

ANALYSIS OF LEVEL OF AWARENESS AND ADOPTION OF NCAM MECHANICAL MELON SHELLER IN EDU L.G.A OF KWARA STATE

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ABSTRACT

The study analyzed the level of awareness and adoption of NCAM mechanical Melon Sheller in Edu Local Government Area of Kwara State Data were obtained through interview schedule with structured questionnaires using random sampling technique. A total of 60 melon processors across four villages were randomly selected and used for the study. Organization and description of data were done by the use of frequency distribution table, percentage, mean and sigma/adoption scoring method. The findings from the study (N= 60) indicated that majority (95%) of the melon processors in the study area were female, married (93.33%) and 70% with experience in melon processing. The result of the investigation on awareness creation of the melon sheller showed that about 98.3% were not aware of NCAM technologies before demonstration. After the demonstration was conducted for the processors, they preferred the NCAM melon sheller to the method they have been using before and 96.7% of the respondents were willing to use NCAM melon sheller. The adoption score of 5.96 shows high level of adoption of the technology in the study area.

KEYWORDS: Awareness, adoption level, melon sheller, processing technology.

1. INTRODUCTION

Melon (*Citrullus lanatus*) is an oil seed crops majorly grown and consumed in Nigeria and most other African countries. The melon seeds are small, flat and oval containing a white cotyledon in a thin walled shell with a thick ring around the edges (Adeniran and Wilson, 1981; Langer and Hill, 1998; Maynard, 2001).

Egusi (melon) is an essential crop in Nigeria and in some other Africa Countries, melon seeds are peeled and used in preparing assorted dishes, the ground seeds are used in seasoning food (Anuebunwa, 2000). In the Northern parts of Sudan, seeds of some types are eaten whole including the seed coat after being roasted (Achu *et al.*, 2005). The melon seed kernel (Egusi) has been used as the basis for a number of soups where it results in thickening, emulsifying, fat binding and flavoring. It is also a raw material in the production of margarine, salad, “robo cake”, baby food and livestock feeds. Its oil is used in the production of local pomade, soap and its shell is used as poultry litter (Shittu and Ndrika 2012; Achu *et al.*, 2005).

In processing of melon, different unit operations include depodding, fermentation, coring, washing, drying, shelling and cleaning (Kushwaha *et al.*, 2005). Traditional method of shelling melon is slow, time consuming, tedious, inefficient and involves drudgery, thus limiting the availability of the product in the market. This has given concern to scientists and researchers in the recent past, particularly since women are the major processors of melon especially at shelling stage. Though there has been some development in the mechanization of melon (egusi) shelling machines, the machines are unattractive to local farmers because of their sophistication and low output. According to Kassim *et al.* (2011), the locally fabricated melon shelling machines

available in the market have low efficiencies, however, investigations and performance evaluation test carried out by the Agro Industrial Development and Extension Department on the improved melon sheller developed by the National Centre for Agricultural Mechanization (NCAM) have revealed that the developed machine has overcome the problems listed above and has a shelling efficiency of more than 80%.

The objectives of the study are:

- i. To establish the level of awareness of NCAM mechanical melon sheller in Edu LGA;
- ii. To determine the level of adoption of NCAM mechanical melon sheller in the study area.

2. METHODOLOGY

The study was conducted in Tsaragi, Ankoro, Patiduru and Baatain Edu LGA of Kwara State because they are majorly known for melon production and processing in large quantities. Edu is one of the Local Government Areas in Kwara State with an estimated total land area of about 2,542 km² and an estimated population of about 201,469 (NPC, 2006). The climate is characterized by dry and wet season. The annual rainfall ranges between 1000 and 1500mm. Average temperatures between 30°C and 35°C and humidity range from 35 to 60%. Edu LGA has 8.8892° N Latitude and 5.1432° E Longitude. The major source of livelihood and occupation of the people in these areas is farming (KWSMI, 2002).

A total of 60 Agro- processors from the local government were randomly selected for the study. This formed the sample size of the study. The source of data used for this study was basically generated primarily. This involved the use of an interview schedule with structured questionnaires

The technology was demonstrated to the processors, after which the melon sheller was left for extensive use by the processors for two weeks. Data were collected on the level of awareness, level of adoption of NCAM mechanical melon sheller and the socio economic characteristics of the respondent through the use of structured questionnaires. Data obtained were analyzed using descriptive statistics such as frequency distribution table, percentages and means. The level of awareness of NCAM mechanical melon sheller and level of adoption of NCAM mechanical melon sheller were determined using sigma scoring method/adoption score. The following steps were used:

- i. Obtain the percentage of processors who used the NCAM mechanical melon sheller (A) x 100 = A x 100 = A%
- ii. This is followed by dividing the percentage (A %) by two and subtract the answer from 100; $100 - (A\%/2) = B\%$
- iii. Check B% on the statistical table of normal deviates to get the sigma distance (X).
- iv. Next, increase the value of the sigma distance using a constant figure of 2 and multiplying the result by the same constant. $(X + 2) \times 2 = Y$
- v. Sigma method assigns weight in reverse direction on a 10 point scale, the actual sigma score would be 10 minus the answer (Y). $10 - Y = Z$
- vi. Decision Rule: Any mean score (Z) less than 5 is considered as low level of awareness/adoption.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of the Respondents

The social economic characteristics of the respondent are shown in Table 1. The Table 1 shows that 95% of the respondent are females, indicating that the female gender are deeply involved in melon processing and as well be related to the socio-cultural factors that restricts gender in some communities (Arokoyo, *et al.* (2002). Table 1 also revealed that bulk of the respondents (93.33%) are married, while 5% and 1.67% were widowed and single respectively.

Table 1 further revealed that majority of the respondents (70%) had less than 10 years of experience in melon business. Those between 2-5 years of experience were 20% while those with more than 10 years were 10%.

Table 1. Socio-economic Characteristics of the Respondents

Gender	Frequency	Percentage
Male	3	5.00
Female	57	95.00
Total	60	100
<i>Marital status</i>		
Single	1	1.67
Married	56	93.33
Widowed	3	5.00
Divorced	0	0.00
Total	60	100
<i>Melon processing experience (Years)</i>		
<2		
2-5	12	20.00
6-10	42	70.00
>10	6	10.00
Total	60	100
<i>Age (Years)</i>		
<20	0	0.00
21-30	7	11.67
31-40	29	48.33
41-50	15	25.00
>50	9	15.00
Total	60	100

Source: (Field Survey, 2015)

3.2 Awareness of the NCAM Mechanical Melon Sheller

Table 2 shows the awareness distribution of the NCAM Mechanical Melon Sheller in the study area. From Table 2, it can be deduced that 98.3% of the melon processors in the study area were not aware of the NCAM mechanical melon sheller until the period of the demonstration

Table 2. Awareness Distribution of the NCAM Mechanical Melon Sheller.

Research Item	Frequency	Percentage (A%)	$100-(A\%/2)= B\%$	Sigma distance $B\% = X$	$Y=(X+2) \times 2$	Actual sigma score $Z = 10 - Y$
Not Aware	59	98.3	50.85	0.02	4.04	5.96
Aware	1	1.7	99.15	2.39	8.78	1.22
Total	60	100				

From Table 3, it was observed that the responses of respondents on the use of the technology, after the demonstration was shown, 96.7% of the respondents were willing to use NCAM melon sheller for their melon shelling because of the effectiveness they got during the demonstration. While less than 4% were not willing.

Table 3. Frequency Table on Responses of Respondents on the use of NCAM Mechanical Melon Sheller

Research item	Frequency	Percent Usage
No	2	3.3
Yes	58	96.7
Total	60	100

3.3 Adoption distribution of the NCAM Mechanical melon sheller

Table 4 describes the adoption distribution of the NCAM Mechanical Melon Sheller in the study area. 98.3% of the respondents adopted the use of NCAM Melon Sheller. The result revealed that there was no difference in the responses of the respondents in all the villages due to chance of variation which implies that the respondents behave the same way. It is important to note that in any development activities, awareness of technology must be recognized according to Agwu *et al.* (2008).

Table 4. Frequency Table on Responses of Respondents on the Method to Adopt

Research item	Frequency	Percent Adopted
Other methods	1	1.7
NCAM Melon Sheller	59	98.3
Total	60	100

Source: (Field Survey 2015)

Table 5 shows that while 98.3% of the melon processors adopted the technology, 1.7% of them did not. The adoption score of 5.96 for processors who adopted the use of the NCAM mechanical melon sheller revealed high level of adoption of the technology in the study area. This agrees with the findings of Bello *et al.* (2012) and Adejoh *et al.* (2012).

Table 5. Adoption Distribution of the NCAM Mechanical Melon Sheller

Research Item	Frequency	Percentage (A%)	$100-(A\%/2)= B\%$	Sigma distance $B\% = X$	$Y=(X+2) \times 2$	Actual sigma score $Z = 10 - Y$
Adopted	59	98.3	50.85	0.02	4.04	5.96
Not	1	1.7	99.15	2.39	8.78	1.22
Adopted Total	60	100				

Source: (Field Survey 2015)

4. CONCLUSION

From the study, it can be concluded and recommended that

1. The level of awareness improved at the end of the demonstration of NCAM Melon Sheller prior to what the processor observed before the demonstration.
2. High percentage of the processors adopted the use of the technology probably because it is easy to operate and maintain since majority of the processors are women.

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