PROFITABLITY OF RICE PROCESSING BY WOMEN IN LAVUN LOCAL GOVERNMENT AREA OF NIGER STATE

K.M. Baba, M. A. Ndanitsa and G. Ndabida
Department of Agricultural Economics and Extension Technology, Federal University of Technology, Minna

ABSTRACT

The study examined the sources of finance and profitability of rice processing by women in Lavun Local Government Area of Niger State. To achieve the objectives of the study, stratified random technique was used to select 30 rice processors belonging to cooperative societies and 30 non-members. Rice processing input-output data were then collected from the selected processors in single-visit interviews using an interview schedule. The collected data were analyzed using descriptive statistics and a farm budgeting model. The student T statistic was also used to test for significant differences where appropriate. Results of the study revealed that majority of the processors relied on money – lenders for credit with only very few having access to formal credit. The result further showed that rice processing was profitable and that there was no significant difference between the gross margin obtained by cooperative members and non-members. However, processors milling with electric mills realized significantly ($P<0.01$) higher gross margin than those using diesel mills. Some of the constraints faced by the processors include poor transportation, inadequate investment capital, frequent power failure, scarcity of fuel wood and water shortage. Therefore. Linking villages in the area with good roads, increasing access of processors to formal credit, connecting the villages to national grid, introduction wood efficient stoves and providing potable water in the area would further increase profitability of rice processing.

INTRODUCTION

Rice is one of the most important cereal crops the world over. In fact, it has been observed that one-fourth of the world's population depend on rice (Choundhury, 1987). In Nigeria, rice has grown in importance from the status of an occasional food consumed only during ceremonies and festivals, to a stable food, which is consumed on a daily basis by most Nigerian households. Nutritionally, rice is an important source of energy as it contains 80% carbohydrates. In addition to providing food for majority of Nigerians, rice is also a source of employment for millions of people who are engaged in its production, processing and marketing. It is also a source of starch, which is used in laundries and in the manufacture of textiles. Rice bran, a by-product of rice milling process, has high oil content (14-17%) which is used as salad or cooking oil, for soap making, as a carrier for insecticides, and as anticorrosive and rust-resistant oil (Ndabida, 2004).

Furthermore, rice husk, another by-product of rice milling, is used as roughage for cattle feed, as litter for chicken, and as filler for building materials. The ash obtained from rice hull is a source of high-grade silica. Rice straw is fed to livestock and is used in the manufacture of hats, mats and thatching (Ndabida, 2004).

To fulfill the above-stated functions, rice has to be processed through milling, a procedure that produces the clean rice grains for human consumption, as rice bran and husk for other uses. Three broad levels of technology in rice milling can be distinguished in Nigeria. These include hand pounding, small-scale huller mill and modern (large-scale) mill. Hand pounding is the traditional method, which is accomplished by the use of pestle and mortar. Although this method is giving way to machines, much of the rice grown over large areas of the Far East, the Near East and Africa (especially Nigeria) is still processed by hand pounding or by primitive mechanical methods using very simple equipment (Bashir et al., 2002). Hullers are small-scale milling machines, which are replacing hand pounding in urban and rural areas of Nigeria. Modern rice mills, on the other hand, are giant sophisticated plants, which can process about 15-20 tons of rice per hour. However, the traditional small-rice production system in Nigeria is said to be incompatible with giant modern mills (Bashir et al., 2002). Therefore, giant mills are few in Nigeria and the few available have been established mostly by government.

This study covered only rice processors using the huller mill which is the most common milling technique in the study area. Rice processing has been a major occupation of women in the area. In recent times, however, the interest of women in this occupation is waning and they are diverting their attention to the processing of other crops, especially cassava. Consequently, many rice producers in the area now sell their unprocessed (paddy) rice to traders who come from the far north, instead of to women processors. This study therefore, aims at ascertaining whether this waning interest, and switch to processing other crops, has to do with profitability of rice processing. The specific objectives of the study are to examine the sources of finance for the rice processing business, ascertain the level of profitability of rice processing by members and non-members and of cooperative and compare the level of profitability of rice

processing by women using electric milling machines and those using diesel oil machines.

METHODOLOGY

The study was conducted in Lavun Local Government Area (LGA) of Niger State. It is located in the south-western part of the State within latitudes $8^0 30'$ – 10^0 30'N and longitudes $4^0 35'$ – $6^0 15'$E (Daniel, 1998). It occupies an area of about 4,651 km^2. The LGA is endowed with abundant wetlands which enable widespread cultivation of rice (Ndanitsa, 2005). Most men are predominantly rice farmers and the women are engaged in primary processing and marketing of agricultural produce in general and processing in particular of the commodity. Some of the women rice processors belong to cooperatives while others do not. Rice meant for sale in the area is usually milled using huller mills, which are powered either by electricity or diesel fuel.

The survey covered three districts in Lavun LGA, namely Doko, Jima and Gaba. These districts were purposively selected because of their popularity in rice production and processing. From each district, five villages were randomly selected. The selected villages included Doko, Mambe, Sosa, Kpanje and Batagi Dewo in Doko district, Jima, Kpacitagi, Sa'aci, Kudogi and Ebangi, in Jima district, as well as Busu, Koso, Chanchaga, Kotugi-Dadi and Ndaloke in Gaba district. Processors in each village were then stratified based on whether they belong to a cooperative society or not. From the list of each category of processors, two processors were randomly selected, making a total of four processors per village and 60 processors in all.

Input-output and sales data were then collected from the sampled processors in single visit interviews using an interview schedule, during the dry season of 2004. The data collection was achieved with the assistance of trained enumerators. The collected data were analyzed using descriptive statistics and farm budgeting. In addition, the student T test was used to test for statistical significance where appropriate. The farm budgeting model used is of the form:

GM=GI –VC

Where: GM = gross margin from rice processing, GI = gross income obtained by selling milled rice and VC = Variable cost associated with rice processing.

RESULTS AND DISCUSSION

All the respondents obtained part of their investment capital from their own savings. However, since this was generally inadequate, about 90% obtained credit from various sources as additional investment capital. Majority of these processors, however, relied on town money – lenders for their credit needs (Table 1). Only few of them obtained credit from formal sources such as Agricultural Bank, Commercial Banks and Cooperative Societies. The credit given by money-lenders was either in kind (in the form of paddy) or in cash. Either way, the processors complained of high interest charges. It is striking that although 50% of the processors sampled belong to cooperative societies, only six processors obtained credit from this source. This indicates that most of the cooperative societies performed non-credit roles. The most prominent role was in assisting members to market their produce.

Table 1: Distribution of women rice processors according to sources of credit

Source	Frequency	Present
Money lenders	35	58.33
Agricultural Bank	11	18.33
Cooperative Society	6	10
Commercial Bank	2	3.33
None	6	10
Total	60	100

Table 2 shows the distribution of respondents according to source and quantity of paddy milled per month as well as place of milling. It can be seen that majority of the processors obtained paddy from the village market and a few obtained from neighbouring villages and from the farm gate. The table further shows that the quantity of paddy processed per month ranged from 501-2,00kg with a mean of 1,543kg (about 21 bags). This shows that most of the women were small-scale processors, milling less than one bag (of 72kg) per day. Table 2 further shows that majority (55%) of the women milled in their own villages, with relatively few milling at Bida, the closest urban centre. The fact that majority were able to mill in their own villages underscores the fact that huller mills are now available in many rural areas. The huller mills available in the area are of two types, namely the electric and diesel fuel powered machines. However, the electric mill, preferred by majority (65%) of the respondents was more popular. In fact, processors milling outside their villages did so in order to have access to electric machines, which were not available in their own villages. The processor preferred electric machine because it polishes the rice grains better.

Table 2: Distribution of women rice processors according to source and quantity of paddy processed as well as place of milling

Source/Quantity/Place	Frequency	Present
Source		
Village Market	39	65
Farm gate	14	23.33
Neighbouring Village	12	20
Quantity (kg/month)		
501-1,000	4	6.67
1,001-1,500	25	41.67
1,501-2,000	31	51.67
Total	60	100
Place of milling		
Own village	33	55
Neighbouring Village	12	20
Bida (urban centre)	15	25
Total	60	100

There were multiple responses

The results of cost and returns are presented in Tables 3 and 4, respectively. Table 3 shows that the cost of paddy dominated the processing cost of both cooperative members and non members, with the former spending more on paddy. The higher cost of paddy for cooperators is because they purchased more quantity of paddy, given that paddy price was the same for both categories. They also obtained more milled rice. Labour was the next most costly item for both categories of processors. The other cost items are milling and transportation, which accounted for relatively low proportions of the total cost. The gross margin received per respondent per month was higher for cooperators (N10,053.05) than non-cooperators (N9,539.32). The difference is, however, not statistically significant.

The comparison of the cost and returns of electric machine users and diesel machine millers is presented in Table 4, which shows that the processors milling with electric machine spent more on all cost item except milling. This is attributable to the slightly higher quantity of paddy processed by the former. Diesel machine millers incurred higher cost of milling because of the high cost of diesel in the area. The table also shows that the electric machine users earned higher income (gross margin) than the diesel machine users. The gross margin for the former was N10,942.97 compared to just N7,664.49 for the latter. This difference of almost 43% is highly significant ($P<0.01$). The higher income obtained by the electric machine users is attributable to the fact that the milled grains from such machines are usually more polished and command higher prices. These findings corroborated with Makarfi (1985) and Tsoho (2005).

Rice processors in the area face several challenges some of which may account for the dwindling in rice processing. Some of the most important of these are presented in Table, 5, which shows that transportation problem was the most critical. The processors complained about inadequate availability of vehicles for conveying paddy and milled rice to the required destinations at the required time. The shortage has pushed many processors to resort to using motorcycles and head porterage. The situation is further worsened by the poor condition of roads in the area.

The next most important constraint identified by a major proportion (56.67%) of the respondents is shortage of investment capital. Although some of the processors were members of cooperative societies, this has not alleviated their financial problem. Most of them rely on informal credit sources, particularly money-lenders, who charge very high interest rates and are unable to meet the investment capital requirement of the processors.

The respondents also identified water shortage as a major problem. Water is required in large quantity for washing and parboiling paddy. Potable water is not available in some of the villages and where available, tends to be erratic. Therefore, many processors rely on streams, some of which dry up in the dry season when rice processing is at its peak. Inadequate drying space, firewood scarcity and frequent electric power failure (especially for processors who relied on electric machine for milling) are some of the other problems reported by the respondents.

Table 3: Average costs and returns of rice processing by cooperative members and non members (₦/respondent/month)

Item	Cooperative Cost/return	% of total cost	Non-cooperative cost return	% of total cost
Cost				
Paddy rice	46,656.67	76.9	39,749.17	78
Labour	8,334.00	13.73	6,997.03	13.73
Transportation	3,154.71	5.2	2,177.31	4.27
Milling	2,528.00	4.17	2,040.00	4
Total variable cost	60,673.38	100	50,963.51	100
Return				
Milled rice (kg)	1,224.70		1,047.67	
Price	57.75		57.75	
Gross income	70,726.43		60,502.83	
Gross margin	10,053.05		9,539.32	

The calculated t-value for difference between the two gross margins = 0.34, which is not significant

Table 4: Average costs and returns of rice processing by electric and diesel machine users (N/respondent/month)

Item	Electric machine Cost/return	% of total cost	Diesel cost return	% of total cost
Cost				
Paddy	43803.2	77.23	42087.57	77.73
Labour	8084.51	14.25	6887.38	12.72
Transportation	2663.52	4.7	2.673.13	4.94
Milling	2169.23	3.82	2497.14	4.61
Total Variable cost	56720.46	100	54145.22	100
Returns				
Milled rice (kg)	1139.31		1362.23	
Price	59.39		57.21	
Gross income	67663.43		61809.71	
Gross margin	10942.97		7664.49	

The calculated t-value for the difference between the two gross margins = 3.75, which is significant ($P<0.01$)

Table 5: Distribution of respondents according to constraints to rice processing

Constraint	Frequency	Present
Inadequate Capital	34	56.67
Poor transportation	35	58.33
Shortage of drying space	30	50
Scarcity of firewood	21	35
Water shortage	31	51.67
Power Failure	30	50
Total	30	50

There were multiple responses

CONCLUSTION AND RECOMMENDATION

The study examined profitability of rice processing by women in Lavun Local Government Area of Niger State. The results of the study show that rice processing was quite profitable. It was also found that membership of cooperative societies had no significant effect on profit. However, processors who milled rice with electric machines earned substantially higher net returns than those using diesel machines. Given the profitable nature of rice processing as the results of the study suggest, it could be concluded that perhaps other factors apart from profit, are responsible for the dwindling interest of women in rice processing in the area. But this conclusion is only tentative. To reach a definite conclusion, further studies are needed to compare the profitability of rice processing with earnings from alternative occupations in the area.

Finally, in terms of policy recommendations the formation of cooperative societies for easy access of credit to the processors should be encouraged, and the present tempo of Fadama Development Programme and extension education in the State should be sustained adequately.

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