A STUDY OF THE PRODUCTION PROCESSING AND MARKETING OF CASSAVA IN THE AKUAPIM SOUTH DISTRICT

BY

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPER ONE

INTRODUCTION

1.1 BACKGROUND

In the establishment of any project, it is of prime importance to ascertain the availability of the input base of the project involved. The cassava processing demonstrating unit is being installted by the Council for Scientific and Industrial Research in Co-operation with the Dakar-based African Regional Centre for Technology (ARCT), and the main objectives of the project are:

1. To generate more income from producing more cassava.
2. To be used as a training centre for gari processors in Ghana and other West-African countries and
3. To train technicians for the fabrication of the processing machines.

The basic and the most important raw material that will be required by the project is cassava. Cassava is one of the staple food crops in Ghana, and forms a greater proportion of the diets of Ghanaians. It is also the largest contributor to the gross domestic product of the Agricultural sector.

In 1987 for instance, cassava's share of the agricultural GDP was 22% and generated a total revenue of 11.772 billion cedis (Min. of Agric, 1987).

1.2 PROBLEM STATEMENT

Due to the perishable nature of agricultural produce, tons and tons of these produce get lost due to spoilage and the deterioration in the quality of the produce. There are abundant supplies of agricultural produce during the harvesting seasons and supplies tend to exceed demand during these periods. After two to three months, the supplies tend to diminish, due to the unavailability of storage facilities and this leads to wide fluctuations in the prices of these commodities.

Gari, which is one of the products from cassava feature promiently in the diets of Ghanaians and other West-African countries.

It is produced in Ghana mainly by small scale processors using mainly traditional methods which are inefficient, labour consuming and time wasting.

1.3 OBJECTIVES OF STUDY

The main objective of the study is to assess the output levels of cassava in the project area in relation to the capacity utilization of the project. Other objectives will be:

1. To assess the quantity of the total output of cassava that is used by cassava processors in the project area.
2. To trace the marketing channels of the cassava and cassava products.
3. To determine the extent of the willingness of the processors to participate in the training programme of the project.

1.4 METHODOLOGY AND DATA COLLECTION

The survey was carried out in the Akuapim South District of the Eastern region. The study was carried out with the aid of a questionnaire and was done by personal interviews. The district was divided into a strata of five namely the Nsawam-Coalter road, Nsawam - Accra road, Nsawam Aburi road, Nsawam Adeeso road and Nsawam-Paakro road. Four towns each were randomly selected from the various stratum and the cassava farmers and processors in these towns were subsequently interviewed.

1.5 LIMITATIONS OF THE STUDY

The Akuapim South District comprises of about 120 towns and villages and out of these, only 20 were visited. The number of towns visited is small compared to the total number of towns for a survey of this nature. It was mainly due to financial, time and logistical constraints that limited the scope of the survey. Also some of the towns visited did not have their processors interviewed due to the fact that there were not much of processing activities going on in these areas and also it was difficult to get these people since they seemed to have tight schedules.

1.6 ORGANISATIONS OF STUDY

The report will consit of four chapters. Chapter I will consist of the Introduction, Chapter II the production of cassava and gari in the survey area, chapter III the marketing of cassava and gari in the survey area and the responsiveness of the processors to the training programme of the project.

Chapter IV will consist of the summary, conclusions and recommendations.

CHAPTER II

2.1 CROPPING PATTERN

Almost all the farmers interviewed practiced mixed farming. Apart from towns like Fotobi, Pampanso Korkese, Kotoku, Kwasitenten, Duayenden, Akpeteshie Nkwanta and Dobro where there were few cases of farmers who practiced sole cropping, farmers of the rest of the towns visited practiced mixed farming. Even in towns where sole cropping was practiced, the percentage of farmers ranged from as low as 3.0% in Fotobi to 28.0% in Duayeden (refer to Annex 1). Generally it can be concluded that the farmers interviewed practiced mixed farming. Which is in consonance with the farming practices of farmers in Ghana. The major crops interplanted with cassava were maize, cocoyam, plantains, yams and vegetables.

Table I

Area under Cultivation and Cassava Yield

Name of Town	No. of farmers Interviewed	Total No. of Acres Cultivated	Total Yield	Av.Yield Per acre	Av. Prodn. Per farmer
Dzatsui Newtown	29	40.17	1318.0	32.81	45.45
Kotoku	22	64.23	1887.00	29.38	85.77
Etukwadjo	16	18.00	995.00	55.28	62.19
Kofisah	14	18.29	603.00	32.97	43.07
Daaman	20	25.40	1503.00	59.17	75.17
Ayibontey	40	51.50	2120.00	42.40	53.00
Sumkrom	16	16.98	433.00	25.5	27.06
Panpanso Krokese	25	87.70	11208.00	127.80	448.32
Kwasitenten	23	40.70	1878.00	46.14	81.65
Akpeteshie Nkwanta	11	15.90	420.00	26.41	38.18
Duayeden	32	56.51	6546.00	115.84	204.56
Bowkrom	30	76.67	7832.00	102.15	261.07
Adipah	11	12.60	758.00	60.16	69.9
Okanta	14	19.05	1013.00	53.18	73.36
Fotobi	32	54.69	3672.00	67.14	114.75
Nsumiah	29	56.89	2282.00	40.11	78 .69
Wangara	19	34.65	1858.00	53.62	123.87
Ajinase/Takankro	19	33.88	1570.00	46.34	82.63
Pakro	40	64.30	3211.00	49.94	80.28
Dobro	40	138.3	4024.00	29.10	100.60
Totals	478	926.41	55.131		

Source: From Survey.

2.2 AREA UNDER CULTIVATION

From table 1, the total area cultivated by the 478 farmers interviewed amounted to 926.4 acres with each farmer cultivating an average of 2.0 acres. It can also be observed from the table that there was much variability in terms of the holdings of the farmers. While in some of the towns, the average holdings were above 2 acres, others were barely above 1 acre. This may be a attributed to the land tenure system pertaining in the various localities. Whilst in some of the towns, the practice of abunu' and abusa prevailed, there were other towns, where the farmers owned the lands themselves.

2.3 CASSAVA PRODUCTION

From table 1, the total production of the 478 farmers was 55,131 mini bags or 2,756.6 metric tonnes per year. The highest production of cassava was recorded by the farmers of Panpanso Korkose with an annual production of 11,208 mini bags or 560.00 metric tonnes. Farmers from this town also had the highest number of acreages under cultivation. However it could be seen that the fertility of the land was highly a contributing factor. Since the average yield per acre; 127.8 mini bags or 6.2 metric tonnes was also the highest.

Average production per farmer was 448.2 mini bags or 22.4 metric tonnes. The second town with the highest production was Bowkrom which produced 7832.00 mini bags or 391.6 metric tonnes. However, the yield per acre was 102.15 mini bags which was below that of Dyayeden (115.84) which was the third highest producer 6546 mini bags or 327.3 metric tons.

Considering the annual average production per farmer however, Bowkrom still mentioned its second position.

The town with the least annual production was Akpeteshie Nkwanwa with an annual production of 420.00 mini bags, an average yield per acre of 26.41 mini bags and an annual average production per farmer of 38.18 mini bags.

Despite the fact that the number of farmers interviewed were unequal, the annual average production per farmer in the various towns can be used in determining the towns with the highest annual production of cassava as can be seen from the table.

With respect to the relationship between cassava Production, consumption and the potential capacity utilization of the project, the annual cassava output far out stripped the potential plant capacity.

Whilst the potential plant capacity is estimated to be 4,600 mini bags or 230.0 metric tonnes, the total production estimated in the survey area was 55131 mini bags or 2,756.6 metric tonnes. This is about twelve times the plant's capacity.

Relating the plant capacity to the saleable cassava in the area, it can be seen that the saleable cassava was ten times the plant capacity. Hence the cassava requirements of the project can adequately be catered for by the supplies from the survey area.

2.4 CASSAVA PROCESSING

In all, sixty-eight cassava processors were interviewed from sixteen out of the Twenty towns/villages visited. There was no processing activities going on in the other four villages. The major cassava products that were being processed in these towns/villages were agbelima and gari with agbelima having the largest percent share in relation to the number of bags of cassava processed. This can be attributed to the high labour required in processing gari.

In all the towns/villages visited, gari and agbelima were processed with the exception of Kwasitenten where there were only agbelima processors. Also there were few places like Daaman, Duayeden and Okanta where processing was mainly geared towards gari production.

TABLE II

RAW MATERIALS USED BY GARI PROCESSORS

Name of Town	No. of Processors Interviewed	No. of bags Processed Per Week	Av. No. of bags Processed per Person/Week	Total No of bags processed Per Year
Dzatsui Newtown	10	34.5	3.5	1794.0
Kwasitenten	2	5.0	2.5	260.0
Dobro	8	35.0	4.4	1820.0
Fotobi	2	7.5	3.8	390.0
Bowkrom	2	5.0	2.5	260.0
Kotoku	3	8.0	2.7	416.0
Wangara	3	15.0	5.0	780.0
Sumkrom	4	11.0	2.8	572.0
Ayibontey	9	23.5	2.6	1222.0
Pokrom	3	19.0	6.3	988.0
Kofisah	10	18.0	1.8	936.0
Daaman	5	11.5	2.3	598.0
Akpeteshie Nkwanta	4	11.5	3.8	598.0
Duayeden	1	3.0	3.0	156.0
Okanta	1	4.0	4.0	208.0
Adipah	1	12.0	12.0	624.0
Total	68		Total	11,622

Source: From Survey.

2.5 RAW MATERIALS USED

The average total number of bags processed by the processors in the various towns/villages are as shown in table II. The highest average number of bags processed per week was 35.0 for Dobro and the least number of bags was 3 for Duayeden. The average annual number of bags processed are also depicted in table II. These figures were arrived at based on the assumption that 1. There are 52 weeks in a year and also 2. Processing went on throughout the whole year.

The estimated number of bags used by the 68 processors was 11,622 bags or 581.10 metric tonnes per annum. This is about one fifth of the cassava produced by the farmers interviewed in the survey area and about two and a half that of the capacity utilisation of the project (230.00 metric tonnes).

2.6 PROCESSING METHODS

The method used by the gari processors was the familiar traditional methods where the cassava is peeled, washed, grated and the grated mash pressed and fermented. (Nanam, 1983). The fermentation of the dough is done along side the pressing and this takes up to a period of 4 days. The pressed fermented dough is then disintergrated on a cane sieve after which it is roasted in an earthenware pot, using firewood as the energy source.

Unlike in the past when grating was done by hand with the aid of a perforated alluminuim sheet, the processors had their cassava grated with the grating machine thus eleminating, the labour involved in grating.

The processors interviewed were generally not happy with the existing processing method in that the method was to labourious, time consuming and it had serious side effects on their health. The percentage of processors who were not satisfied with the processing method ranged between 50 and 100.

For those who responded that they were satisfied with the existing processing method ranged between 0 - 50% and their main reason was that they did not have any knowledge of any improved method of processing gari.

With respect to a change of the present processing method, 100% were interested in a change, and their reasons were that they will be hoping that the new method will be less labourious, will be having less side effects on their health and also they anticipate to produce more gari and earn more profits.

2.7 DISADVANTAGES OF PROCESSING METHOD

The survey investigated the set backs of the existing processing methods and the general complaints were with the labour involved, the heat effect from roasting and also the resultant health hazards. About 98% of the respondent complained about the heat bothering them. Some of the major complaints were the burns they get on their hands during roasting, the smoke getting into their eyes thereby causing the reddening of the eyes and also sweat profusely during roasting resulting in general body weakness after roasting.

Concerning the possible health hazards, the general response from the processors was that the heat causes headache, fever, eye defects, heat rushes and diarrhoea.

CHAPTER III

MARKETING OF CASSAVA AND GARI IN THE THE SURVEY AREA

3.1 Marketing involves a whole lot of business activities including flow of goods and services from the production to the consuming centres. It comprises of 3 main functions namely:

1. Assembling
2. Preparation for consumption and
3. Distribution

(Abbot J.C. 1958) These marketing functions are performed by specialised agents often referred to as middlemen.

Transportation or movement of the product between the producing and the buy centres is one of the most important marketing services.

3.2 MARKETING OF CASSAVA IN THE SURVEY AREA:

Majority of the cassava harvested by the farmers interviewed were sold in their various localitites. Between 26.6% to 100.00% of the farmers sold their produce in the towns/villages they reside. From ~~appendix~~ Annex III it can be seen that all the farmers interviewed (100%) from Otu Kwadyo sold their harvest in that town and for that of Duayeden however, the percentage that sold their harvest at the local market was 26.6%. The rest of the farmers sold their cassava in towns like Pokro, Dobro, Nsawam, Tema and Accra with the largest portion coming to Accra.

Various reasons were assigned to the sale of the cassava in the local markets. These are the availability of ready market, lack of time to transport produce to the urban markets due to farming activities and also because some of the farmers have entered into contractual agreements with buyers.

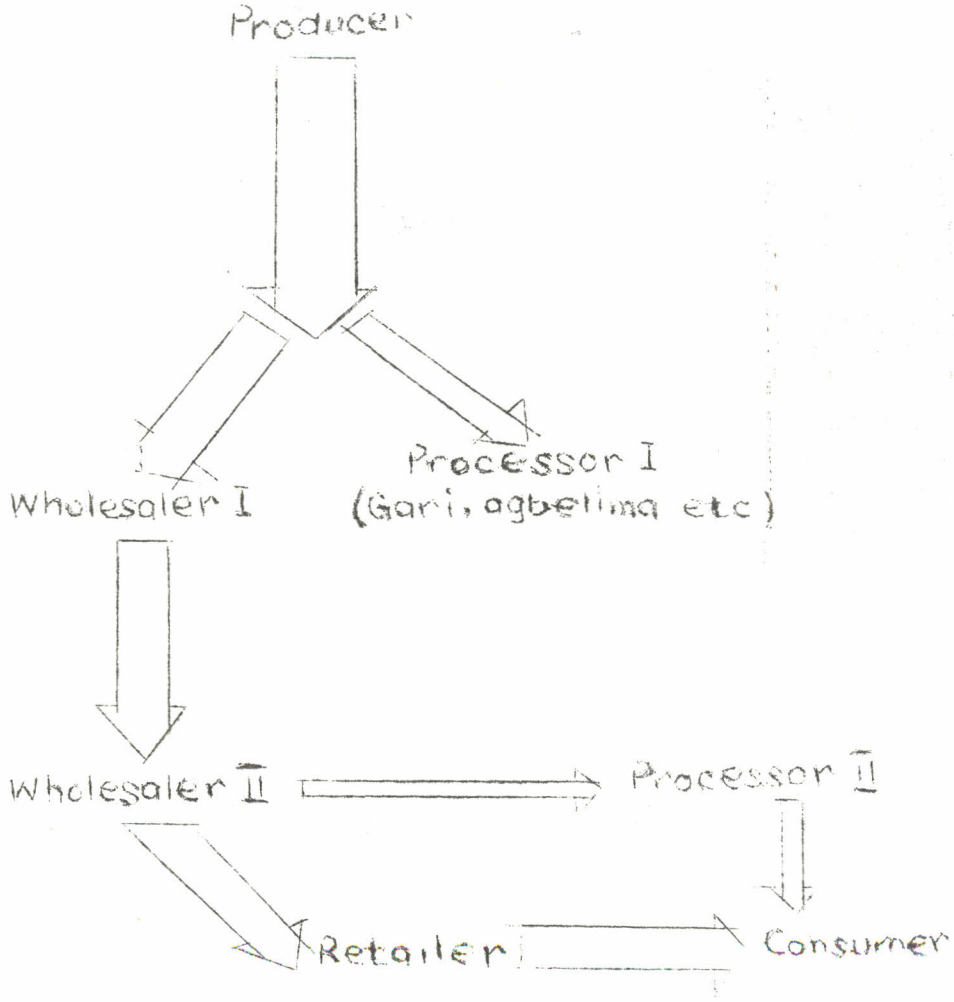
For those who sold their cassava outside their local markets, their main reason were for higher prices and prompt payments. Their arguments were that when the local assemblers (middlemen) purchase their cassava at the local markets, they often dictated the prices to them just because the supply on the local market exceeded the demand.

They also claimed that there were certain occasions when these middlemen buy their cassava on credit and certain times either end up not paying back or the amount agreed on per a bag of cassava is reduced.

Marketing of the cassava was done in two different ways. Firstly, it was done by selling the whole farm or part of it sold to wholesalers and secondly, the farmers themselves uproot the cassava and sell them in mini bags of approximately 50kg weights.

FIGURE I

MARKETING CHANNEL FOR CASSAVA



3.3 MARKETING CHANNEL FOR CASSAVA

Fig. I shows the marketing channel for the sale of cassava in the survey area. The thickness of the arrows indicates the volume of cassava sold to the various agents in the marketing chain. The farmer (Producer) after harvesting the cassava sells directly to the processor and the wholesaler I, with the bulk of it going to the latter. This transaction occurs at the farm gate. The wholesaler I then sells what has been assembled to wholesaler II and processors in the urban centres. The processor at the farm gate level process the cassava obtained into gari, agbelima etc.

The processor at the urban centre also process the cassava into fufu, kokonte, gari, agbelima etc. The wholesaler II afterwards sells the cassava to the retailer and the retailer finally sells to the consumer.

Along the channel of distribution, marketing functions are performed. These include assembling, transportation, storage and these tend to increase the marketing cost and thereby resulting in the increase of the price per unit of the cassava. The longer the marketing chain, the greater the marketing cost and hence the price of the commodities.

3.4 STORAGE OF CASSAVA IN THE SURVEY AREA

The storage of foodstuffs in the country is undertaken by various groups of people and organisations among which are farmers, traders, marketing organisations, Co-operative Societies and processing industries. Nyanteng (1972) asserts that farmers store foodstuffs for longer periods than any of the other groups above with the possible exception of the processing industries.

This assertion, though generally true, there are few agricultural produce like cassava which is very difficult to store in its raw state for a longer period. This calls for the efficient processing of cassava into a more stable form. Known method of storing cassava is by putting moist wood shavings in a basket and putting a layer of urbruised cassava on top of the moist shaving, in that order until the basket is full. The top is then finally covered with moist wood shavings. (Ingram J.S. et al 1972). This method of storage is capable of preserving the cassava for about 3 months.

In the survey area the farmers stored their cassava mainly by leaving the matured cassava on the farm. The average duration of storage was between 0.0 months in Akpeteshie Nkwanta to an average of 8.4 months at Dzatsui Newtown. (refer to Annex III) The mean annual storage length was 4.2 months. Some of the farmers harvested their cassava immediately it becomes matured due to presure on land and also due to economic reasons.

3.5 PRICING OF CASSAVA IN THE SURVEY AREA

Generally, the prices of agricultural produce are determined by the demand for and the supply of the particular commodity. Due to the perishable nature of agricultural produce, there are wild fluctuations in the prices during major seasons and the minor seasons. Prices tend to fall during the major season and rises sharply as we approach the minor season.

The prices per mini bag of cassava for 1988 and 1989 are as shown in Annex IV. It can be seen from the annex that there was not much differetials in the prices for 1988 and 1989. The average price per mini bag of cassava in 1988 was ₵1280.90 and that for 1989 was 1303.70. The average price range for 1988 was ₵915.00 - 1507.00 and that for 1989 was ₵1013 - ₵1660.00. It was observed that cassava was cheaper in Adipah, Wangara and Daaman respectively for both 1988 and 1989.

Though prices were determined by the interplay of demand and supply, other factors like the weather also tend to influence the price. According to the farmers, prices tend to fall drastically when there is rainfall and price increases during the dry seasons.

It was generally observed that the cassava sold were not graded and standardised and as such prices per unit were not uniform within a particular buying centre.

Grading and standardisations permits the buyer to purchase precisely what he wants and is willing to pay for and by this increases his satisfaction and makes the marketing system more efficient. These help to ensure uniform pricing and also minimises bargaining in the buying - selling process.

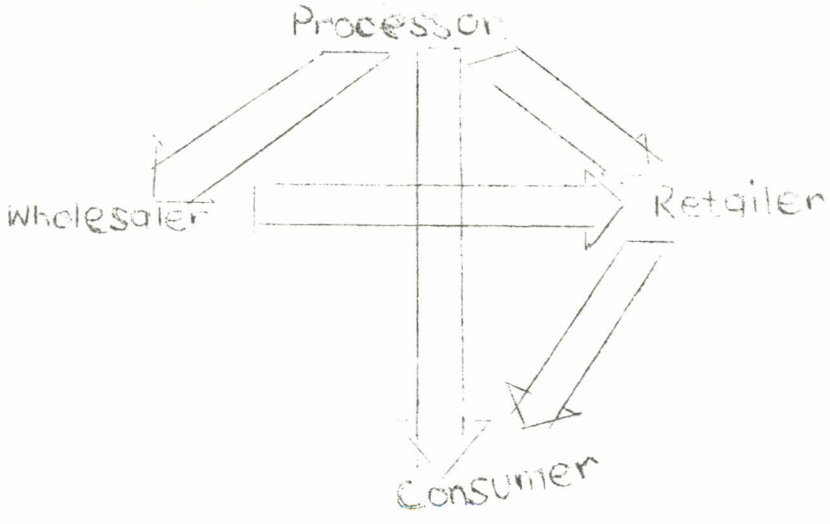
3.6 MARKETING OF GARI IN THE SURVEY AREA

Referring to Annex V it could be inferred that majority of the gari processors sold their products on the local markets. Between 25 to 100% of the processors sold their products in the local markets. Five towns out of the fourteen gari processing towns totally sold their gari on the local markets. Out of the remaining seven, between 50 to 80% of the processors in five towns sold their gari on the local markets. It can be generally concluded that almost all the gari processed were sold on the local scene. This can be attributed to the fact that like the marketing of cassava in the survey area, wholesalers from the urban markets came directly to the producers to purchase their stock of gari for retailing.

This assertion can be supported by the reasons given by the processors for selling on the local markets. Some of the reasons were the availability of ready market on the local scene and also lack of time to transport their products to the urban markets due to farming activities. The gari was sold in mini bags and 'american tins' with a mini bag containing 16 'american tins'.

With respect to these who sold their products outside the local markets, their main reasons for their actions was mainly due to the attractive prices prevailing in the urban markets. The main urbans markets their produce were sent to Nsawam, Accra and Tema.

FIG II MARKETING CHANNEL FOR GARI



3.7 MARKETING CHANNEL FOR GARI

Figure I[1] above shows the marketing channel for gari in the survey area. Unlike the marketing channel for cassava, that for the gari was shorter.

The gari processors after processing their gari sells it directly to three categories of people namely wholesalers, retailers and consumers with the bulk going to the wholesalers. The Wholesalers then sell the gari to the retailer and the retailer sells finally to the consumer.

3.8 STORAGE OF GARI IN THE SURVEY AREA

The processors generally did not store their gari after processing. With the exception of processors in Wangara, Okanta and Dzatsui Newtown, all the other processors sell their gari immediately after processing. This might be due to economic pressure and also the demand for and the supply situations pertaining in those towns.

For those who store their gari, their mode of storage was putting the gari into jute bags and polythylene sacks, and placing them on wooden boards. The duration of storage was however too short (between 2 to 6 weeks).

3.9 PRICING OF GARI IN THE SURVEY AREA

Annex V indicates the average selling price and the price ranges for the various towns visited. The main unit of measure was the'american tin' but however gari was also sold in mini bags with a bag containing sixteen 'american tins." There were fluctuations in the prices per unit within towns and also between towns. The lowest price per an 'american tin' recorded was ₵100.00 whilst the highest price was ₵180. The overall average selling price per an 'american tin' was ₵151.60.

The price fluctuations can be attributed to the purchasing price of the raw materials (cassava) used. The higher the price of the cassava, the higher the price of gari produced. Low prices were recorded during the harvesting seasons and higher prices during the off season. Also the price fluctuation come about within towns depending on the status of the marketing agent involved.

Prices per unit tend to be lower for wholesalers who buy direct from the producer than for the retailer and that of the retailer a little lower than the consumer.

These differences arise because of the quantities that are purchased by the various marketing agents.in a particular point in time.

TRAINING OF GARI PROCESSORS IN THE SURVEY AREA

The study also investigated the response of the processors to participate in the training programme that is going to be offered by the project (see annex VI). The general response was very encouraging. Out of the fourteen towns where gari are processed, eleven towns totally responded positively to participate in the training programme. These towns included Bowkrom, Daaman, Dzatsui Newtown, Kotoku, Okanta and Sumkrom. For the other towns the percentages ranged between 75% to 90%.

It can generally be said that the processor interviewed are interested and willing to participate in the project's training programme. Their main reasons for expressing interest in the training programme were 1. They anticipate the labour involved in the new processing methods would be lesser than what pertains at the moment. 2. Anticipates the new method will have little or no side effects on their health and 3. They expect to produce more gari and thereby earn more profits.

For those who responded negatively, their main reasons were lack of time and financial constraints. With respect to the medium of instructions preferred, there were two major languages being preferred namely twi and ewe.

As can be seen from annex IV, there were towns like Akpeteshie Nkwanta, Bowkrom, Dzatsui Newtown, Dobro, Fotobi, Kotoku and Okanta where the processors preferred the medium of instructions to be ewe. For those who preferred twi only, it was only one town thus Pokrom. For rest of the towns, they preferred combination of twi and ewe as can be seen in Annex VI IV. For Wangara the language preferred was Ga.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS:

In all twenty towns and villages were visited in the Akuapim South district of Ghana. Four-hundred and seventy-eight farmers and sixty-eight gari processors were interviewed. The total acreages cultivated by these farmers was 926.41 with an average holding of 2.0 acres. The farmers in the survey area practised mixed farming with crops like maize, cocoyam plaintain etc. intercropped with cassava.

The total production for cassava was 55.131 mini bags or 2,756.6 metric tonnes per year whilst the number of mini bags of cassava sold per year was 47,473.5 or 2373.6 metric tonnes, thus setting aside 7657.5 mini bags or 382.9 metric tonnes for home consumption. Panpaso krokese recorded the highest annual production of 11,208 mini bags or 56.00 metric tonnes In all average production per farmer was 448 2 mini bags or 22 4 metric tonnes.

In relation to the potential plant capacity of 230 0 metric tonnes per year, it was observed that the saleable cassava per year was in excess of the plant requirement.

The processors in the survey area processed a total of 11,622 mini bags or 581.1 metric tonnes. This is about one-fifty of the saleable cassava produced in the survey area. Dobro, one of the towns visited had the highest average number of bags processed per week. They processed an average of 35 mini bags per week.

The processors still used the traditional method of processing gari except that they used the grating machine in grating the cassava in place of the perforated alluminium sheet.

The processors were generally not happy with the existing processing method but because they did not have any alternative method they had to contend with the existing method of processing.

With respect to the marketing of cassava, between 26.6% to 100% of the farmers sold their cassava on the local markets. The farmers sold their cassava in two ways. Firstly some of them uprooted the cassava and sold them in mini bags. Secondly, others sold either wholly or partially their matured cassava farms.

The farmers generally did not store their cassava when it gets matured For those who store, the mean duration of storage was 4.2 months. The only method of storage they practiced was by leaving the matured cassava on the farm.

The average price of a mini bag of cassava for 1988 was ₵1280 90 and that for 1989 was ₵1303 70 There were variations in prices from town to town but it was observed that cassava was cheaper in Adupah, Wangara and Daaman respectively for both 1988 and 1989.

With respect to the marketing of gari, between 25 to 100% of the processors sold their gari in the local markets. Gari was generally sold in 'american tins' and the average selling price for one 'american tin' was ₵151.60.

It was generally observed that the processors were interested in leavning new inproved method of gari processing. Eleven out of the fourteen gari processing towns totally responded positively to participate in the training programme.

The medium of instructions generally preferred were Twi, Ewe and Ga.

In conclusion, I will recommend that the cassava needed to feed the plant should be purchased panpanso krokese since it was the town with the highest production. However in doing so, the prices per unit of cassava should be taken into consideration. In this vain towns like Bowkrom, Adipah, Kwasitenten and Daaman etc. can be contacted.

Also purchasing should be done during the harvesting seasons since it is at these times that the prices of cassava falls drastically.

I also recommend that as far as possible efforts should me made at entering into contractual agreements with farmers so that constant supplies can be guaranteed

Prompt payment of purchases should be made in order to build confidence in the farmers.

With respect to the training of the gari processor, they should be grouped and trained depending on the medium of instructions that one prefers. For example one training session can be organised for only those who prefer Twi as the medium of instructions.

Lastly, I will recommend that as far as possible, the training programmes be residential since it will be very difficult for would be participants to commute from their various towns and villages to the training centres daily. In lieu of this, I recommend that if possible, allowances be given them for trasportation to and from their various localities

Annex I

CROPPING PATTERN

Name of Town	% of farmers with mixed farms	Crops Intercropped with cassava
1. Dzatsui	100.00	Maize, plantain, cocoyam, vegetables.
2. Kotoku	96.00	Maize, vegetables
3. Otukwadjo	100.00	Maize, cocoyam, plantain vegetables.
4. Kofisah	100.00	Maize, yam, cocoyam, plantain, vegetables.
5. Daaman	100.00	Maize, plantain, cocoyam, vegetables.
6. Ayibontey	100.00	Maize, plantain, cocoyam yam, vegetables.
7. Sumkrom	100.00	Maize, plantain, cocoyam yam, vegetables,
8. Panpanso Krokese	92.00	Maize, vegetables.
9. Kwasitenten	96.00	Maize, plantain, vegetables
10. Akpeteshie Nkwanta	91.00	Maize.
11. Duayenden	92.00	Maize, yam, plantain
12. Bowkrom	100.00	Maize, plantain, cocoyam, vegetables
13. Adipah	100.00	Maize, yam, plantain
14. Okanta	100.00	Maize, vegetables
15. Fotobi	97.00	Maize, cocoyam, plantain vegetables.
16. Nsumiah	100.00	Maize, vegetables.
17. Wangara	100.00	Maize.
18. Ajinase/Tabankro	100.00	Maize, yam, cocoyam vegetables.
19. Pakro	100.00	Maize, plantain, cocoyam yam, vegetables.
20. Dobro	95.00	Maize, vegetables

Annex II

CASSAVA PRODUCTION

	Name of Town	Total No. of Acres Cultivated	Yield Per acre	Total Yield	No. of bags sold	No. of bags consumed
1.	Dzatsui New Town	40.17	32.81	1318.00	990.00	328.00
2.	Kotoku	64.23	29.38	1887.00	1743.00	144.00
3.	Otukwadjo	18.00	55.28	995.00	790.00	205.00
4.	Kofisah	18.29	32.97	603.00	455.00	148.00
5.	Daaman	25.4	59.17	1503.00	1238.00	265.00
6.	Ayibontey	51.5	42.40	2120.00	1692.00	428.00
7.	Sumkrom	16.98	25.5	433.00	296.00	137.00
8.	Panpanso Krokese	87.70	127.80	11,208 .00	10,501.00	707.00
9.	Kwasitenten	40.7	46.14	1878.0	1538.5	339.5
10.	Apeteshie Nkwanta	15.9	26.41	420.00	309.00	111.00
11.	Duayeden	56.51	115.84	6546	5843	703
12.	Bowkrom	76.67	102.15	7832	6270	1562
13.	Adipah	12.6	60.16	758.00	589.00	169
144	Okanta	19.05	53.18	1013	807	206
15.	Fotobi	54.69	67.14	3672	3167	505
16.	Nsumiah	56.89	40.11	2282	1925	357
17.	Wangara	34.65	53.62	1858	1599	259
18.	Ajinase Tabakro	33.88	46.34	1570	1166	404
19.	Pakro	64.3	49.94	3211	2810	401
20.	Dobro	138.3	29.10	4024	3745	279

Annex III

MARKETING AND STORAGE OF CASSAVA

	Name of Town	Marketing Centre Local market	Accra/Nsawam Tema	Percent of farmer who store	Period of storage(mths)	Method of Storage
1.	Kofisah	85.7%	14.3%	42.9	5.5	Leaving matured cassava underground.
2.	Dzatsui Newtown	55.2%	44.8%	17.2	8.4	"
3.	Nsumiah	79.3%	20.7%	51½7	4.6	"
4.	Okanta	85.7%	14.3%	42.9	4.1	"
5.	Akpeteshie Nkwanta	81.8%	18.2%	0.0	NA	N.A.
6.	Ajinase/Tabankro	31.6	68.4	52.6	4.6	Leaving matured cassava underground.
7.	Wangara	78.6	14.6	53.3	4.3	"
8.	Otu Kwadwo	100%	0%	68.8	1.8	"
9.	Fotobi	96.9	3.1	59.4	3.6	"
10.	PanpansoKrokese	88.0%	12.0%	80.0	3.5	"
11.	Daaman	60%	40%	80.0	4.3	"
12.	Sumkrom	100%	0%	25.0	7.0	"
13.	Kotoku	95.5%	4.5%	50.0	3.4	"
14.	Kwasitenten	87.0%	13.0%	39.1	3.7	"
15.	Adipah	90.9%	9.1%	63.6	3.9	"
16.	Duayefien	26.6%	73.4%	83.3	3.4	"
17.	Bowkrom	70%	30%	76.6	2.9	"
18.	Pakro	97.5%	2.5%	42.5	4.9	"
19.	Ayibontey	92.3%	7.7	25.6	6.1	"
20.	Dobro	90.0%	10%	27.5	4.2	"

Annex IV

PRICES OF CASSAVA

Name of Town	Price for (¢) 1988(per bag)	Range (¢)	Price for (¢) 1989(per bag)	Range(¢)
Ajinase/Tabankro	1578.00	1000-2400	1434.00	1000-2100
Wangara	1027.00	600-1750	1037.00	600-1600
Otu Kwadwo	1160.00	800-1500	1146.00	1000-1500
Okanta	1289.00	1000-1550	1373.00	700-2500
Nsumia	1166.00	600-2000	1243.00	500-2500
Fotobi	1213.00	800-1650	1168.00	800-1400
Panpanso Krokese	1235.00	600-1600	1139.00	500-1600
Daaman	1089.00	800-1500	1173.00	1000-1800
Daatsui Newtown	1579.00	1200-2200	1660.00	1200-2400
Kofisah	1436.00	1000-1800	1573.00	1200-1900
Sumkrom	1607.00	1400-1800	1573.00	1200-1900
Kotobu	1218.00	700-2400	1159.00	800-1800
Ayibontey	1500.00	1000-2000	1556.00	1200-1900
Kwasitenten	1238.00	650-2000	1105.00	600-1400
Adipah	915.00	800-1200	1103.00	833-1600
Bowkrom	1108.00	700-1800	1116.00	700-1575
Duayeden	1282.00	1000-2000	1209.00	1000-1600
Akpeteshie Nkwanta	1191.00	800-1600	1255.00	950-1600
Babro	1426.00	600-2400	1441.00	500-3000
Dobro	1361.00	600-2400	1597.00	800-3000

Total - ¢25,618.00('88) , ¢26,074.00('89)

Average - ¢ 1,280.90('88) ¢ 1,303.70('89)

Range - ¢915.00-160700('88)¢1031.00-1660.00('89)

Annex V

PRICES OF GARI IN THE SURVEY AREA

Name of Town	Price Range	Av. Selling Price	Percentage who sell in local market
Dzatsui Newtown	¢ 120 - 160	¢ 143.85	55.6
Kotoku	140 - 160	153.30	100.00
Kofisah	140 - 160	148.88	75.00
Daaman	100 - 160	133.00	100.00
Ayibontey	130 - 160	144.0	71.40
Sunkrom	150 - 160	155.00	66.70
Akpeteshie Nkwanta	160 - 180	165.00	25.00
Duayeden	-	150.00	100.00
Bowkrom	-	140.00	0.00
Okanta	-	150.00	100.00
Fotobi	-	160.00	100.00
Wangara	-	160.00	0.00
Pakrom	-	160.00	30.00
Dobro	-	160.00	0.00

Annex VI

RESPONSE TO PARTICIPATE AND MEDIUM OF INSTRUCTIONS PREFARED FOR TRAINING PROGRAMME

Name of Town	Extent of willingness to participate in training programme	Medium of Instructions Preferred		
		Twi	Ewe	Ga
Dzatsui Newtown	100%		100%	
Kotoku	100%		100%	
Kofisah	90%	50%	50%	
Daaman	100%	75%	25%	
Ayibontey	83.0%	80%	20%	
Sunkrom	100%	50%	50%	
Akpeteshie Nkwanta	75%		100%	
Duayeden	100%	50%		50%
Bowkrom	100%		100%	
Okanta	100%		100%	
Fotobi	100%		100%	
Wanagara	100%			100%
Pokrom	100%	100%		
Dobro	100%		100%	

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