

Full Length Research Paper

# The impact of cassava processing on the livelihoods of women processors in Central Gonja district of the northern region of Ghana

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The study was conducted in the Central Gonja District located at the southern end of the Northern region of Ghana which lies between latitude 9° 15' and 9° 05' N and longitude 0° 45' and 1° 0' W. The study focused on the contribution of cassava processing to the standard of living of women processors. Information on the level of income of processors, cost of processing, level of food security as well as challenges facing processors were obtained with structured and semi-structured questionnaires from 50 selected women processors. Data was pooled, collated and summarized into frequency distribution and percentages using Microsoft Excel. The average monthly revenue was 88.1, Ghana cedis and the average monthly total cost was 44 Ghana cedis implying a monthly net profit of 44.1 Ghana cedis for an average cassava processor. Challenges faced by the processors include: Inadequate funds (100%), inadequate storage facilities (98%), low price of processed products (90%), poor packaging materials (84%) and health hazards (64%). Cassava processing is profitable and contributes significantly to the standards of living of women, however, the challenges processors encounter could drastically reduce the level of processing and economic returns affecting the standards of living of the processors.

**Key words:** Ghana, cassava, processors.

## INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is a root and tuber crop that has been identified as important for food security, especially in Africa and serves as a staple food for over 200 million people in the African continent (CTA, 2005). In areas where cassava is a main staple, people have developed ways for its processing into storable products such as tapioca, starch, dough and gari. It plays a major role in efforts to alleviate the African food crisis because of its efficient production of food, year-round availability and tolerance to extreme stress conditions (Hahn and Keyser, 1985; Hahn, 1987). Women have played a significant role in food production and processing. For instance women provide 60 to 80% of the

labour requirements (UN/ECA, 1974). A study conducted by IITA in 1985 showed that, women contribute about 82% of the labour requirements for cassava production and processing (Akorada, 1992).

In many rural areas in Ghana and several developing countries, women play a crucial role in providing and improving household food security (CTA, 2005). Women also provide most of the labour for harvesting and post-harvest activities (FAO, 1996). Cassava is important, not only as a food crop but even more so as a major source of income for rural households (Davies et al., 2008). As a cash crop, cassava generates cash income for the largest number of households in comparison with other staples

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(Nweke, 1996). It is produced at relatively low cost and more frequently than other staples for sale (Davies, 1991). Cassava has some inherent characteristics which makes it attractive, especially to the smallholder farmers in Ghana (Bokanga, 1992). Some of these are: It is rich in carbohydrates, available all year round and resistant to drought. Furthermore cassava is more tolerant of low soil fertility and more resistant to pests and diseases than grains (Ekong, 2003). These attributes combined with other socioeconomic considerations are therefore what IFAD has recognized in the crop as lending itself to a commodity-based approach to poverty alleviation (Akorada, 1992).

Cassava is largely consumed in many processed forms ("Gari", Dried and Dough) in Ghana. Cassava production and processing have been one of the major occupations of women in Central Gonja District for several years. However, there has not been much improvement in the standard of living of these women and their families (Asinobi et al., 2009). Also the contribution of cassava processing to the living standards of these women has not been documented or is not known. This study is relevant in terms of the valuable information it has provided on the level of income and food security as well as other challenges mitigating against a better standard of living for these women processors. This study was carried out to find out the perceived contribution of cassava processing to the standard of living of women in Central Gonja District.

## MATERIALS AND METHODS

The Central Gonja district is located at the southern end of the Northern Region of Ghana on latitude 9° 10' N and longitude 1° 10' W covering a total land area of 8353 km<sup>2</sup> representing 12% of the total landmass of the Northern Region (Google map.com).

### Research instrument and data collection

A content validated interview schedule with components to address the objectives of the study was used to collect data from the sampled respondents. Both primary and secondary data were sourced. The primary data was taken from the sampled respondents while the secondary data was gathered from the library, internet, Ghana MoFA and other published literature. Personal visits were made to the area of study to carry out a face to face interview with the women processors.

The questions were designed to obtain information from respondent based on the following parameters:

- (1) Demographic characteristics of processors;
- (2) Level of income of cassava processors;
- (3) Cost of cassava processing;
- (4) Level of food security of cassava processors;
- (5) Challenges facing women in cassava processing.

### Target population

The study targeted women in the Central Gonja District who

were engaged in cassava processing ("gari" and dough) on a small scale basis.

### Sampling procedure and sample size

Purposive sampling was used to identify women involved in small-scale cassava processing in the area for interview. A total of Fifty questionnaires were administered.

### Cost of production

Cost of production is the average cost of producing one unit of commodity (Adegeye and Dittoh, 1985). In this work, cost of production of processed cassava includes all costs involved in the production process. Therefore, total cost of processing cassava is the sum of total fixed cost and total variable cost.

$$TC = TFC + TVC$$

### Returns to investment

$$TR = PQ + CB$$

Where TR = total monthly revenue; P = price per output; Q = quantity of output; PQ = revenue from sale of processed cassava, and CB = revenue from sale of by-product.

### Profit

$$P (\pi) = TR - TC$$

Where TR = total revenue; TC = total cost, and P ( $\pi$ ) = profit.

### Analysis of data

Manual analysis was used in computing the profit realized from the processing of cassava which included the following; cost of production, returns to investment and profitability. Microsoft excel was also used for analysis and tables and bar charts were used for results presentation.

## RESULTS

### Demographic characteristics

The majority (44%) of the women was in the age group of 31 to 40 years and a majority (48) also had no formal education (Table 1). Women in the age group of 51 to 60 were not many in the cassava processing venture. Most of the women (28%) had 2 dependants and 10% of them had 5 dependants (Table 2).

### Marital status

Married women dominated the processing venture. Women who were single, divorced and widowed were also involved in the processing representing 12, 8, and 18%, respectively.

**Table 1.** Frequency of age of respondents.

Age (years)	Frequency	Percent	Cumulative (%)
21-30	5	10.0	10.0
31-40	22	44.0	38.0
41-50	14	28.0	88.0
51-60	9	18.0	100.0
<b>Educational</b>			
No formal	24	48.0	48.0
Primary	8	16.0	64.0
J.H.S	12	24.0	88.0
S.H.S	6	12.0	100.0

Source: Field survey, 2011.

**Table 2.** Frequency of number of dependants of processors.

Number of dependant	Frequency	Percent	Cumulative (%)
1	9	18.0	18.0
2	14	28.0	46.0
3	12	24.0	70.0
4	10	20.0	90.0
5	5	10.0	100.0

Source: Field survey, 2011.

### Profitability analysis of cassava processing

All the women after processing sold in pans. The average weight of a pan of processed cassava was 14 kg however the prices quoted for a pan of processed cassava varied from seller to seller and ranged between 10 and GH¢14. From the study, processors did not necessarily incur the same expenditure on the same items they used in cassava processing. The industry did not require the use of complex capital items. The only items used were pans, baskets, knives, jute sacks among others and they were valued to get the total fixed cost.

From the study, cassava processors incurred an average monthly variable cost of over GH¢40 and spent over GH¢20 on raw materials. Also these women paid an average of GH¢11.6 for labour. They also calculated their total average monthly cost to be the sum of the total monthly fixed cost and total monthly variable cost and that was GH¢44.

Returns from cassava processing were realized through the sales of the finished cassava product and the by-product such as cassava peels. The by-product generated additional average revenue of GH¢3.3 per month. Due to differences in selling prices, different levels of revenue were realized. The study revealed that 15, 5, 48, 18, and 14% of the processors sold their processed cassava at GH¢14, GH¢13, GH¢12, GH¢11, and GH¢10 per pan (14 kg) respectively. 50% of the

women processed two pans (28 kg) in a week and 8% of the women processed four pans (56 kg) per week. In a week, an average of two pans (28 kg) was processed. This implies that, the average revenue per month from the sale of processed cassava was GH¢84.8. Nonetheless the average selling price of a pan of processed cassava was GH¢12.

The average net profit per month was computed as GH¢44.1 (Table 3) which was about 50% of the total monthly revenue.

### Challenges facing cassava processors

The result of challenges facing cassava processor is given in Table 4.

### DISCUSSION

The cassava processing industry is dominated by women. It is seen as a preserve for women in Central Gonja District. Cassava processing is dominated by the most active labour group. This was the young population between 31 and 40 years old. The low population of cassava processors who were between the ages of 50 to 60 years could be attributed to the labour-intensive nature of cassava processing which does not favor old

**Table 3.** Profit analysis of cassava processing.

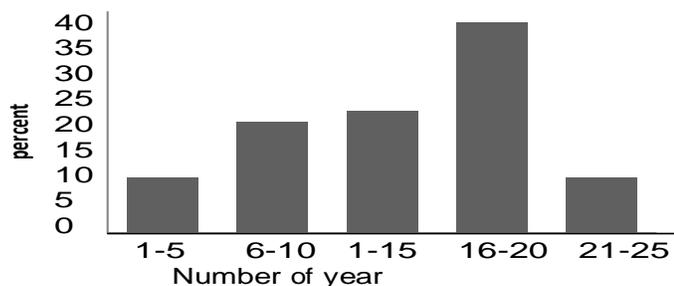
Item	Monthly average value(GH¢)
Revenue	-
By-product	3.3
Finished product	84.8
Total revenue (TR)	88.1
Cost VC FC	44
Total cost (TC)	44
Net profit	44.1

Source: Field Survey, 2011.

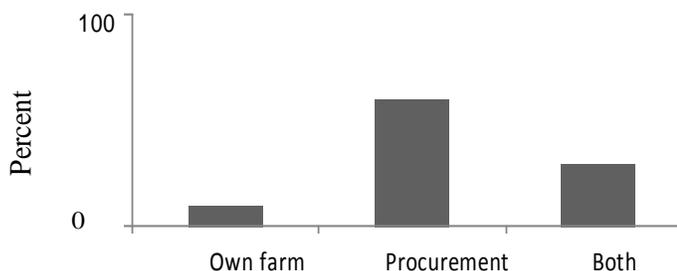
**Table 4.** Challenges facing cassava processors.

Challenges	Percent
Inadequate funds	100
Inadequate storage facilities	98
Low prices of processed products	90
Poor packaging materials	84
Health hazards	68

Source: Field survey, 2011.



**Figure 1.** A bar chart illustrating the number of years in cassava processing. Source: Field survey, 2011.



**Figure 2.** A bar chart illustrating the source of raw materials for cassava processing. Source: Field survey, 2011.

keeping. Since most of them found it difficult to state the age (Figure 1). The observed low level of formal education (48%) might have effect on their record-

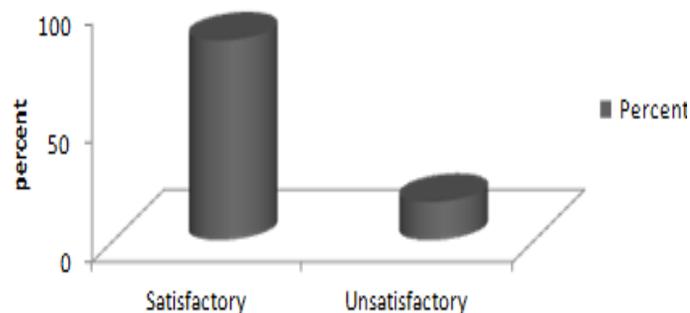
unit of processed pan of cassava in kilograms. This confirms the findings of an earlier research that the food processing industry of Ghana just like any other African country is dominated by women who have little or no formal education (Asiedu, 1989). Married women (62%) dominated the processing venture; the reason is that, before cassava is processed, men are always needed to assist in uprooting and peeling of the cassava. Moreover, the complication involved in processing cassava cannot be done single-handed. Also the study observed that, married women sometimes gained the opportunity to use cassava from their husband’s farm (Figure 2). Few women who were single, divorced and widowed as compared to married women were also involved in the processing. This could be attributed to the fact that, cassava processing is the main economic activity in the study area.

One would have expected that, the higher the number of dependants one had, the higher the probability of engaging in the processing. However, the relationship between the number of dependants and participation was inverse. Thus, as the number of participants increase the number of dependants decreases and vice versa. One possible explanation is that, for women who had more than five dependants, some of the dependants were matured and have possibly become financially independent depriving the women of their services in the processing. Women who had two dependants were more inclined to processing cassava since their dependants (probably of youthful) were a labor force for them.

The persistence of women in cassava processing could be attributed to the fact that, the women get profit (GH¢44.1 per month) from the business which is about 50% of their total monthly revenue. This supports the reason why the women have been in the business for so many years (Figure 2).

The industry did not use complex capital items. The only items used were pans, baskets, knives, jute sacks among others. The study found that cassava processors incurred an average monthly variable cost of GH¢44. On the average, cassava processors spent over GH¢20 on raw materials. It also came to light that the women pay on average GH¢11.6 for labour. The reason for high cost for labour was that family labour was costed during the study.

Inadequate funds were a major challenge for the cassava processors, so consequently they produced in small quantities. The processors also complained that, their processed products were low priced and this was attributed to inadequate storage facilities which made them to sell at any price to prevent spoilage. Packaging adds values to the products, prolong the shelf life and when not done properly, could lead to contamination and poor patronage of the products (Asinobi et al., 2009). Health and health related issues were not also left out. It was observed that, the women sometimes sustained injuries, cuts, shoulder and chest pains during the



**Figure 3.** Level of family food security of processors. Source: Field survey, 2011.

processing which sometimes force them to use large portion of their income for medication. Due to this challenge, the processors are not able to process on a large scale and this confirms earlier findings by Asinobi et al. (2009) which reported that cassava processors in Ghana are faced with challenges like low prices, inadequate funds and poor packaging materials. Majority of the processors (84%) described their family food security to be satisfactory while the remaining 16% were of the view that their food security is unsatisfactory (Figure 3). These findings therefore agreed with Al-hassan and Irene (2005) that cassava is grown in Ghana mostly by smallholders as a food-security crop.

## Conclusion

The survey showed that, cassava processing is profitable and contribute significantly to the standards of living of women cassava processors, in terms of income generation and family food security. However, cassava processors in the study area were constrained with inadequate storage facilities, poor packaging materials, health problems, low price of processed products and inadequate fund for the expansion of their scale of processing. The consequences of all these could drastically reduce the level of processing and economic returns affecting the standards of living of the processors.

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