Cassava SMEs Agro Processing Technical brief

Cassava is one of the most important food crops in Africa. Cassava has gained popularity among the smallholder farmers due to its ease of incorporation in mixed cropping and food systems.

However, fresh cassava roots cannot be stored for long because they are bulky; the roots rot within 3-4 days of harvest and contain varying amounts of cyanide which is toxic to humans and animals. Therefore, cassava must be processed into various forms in order to increase its shelf life, facilitate transportation and marketing, reduce cyanide content and improve palatability.

With the world cassava root production being over 200 million MTs per year, many developing countries could strengthen their rural economies and boost cassava farmers' income by converting the low cost material to high value products. However, traditional cassava processing faces constraints which include environmental, varietal, agronomical and socioeconomic factors.

Cassava processing by the Small and Medium Enterprises - (SMEs) requires safety, quality assurance, selection of high quality raw material and implementation of good manufacturing practices. Through processing, the SMEs are able to develop additional products such as cassava chips, cassava flour, starch, ethanol, gari and animal feeds. Processing also ensures that there is a total reduction in the undesirable toxic constituents in cassava.

Cassava processing procedures utilized by the SMEs vary from simple processing (peel, boil and eat) to...
complicated procedures (gari), depending on products. Processing of gari for example, involves peeling, grating, pressing, fermenting, sifting, and roasting. Production of cassava flour involves peeling, washing, grating, drying and milling. Some of these steps reduce cyanide more effectively than others. Processing procedures differ among the SMEs within a country, depending on food cultures, environmental factors such as availability of water and fuel, cassava varieties used, types of processing equipment and technologies available.

The main products processed by the SMEs are cassava chips, cassava composite flours, gari and animal feeds. The main equipment utilized by the SMEs includes: driers, chippers, millers, pressers and fryers.

Milling with hammer mills, done at village level and by SMEs, reduces cyanide level of cassava making it more palatable. The dried cassava roots (both fermented and unfermented) are often mixed in a ratio of 2-3 parts cassava with one part of sorghum, millet and/or maize and milled into composite flour. Mixing cassava with cereals increases food protein, and enhances palatability.

Cassava leaves are rich in protein, calcium, iron and vitamins, comparing favorably with other green vegetables which are, generally, regarded as good protein sources. The leaves are harvested, hard petiole is removed and the blades and young petioles are pounded, blanched and cooked with pepper, palm oil and other aromatic ingredients. The peels from cassava are dried and utilized as animal feed

Good storage of cassava products depends on the moisture content of the products, the temperature and relative humidity of the storage environment. The type of bag used for packing also affects shelf life depending on the ability of the material to maintain

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safe product moisture levels. Jute and hessian bags are recommended in dry cool environments because they allow good ventilation.

Slight changes in the equipment used in processing can help to save fuel and lessen the discomfort and health hazard for the SMEs. The economic success of any future commercial development of cassava processing would depend upon the adaptability of each processing stage to mechanization. However, the first step to take for improvement of cassava technologies should be to improve or modify the simple processing equipment or systems presently used, rather than to change entirely to the new, sophisticated, and expensive equipment.

It is expected that the development of appropriate models of cassava production and processing units, together with capacity building on cassava production, processing and enterprise development, will result in higher revenues and better working conditions for the labour force in the SMEs.