

RECENT DEVELOPMENTS IN CASSAVA PROCESSING, UTILISATION AND MARKETING IN GHANA AND LESSONS LEARNED

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1. INTRODUCTION

Ghana currently has an estimated 790,000 Ha of land under cassava cultivation, producing an output of 9.6 million metric tons of cassava per annum. Average yields are estimated at 12.4 MT/Ha even though it is estimated that a yield of 48.7MT/Ha is achievable. The mean annual growth rate for area planted to cassava has decreased from 3.6 (1995-2000) to 1.7 (2001-2006) whilst the mean annual production growth rate has also decreased from 5.9 (1994-2000) to 1.4 (2001-2006). The highest cassava production of 10.2 million metric tons –over a ten-year period was recorded in 2003. Since then there has been a steady decline up until 2005. Over 1.8 million smallholders are estimated to be involved in cassava cultivation nationwide. Cassava surpluses for 2006 were estimated at 3.3 million metric tons constituting about 30% of total domestic production. This, thus underscores the need for processing and market expansion.

2. PROCESSING AND UTILISATION

For a very long time in Ghana the cassava processing industry has been dominated by individual small and microprocessors using rudimentary equipment to produce products like gari, kokonte (sun-dried chips/flour), and agbelima (cassava dough) as the major products; and tapioca and starch as minor products principally for domestic food consumption. Over 200 cassava processors with an average membership of ten and a production capacity of up to 1 MT/month can be found dotted across the country producing one or more of the listed products.

The introduction of starch, high quality cassava flour (HQCF), glucose syrups and industrial alcohol as potential cassava-based industrial raw materials for the bakery, plywood, paperboard, pharmaceutical, confectionery and beverages industry in the mid-1990s, has seen the emergence of several medium and large scale processing enterprises and export oriented end-user companies. These enterprises process a variety of products from cassava. These include, the Ayensu Starch Co. Ltd., Bawjiase; Caltech Ventures, Ho; Amasa Agro-Processing Co. Ltd., Accra; Cassacoxa Ltd, Sunyani; Bredi Agricultural Enterprise, Duayaw-nkwanta; Next Door Farms, Atebubu, Afrimart global Enterprises, Accra; Bishara Agricultural Enterprise, Damongo; Harri Farms, Bechem; Josma Agro Enterprise, Mampong; Yonsu Cassava Processing Company Ltd, Yonsu; and Salaga Cassava Processing Plant, Salaga. Each of these companies is estimated to have an installed capacity of between 10MT and above of finished products per month, thereby making them strategic potential suppliers to large scale end-users.

The Ayensu starch company was set up to supply high grade starch into the export market. It suffered a set-back because of raw material supply disputes. It is however now in the process of resuming operations. Caltech Ventures has cultivated a 1300-acre cassava farm in preparation for the establishment of an industrial alcohol plant. Delays in the delivery of equipment have led to the company finding alternative means of utilizing its mature cassava. They diversified into producing HQCF and other traditional products using locally fabricated equipment for the local food market, as well as the biscuit and plywood markets.

3. EQUIPMENT SUPPORT

Cassava processing enterprises benefit from the support of over 45 Equipment manufacturers who produce a range of cassava processing equipment some of which include, graters, presses, grinders, hammer mills, kokonte crackers, manual chippers, motorized chippers, bagging stands, gari roasting pans, LPG industrial stoves, dough sifters, gari sifters, flour sifters, dryers and fermentation racks. The technical specifications of these equipment are as varied as the number of different processors. The majority of these fabricators are concentrated in the Volta and Greater Accra Regions of the country. The most commonly fabricated pieces of equipment are the graters and presses which are manufactured by about 75% of manufacturers.

4. PRODUCT QUALITY AND ENVIRONMENTAL SANITATION

Quality issues have in recent times become of great concern in the cassava industry. With respect to product quality, even though there are observed variations, there are in existence both voluntary and mandatory standards to monitor product quality and therefore this is not a major issue. What is needed is adequate training for processors on quality issues and the relationship of quality to profit maximization, and the establishment of simple practical quality management systems for use by cassava processors. IITA recently published a quality management manual for HQCF production which could be adapted and simplified for other cassava products.

Environmental sanitation is however a major issue in most cassava processing plants especially for the micro, small and medium scale enterprises (MSMEs), due to inadequate systems for disposing of the large volumes of both liquid and solid wastes generated. The construction of soak-away pits has emerged as a convenient way of addressing this liquid waste problem but cash-flow problems make it difficult for the MSMEs to invest in this facility. Conversion of solid waste into animal feed is a possible option for resolving the solid waste problem but the cost and means of drying as well as the lack of a ready market for cassava-based animal feed are significant bottlenecks. In order to improve production practices and enhance product quality and environmental sanitation the IFAD-funded Root and Tuber Improvement programme (RTIMP) is in the process of upgrading 15 existing cassava SMEs into Good Practice Centers (GPCs) for the training of other cassava processors in good manufacturing practices (GMP). Four of these centers have already been upgraded and another four are nearing completion although they are yet to start serving their functions as training centers.

5. MARKETING

Current developments in the marketing of cassava products can best be discussed along the 4Ps of marketing, namely products, pricing, promotion and place.

Pricing

The three main competitive strategies by which businesses capture market and remain in business are low cost strategies, differentiation strategies and focus strategies. Cassava and cassava products do not have such significantly peculiar characteristics that position them to compete on differentiation and focus strategies. Low cost strategies are therefore the best means by which cassava products can compete, capture markets and stay in the market, hence

the importance of pricing. A cursory look at the cost structure of cassava processing (see table below), shows that the cost elements that make the highest contribution to total production cost are raw material cost (40%) and energy cost (27%). The energy cost for gari production is low because of the use of firewood. If cassava products must be competitive then these areas must be investigated for driving down cost. Possible options include:

- Introduction of high-output-high fuel efficiency dryers e.g flash dryers to reduce drying cost, or
- Promotion of firewood operated dryers (with attendant development of woodlots) to reduce drying cost.
- Uptake of high yielding cassava varieties to improve yields and drive down the cost of raw material.
- Promotion of good agricultural/agronomic practices to improve yields and drive down production costs.
- Reducing labor costs in cassava production.

These options however come with various constraints like, high capital investment costs for flash dryers and persuading farmers to change their agronomic practices, including deforestation etc.

In the industrial markets into which cassava products are currently being promoted, wheat flour is the product against which cassava is competing; and if the cassava products must be competitive they must sell at least 20-25% below the price of wheat flour. To achieve this, options must be found to drive down both the drying costs and raw material cost down by at least 40% of current values.

Promotion

The principal means of promotion for processors and end-users of cassava products are through customer referrals, fairs and exhibitions. A few end-users use radio and television adverts to promote their products.

The implementation activities of various donor-funded projects also serve as a means of promoting cassava and cassava products. In the recent past, the DFID-funded projects on

‘Expanded markets for cassava’ and ‘Sustainable uptake of cassava as an industrial commodity’ as well as the EU-funded ‘Cassava SMEs’ projects have been instrumental in promoting HQCF as an industrial raw material for bakery products, fufu flours, plywood glue extenders, glucose syrups and industrial alcohol and bringing cassava into the industrial scene. These promotional activities account for the entry into the cassava industry by large scale processors and the industrial production of fufu flours by Neat Foods in Accra.

Currently the IFAD-funded Root and Tuber Improvement and Marketing Programme (RTIMP) and the Cassava: Adding Value For Africa (C:AVA) Project are the major players whipping up further interest in the cassava industry through the implementation of activities aimed at improving the cassava value chain. These projects are aimed at developing the technical and financial capacities of producers and processors, delivering satisfaction to end-users, as well as helping to develop a larger market share for cassava products.

In April 2008, the Ghanaian Government announced the possible legislation for a 10% inclusion of cassava flour into wheat flour at the wheat flour mills. A meeting of all stakeholders – processors, producers, researchers, engineers, flour millers, managers of cassava related projects etc., - was convened to discuss the conditions that must be satisfied for effective implementation of the cassava flour inclusion initiative. This has the potential to open up a huge market for cassava processors.

Market Outlets for Cassava Products

The current market outlets for cassava products are:

- The traditional food products market - the current major players being Elsa Foods, Neat Foods, Sellassie Farms and Praise Export Services Ltd.
- The Biscuit Manufacturing Market - the current major players being Parlays Biscuits and Fairbon Biscuits.
- The plywood industries market - the current major players being Samatex Co. Ltd., Bondplex Co. Ltd., ABTS Sawmills and Oti Yeboah Sawmills.
- The paperboard industries market - the current major players being Polykraft Industries and Wordsworthy Press.

- The Flour Milling and Bakery Industries market - the current major players being Takoradi Flour mills, Ghana Agro-Foods Co. Ltd. (GHAFCO), Irani Brothers and various bakers' associations.

The RTIMP has commissioned a study to identify specific markets for cassava and other root and tuber products, the sizes of these markets and their locations. The study has been completed but the final report is yet to be officially submitted.

6. LESSONS LEARNED

- There is the need to improve the competitiveness of cassava products in order to make the industry more vibrant.
- Low cost strategy – driving down processing costs - is the best option for competing favorably in the market place.
- Key production bottlenecks for processors and equipment manufacturers include:
 - High cost of raw materials/fabricating materials
 - Unavailability or high cost of credit/working capital
 - High energy costs especially for drying
- Key sales bottlenecks include:
 - High cost of advertising
 - Unwillingness of end users to pay realistic prices for products.
 - Sustaining volumes of production to meet end-user demands.
- There is also the need for establishing quality management systems and training processors in the implementation of these systems as well as adherence to good manufacturing practices.

Table 1: Cost Structure of Cassava Production and the Processing of Selected Cassava Products

Cost Element	HQCF		AGBELIMA FLOUR		GARI (INDUSTRIAL)		GARI (TRADITIONAL)		FRESH CASSAVA	
	Cost (GHC)	% Contribution	Cost (GHC)	% Contribution	Cost (GHC)	% Contribution	Cost (GHC)	% Contribution	Cost (GHC)	% Contribution
Raw Material	250	40.8	225	40.3	228	46.0	175	56.2	18.5	7.8
Labour	60	9.8	51	9.1	125	25.2	35	11.2	127	53.5
Energy	165	26.9	150	26.9	25	5.1	22	7.1	40	18.9
Supplies	17.5	2.9	17.5	3.1	17.5	3.5	17.5	5.6	27	11.4
Overheads (25%/10%)	120	19.6	115	20.6	100	20.2	62	19.9	20	8.4
TOTAL	612.5	100	558.5	100	495.5	100	311.5	100	232.5	100
Product Output	1MT		1MT		1MT		1MT		1 ACRE (~5MT)	