

ADOPTION OF IMPROVED RICE PROCESSING TECHNOLOGIES AMONG WOMEN IN NIGER STATE, NIGERIA

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ABSTRACT

The study was conducted in Niger State, Nigeria. The study evaluates the adoption of improved rice processing technologies among women rice processors. Data for this study were collected through a structured interview scheduled and analyzed using descriptive statistics such as frequency, percentages and means, the hypothesis was tested using Chi-square (1). The result revealed that majority of the respondents were still in their active age, with the mean age of 42 years and majority (92.5%) had one form education or the other. Large proportion 90% and 77.5% of the respondents were married and had moderate house hold sizes respectively, majority 97.5% were members of various cooperative societies, while 90% had been in rice processing business for over 5 years. 85% and 30% claimed they had access to training and credit facilities respectively. The awareness level of the respondents about various technologies were very high, adoption levels were however, very low. The study revealed that age, marital status, cooperative membership, level of education, access to credit and level of awareness had significant relationship with adoption at 5% level of probability. The study further revealed that high cost of processing machines, inadequate extension visit and nature of local rice were the major constraints faced by the farmers in the study area. The study recommended that processors should be encouraged to participate more actively in cooperative activities so that they

could benefit from assistance usually rendered by Non Governmental Organizations, government organization and donor/development agencies.

Keywords: adoption, rice, processing technologies, women.

INTRODUCTION ii. Reciprocator winnower: this equipment Rice is one of the oldest, celebrated and primary foods.

A survey conducted by National Cereal Research Institute (NCRI) (2008) revealed that Nigerian consumers show preference to quality rice. The institute has developed improved technologies for processing rice such as

i. Rice thresher: it dislodges rice seed from the

form, filling the rice voids and cementing the fissure

of the grain. During the process an irreversible

swelling and fusion of starch granules occur that changes the

starch from a crystalline (a clear

form, filling the rice voids and cementing the fissure

of the grain. During the process an irreversible

swelling and fusion of starch granules occur that changes the

starch from a crystalline (a clear

winnowing and wet cleaning operations are

removed.

Post harvest handling and processing of rice involves

operation during when rice is properly prepared for

further processing before it can be consumed, studies

conducted shows that most Nigerian has preference for

It is made up of a fiustum hopper, milling

chamber, husk aspiration spout and power

unit.

Pneumatic cleaner: this machine cleans milled

rice to ensure that fine sand and bran that still

performs the function of cleaning the threshed for more than half of the population of the world and seed.

the only cereal that is grown across most regions of the iii. Wet cleaners: it is used in separating lighter world (Issaka, et al.,

1997; Tran, 2003), also it is impurities that float on water form rice; among the world's leading staple food crops and sixth iv.

Rice parboiled: it is used to heat-treat rice in major crop cultivated after sorghum, millet, maize, order to properly gelatinize

the starch in the cowpea and wheat in Nigeria (Singh et al 1997; Misari, kernels.

et al., 1997) but rice is now ranking first position on a v. Rotary steam dryer: it dries about 1.5 tonnes of social scale of the

staple food that are used in most parboiled rice per day. It also has provision for festivals in urban and rural homes (Langtau,

2003). condensation discharge and sets of screens Rice processing that has to do mainly with parboiling that permits exit of

moist air from the drying and milling. Parboiling is the hydrothermal treatment rice.

of paddy before milling. During this processing starch is gelatinized in the rice kernel. Gelatinous jelly of the paddy to 2.5-2.8 tonnes of paddy.

transparent form) to an amorphous one (FSNB 2011).

accompanies the rice after the initial

particle and has the capacity of 3000kg.

imported rice owing to the fact that it is of better

grade, better taste, polished, not broken and is free of debris questions was used for eliciting relevant information (Bamidele et al., 2010). Rice quality is a major concern for from the respondents. the consumers and for the future of rice sector. The non Descriptive statistics was used in achieving all the competiveness of local rice could be as a result of poor objectives. Likert type of scale was used to determine processing resulting in the final product with high percentage the level of nee processors adoption of improVed ofbroken rice, stone and debris resulting ,from traditional technologies. 3 points Likert scale of aware, tried and methods of processing (FAO, 2002). Nigerian government adopted ,vere used to The cut off mean 1,' mean score has not been intervening in rice processing sub-sector as of 2 and adoption and mean sacre as low adoption. expected; rice processing in Nigeria is predominantly in the Chi-square testing. hands of unskilled rural Women using traditional methods.

According to Akpokoje el al., (2001), 85 % of Nigerian rice is being processed through small rice mills, which normally result into poor quality processed rice, hence there is need to increase the level of training and adoption of improved rice processing technologies.

Objectives of the study

The general objective of the study is to detent-jine the extent of adoption of improved rice processing technologies.

The specific objective includes:

- i. Examine socio-economic characteristics of women processors
- ii. determine the rice processors access to training
- iii. determine level of awareness and adoption of improved technologies
- iv. describe the problems associated with the adoption of improved rice processing technologies.

METHODOLOGY

Agricultural Zone I of Niger State Agricultural Development project was purposively selected for the

study owing to large scale rice production and processing activities taking place in the Zone. Four local Governemts Areas were randomly selected. 20 rice processors were also randomly selected from each of the four local Government Areas, giving a total sample size of 80 respondents. Primary data were

mainly used for this study. Structured interview schedule consisting of both open and close ended

±.2ZCteristics of re spondents processing technologies.. This implies that women rice processor in the study area had access to one form of Frequency Percentagc training or the other. This

Test of hypothesis Null Hypothesis (Ho):
s relationship between respocz:di
improved rice processmg z: selected
socio-economic marital status, cooperame
education, access to trainn-æ a:— awareness
level ofthe resporze.z

RESULT AND DISCUSSIONS

Age: The result in Table I reveal.-

∴ respondents were still in their age of 42 years and only 8.75 wea this implies that majority cf processors in the study area energetic to diversified into other activities to supplement their processing. This finding is in Kau (1994), who stated that young of time in many activities activities.

Education: The result in Table I also majority (92.5%) of the respondents education or the other. This implies that of new or improved rice processing teen-JA*' women rice processors in the study area a: with relative ease, since education is significantly related to acceptance and improved rice processing technologies. THIS in line with those of Tadese (2008), who education facilitate farmers access to inforzzzzz=. enhances adoption.

Marital status: As evident in Table 1, major*' of the respondents were married and were sax their spouse, the singles and the widows and 2.5% respectively. this implies that majoat:. women rice processor in the study area had responsibility of catering for their families. directly or indirectly will motivate them to accept adopt improved rice processing technolo=es enable them generate more income to cater for families.

finding is in line with that of Tsado (2013), who pointed out that training positively and significantly influence adoption.

10 12.5 Access to credit: Table 2 shows that majority of the 10 12.5 respondents (70%) had no access to credit, it was only 33 41.2525.00 30% who claimed that they had access to credit, access ed

20 7 8.75 to credit had significant and positive relationship with rid adoption, This finding is in line with that of Tadesc

20 25.00 (2008) who stated that access to credit was positively i: 31 38.75 and significantly related to adoption.

15 18.75 Table 2. Distribution of respondents according to their :al.
6 7.5 access to training, Credit and membership of
8 10.00 cooperative association.

Variables	Frequency	Percentage
	6	7.5
	72	90
		0.0
		2.5
	10	12.5
	62	77.5
	8	10.00
	0	0.0
	80	100
	70	87.5
		0.0
	10	12.5

in

Access to credit

*OPIe

Trading

Field Survey, 2014 size: The result in Table 1 shows that majority (77.5%) of the respondents had moderate size of between 6-10 people. 12.5% and 10% had household sizes of less than 6 people and 11-15 people respectively. It is important to note that none of the respondents had above 15 people in household. This implies that majority of the rice processors in the study area were saddled with more responsibility of providing for their families, this will however, influence their decision in accepting and adopting rice processing technologies to earn more income to be able to provide for their immediate family.

Primary occupation: Table 1 reveals that majority (77.5%) of the respondents had rice processing/trading as their primary occupations and only few (12.5%) were civil servants. None of the respondents however, had farming as their major occupation. This implies that majority of the women in the study area were mainly involved in post harvest activities like processing and trading of agricultural products. This Cooperative membership: As evident in Table 2 overwhelming proportion (97.5%) of the respondents

finding is also in conformity with that of Tedesse (1986), who reported that Women participate actively in post harvest activities.

Training: Table 2 shows that majority (85%) had access to training on the use of improved rice

Received training		Total people	
Yes	No		
68	85		
		24	30
		56	70
Co-operative membership			
Yes	No		
78	2	97.5	2.5
Total		80	100

Source: Field Survey, 2014

belongs to one cooperative society or the other. This implies that majority of the women particularly rice processors in the study area stands a better chance of benefiting from NGOs, donor agencies and other organizations that assist farmers, for the present trends of receiving assistance from any of these organizations is usually through their cooperative societies or organizations.

Table 3 showed that the respondent's rates of adoption

of the following improved rice technologies were high: medium/small millers (2.0) and soaking/steeping (2.0). The adoption of other improved rice processing technologies by the processors in the study area were low. This implies that the processors only adopted those technologies that were compatible with their existing practices. This also implies that despite the high rate of awareness, adoption rate of various improved rice processing technologies were still very low

Table 3. Distribution of respondents according to adoption level of the various improved rice processing

technologies

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Technologies	Mean	Level of Adoption
Medium small millers	2.0	High
Improved paddy doing	1.0	Low Low
Use of uniform raw rice	1.1	High Low
Soaking (Steeping)	1.1	Low Low
Improved fire wood par boiler	2.0	Low
Improved steam firewood par boiler	1.1	Low
Electrical rice par boiler	1.1	
Threshing	1.0	
Cleaning	1.7	

Source: Field Survey, 2014

Table 5. Relationship between the socio-economic characteristics of the respondents and the adoption of improved rice processing technologies

Socio-economic variables	1	2	3	4
Age				

Table 4: revealed that rice processors were faced with several constraints in adopting improved technologies, such major constraints' includes; High cost of processing machine (95.5%), inadequate extension visit (95%), Nature of local grains (mixed shot and long grains) (73.75%) and insufficient fund to buy

paddy's in bulk (72.5%). This implies that rice processors in the study area were faced with multi-dimensional problems which hinder their uptake of the improved rice processing technologies. This finding is in conformity with that of FAO (1990), who reported that Women faced many constraints in trying to adopt new technologies in order to earn extra income.

Table 4. Distribution of respondents based on the constraints hindering their adoption of improved rice processing technologies

Constraints	Frequency	Percentage
Inadequate information/training	46	57.5
Lack of credit facilities	56	70.0
Inadequate extension visit	76	95.0
Low price of locally processed rice	80	100
High cost of processing machines	78	97.5
Nature of local rice grain (short)	75	93.75
fund to buy paddy in bulk	58	93.75

Source: Field Survey, 2014 responses

HYPOTHESIS TESTING

Null Hypothesis: there no significant relationship between the socio-economic characteristics of the respondents and level of adoption of improved rice processing technologies. Result in Table 5 indicates that all the socio-economic variables under consideration had significant and positive relationship with adoption of improved rice processing technologies at 5% level of probability. This implies that all the socio-economic variables identified significantly and positively affect the levels of adoption. Similar research finding has been conducted and the finding were in agreement with the result of this study, such research works includes: Tedese, (2008), Rahmeto (2007), Leggesse, (1992) Lelissa and Mulet (2002) and Adeniyi (2009), that socioeconomic characteristics significantly affect adoption of improved technologies either positively or negatively.

Le et al

Access to

Access to Credit

Awareness level

- Significant

Source: Computed from survey data

CONCLUSION AND The result from this study shows that the various improved rice processing technologies were very low. The result revealed that there was a significant relationship following socio-economic status, co-operative membership, to training, access to credit, awareness adoption of improved rice processing technologies; processors however, identified the major constraints to adoption; high cost of machines, nature of local rain grains buy paddy in bulk for processing.

Based on the findings of this study, recommendations were made:

1. Credit facilities should be provided to processors in the study area, since they claimed that they had no access to that will enable them buy paddy in bulk.
2. Fabrication of local rice processing machines could be affordable by the processors developed since the available machines are expensive and out of reach of the processors.

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