Marketing Opportunities for Starch and High Quality Flour Production from Cassava and Sweet potato in Uganda

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Executive Summary

The aim of this project was to evaluate market opportunities in Uganda, for transforming cassava and sweet potatoes, into higher value, processed products. In Uganda, cassava and sweet potato are considered famine reserve crops and processing has not been developed as in other tropical countries. Much of the root and tuber harvest is consumed in the primary form after boiling or roasting and processing techniques are limited to traditional methods, which generally produce low quality products that are constrained to low prices within the local marketing system.

Although the small-scale processing sector has not been developed, during the 1980s Uganda had an industrial plant to process cassava into starch. Unfortunately this capacity was lost during the civil unrest and since that time Uganda has imported all its starch needs. This project therefore aimed to determine (i) current market demand for starch, (ii) the merits of developing a small-scale processing sector compared with re-establishing factory scale processing capacity and (iii) the technical and economic feasibility of small-scale starch processing technologies which would be appropriate in the Ugandan farming system.

Results from the market survey indicated that Uganda has a domestic native starch consumption of approximately 1000-1500 MT / year, a liquid glucose consumption of 1000 - 1500 MT / year and dextrin consumption of 400-500 MT / year. These markets have a combined value of approximately $2-3,000,000 / year. The major consumers of starch are in the pharmaceutical, food and non-food sectors. The non-food industries including textiles, wood processing and cardboard making industries. The level of starch consumption revealed in this survey was less than suggested in previous reports and the difference may be because most non-food processors were using cassava flour as a low cost substitute for starch.

The survey found that virtually all starch was imported from India, Kenya or Europe and the import prices in 1998 ranged from $400 - $800 / tonne CIF Kampala. A rapid market survey was also conducted in Kenya as it was suggested in previous studies that Uganda could export surplus starch into surrounding countries. The Kenya survey revealed there are two starch factories in Kenya, and that supply from Kenya CPC alone was in the range of 20,000 MT / year. Kenya suppliers are already exporting into Uganda and Tanzania and given the level of production and capacity to supply a range of starch products to the region, it would appear that Kenyan suppliers will increase market penetration into Uganda in the next 5 years. Interviews from Kenyan operators also suggested that the market for starch and starch products is becoming more competitive with the establishment of new starch trading companies in Nairobi and therefore potential for Uganda to export into Kenya is unlikely.

Analysis of the possibilities for future supply of the Ugandan starch market indicated four options: (i) continued importation, (ii) medium scale factory processing, (iii) small-scale starch processing and (iv) small-scale processing of high quality flour as a substitute for starch.

For most high grade starch and high grade starch products, the option for continued importation appeared to be the most sensible. However, the fourth option, to produce high quality root crop flour also has a number of attractions. For cassava, high quality flour could gain a premium price in the local food markets, high quality cassava flour is already used as a substitute for starch in the non-food sectors and this product could be used as a partial substitute for wheat and maize flour.
In the food processing sector.

In regard to the option of scale, the Government of Uganda has already commissioned three reports on the technologies and funding required for factory level starch processing. The cost of such an endeavour is in the region of 5-6 Million dollars US and several interviewees considered that it would be more cost effective to invest in factory operations in lower cost countries to supply Uganda, rather than develop local industrial capacity. This study therefore focussed on the potential for small-scale technologies in regard to market intervention for root crop products.

To test the feasibility of local, small-scale starch processing, equipment was imported from Vietnam and tested at the station and on-farm levels. The Vietnamese equipment proved to be simple to replicate and cost benefit analysis from on-station trials found that starch could be produced for approximately $170-200 / tonne, with an internal rate of return at approximately 30-40%. When this same technology was tested on-farm the production costs were $300 per tonne including the costs of loan and equipment repayment. These figure compare favourable with world market prices of starch between $200-$600 per tonne, CIF Kampala. Tests to date indicate that farm level production of starch is both technically and economically viable, although more product marketing is required to establish links with private sector partners and to evaluate the sustainability of this agro-enterprise.

Supplementary studies found that starch processing was more profitable when conducted alongside flour processing, which employs similar equipment as waste from starch processing could be incorporated into flour, as margins are small, the sales of waste materials from starch are an important factor in longer term sustainability of the process.