepreneurial skills are limited to fellow maize processors and friends/neighbours.

Also, scarcity of raw materials during off season periods, ineffective preservation methods, lack of modern processing equipment and high cost of processing machines constituted serious constraints. Chi-square result showed that there is significant association between personal characteristics of the respondents and entrepreneurial skills of the rural women.

## 5. Recommendations

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

1) Extension service providers should pay more attention to the maize processors in terms of entrepreneurial trainings for better processing and value addition of maize.
2) Maize processors should form themselves into a mega cooperative association to be able to access banks loans and other government largesse.
3) Subsidized processing equipment should be made available to the maize processors in the study area by the state and local governments and non-government organizations (NGOs).

## References

Ajagbe, B., W. Oyediran, A. Omoare and O. Sofowora, 2014. Assessment of post-harvest practices among tomato (Solanum Lycopersicum) farmers/processors in Abeokuta North local government area, Ogun State, Nigeria. International Journal of Education and Research, 2(3): 1-12.

Charmas, J., 2000. African women in food processing: A major but still underestimated sector of their contribution to the national economy. A Paper Presented at the IDRC in France: University of Versailles-Saint Quentin en Yves.

Hoiberg, D.H., 2010. Abeokuta. Encyclopedia Britannica. In: A-ak Bayes. 15th Edn., Chicago, IL: Encyclopedia Britannica Inc. pp: 27.

Ihekoronye, A.I. and A. Uzomah, 2011. Manual on small-scale food processing. A guide to opportunities for enterprise development in small-scale food processing. Springfield Publishers Ltd. pp: 3.

Iken, J.E. and N.A. Amusa, 2014. Maize research and production in Nigeria. Institute of Agricultural Research and Training (IAR&T), Obafemi Awolowo University, Moor Plantation, Ibadan. Nigeria. pp: 302-307.

ITA, 2012. International institute for tropical agriculture growing in Nigeria. Commercial Crop Production Guide Series. Information and Communication Support for Agricultural Growth inNigeria. USAID. pp: 1-8.

King, D.R. and M.L. Nowack, 2003. The impact of government policy on technology transfer: An aircraft industry case study. Journal of Engineering and Technology Management, 20(4): 303-318.Available at: https://doi.org/10.1016/j.jengtecman.2003.08.007.

Kordylas, J.M., 1990. Processing and preservation of tropical and sub-tropical foods. London: Macmillan.

NPC, 2006. National census figure. National Population Commission, Abuja, Nigeria.

Ogunlela, Y.I. and A.A. Mukhtar, 2009. Gender issues in agriculture and rural development in Nigeria: The role of women. Humanity & Social Sciences Journal, 4(1): 19-30.

Okoruwa, A.E., 1997. Utilization and processing of maize. IITA Research Guide No. 35. Ibada: IITA.

Omoare, A.M., E.O. Fakoya, E.O. Fapojuwo and W.O. Oyediran, 2014. Assessment of value addition in value chain of sweet potato (Ipomoea batatas (L.) Lam) in Osun State, Nigeria. World Academy of Science, Engineering and Technology (WASET), International Journal of Social, Business, Psychological, Human Science and Engineering, 8(1): 22 – 26.

Onyibe, J.E., B.M. Sani, D. Baba, H. Chindo, I.K. Ibrahim and M. Malumfashi, 2014. Production, marketing, processing and utilization in Nigeria. Extension Bulletin No. 217: 23.

Oyediran, W.O., C.I. Sodiya and A.M. Omoare, 2014. Determinants of melon production in Iseyin local government area of Oyo State, Nigeria. Scholars Journal of Agriculture and Veterinary Sciences, 1(2): 42 -49.

Vonortas, N.S., 2002. Building competitive firms: Technology policy initiatives in Latin America. Technology in Society, 24(4): 433-459.Available at: https://doi.org/10.1016/s0160-791x(02)00034-9.