REDUCING POST-HARVEST LOSSES AND PROMOTING PRODUCT DIFFERENTIATION IN THE COOKING BANANA VALUE CHAIN: A BUSINESS CASE FOR UGANDA



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Introduction

Cooking banana is the main staple crop in Uganda with a total annual production of 4.0 million tons produced mainly by smallholders who depend on it as a principal source of food (65%) and income (35%). It accounts for 17% of total daily per capita caloric food intake as a single most important source of calories among Ugandans.

The cooking banana value chain is characterized by high risk of postharvest (PH) losses due to short green life of bananas and poor post-harvest handling. On-farm PH losses range from 40% of production for farms far from markets (>30 km from paved roads), 3-6% of production for farms close to markets, and 10-27% at trader level. PH losses occur during transportation and marketing due to premature ripening, bruises, thefts, weight loss, plant diseases, non-transparent pricing mechanism, and temporary oversupply (production gluts) resulting from seasonal scheduling of follower sucker selection. Smallholder benefits are further reduced by a large number of middlemen (Ngambeki et al., 2010), though many of the latter play a crucial role in linking farmers with markets.



A market study, carried out between July and August 2014 in several parts of the country, underscored the need for reducing postharvest losses and improving marketing. Transparency, for example, can be increased by introducing a weight-based pricing system that not only responds to producer needs, but also to changing consumer preferences for smaller units of banana in view of increasing urbanization with smaller household sizes (3.6 members on average) and higher rates of women employment (76%).

This business case lays out opportunities for reducing post-harvest losses and promoting product differentiation in the cooking banana value chain through upgrading storage, transport, and marketing, with the final aim to increase farmers' margins and the value added along the chain.



Research Questions

- Can smallholders smooth out supply across seasons through sucker staggering and/or use of diverse varieties?
- What current and future opportunities exist for product differentiation, and which capacities do value chain actors need to respond effectively?
- 3. What is the cost-benefit ratio of different cooking banana presentations in response to consumers' preferences and their willingness to pay?
- What is the feasibility of upgrading options related to storage, transport and marketing to reduce PH losses?
- Can value chain efficiency be increased through a weight-based pricing system, and what is needed to be accepted by producers, traders, and consumers?

Approach

We have selected two districts (Isingiro and Rakai) in Southwest Uganda where we will pilot the project activities. Participatory Market Chain Analysis (PMCA) will provide a framework for implementation, including the following elements:

1) Reduced post-harvest losses through promotion of varieties with intrinsic longer shelf life and

Feasibility

Technical feasibility: All project partners have experience in the proposed interventions.

- MBADIFA: collective marketing, extension services, and linking farmers to markets
- TRIAS: capacity-development of small and medium size enterprises
- BIOVERSITY: market studies, value chain development, and gender integration
- IITA: macro-propagation and sucker management
- NARO: post-harvest handling and value addition/packaging
- KAIKA investment: experience in trade and linking producers to retailers
- Ssemwanga Group Ltd.: networking and value chain upgrading

Economic feasibility: A simple cost-benefit analysis was conducted to quantify the economic viability of the intervention. The BC ratios are positive, indicating the economic viability of the project.

	FARMER	WHOLESALER	RETAILER
Appraisal period (years)	10	10	10
Present Value of Benefits	\$62,448	\$1,460,354	\$153,125
Present Value of Costs	\$8,244	\$104,544	\$101,273
Benefit Cost Ratio	7.58	13.97	1.51
Net Present Value	\$54,204	\$1,355,810	\$51,852

- better PH handling properties: During the Market Study 2014, we identified cooking banana varieties with intrinsic longer shelf life and low susceptibility to bruising and weight loss that are in high demand by consumers. The project will, together with chain stakeholders, share and evaluate information about these varieties. As a result, we expect a priority list of varieties with high buy-in and/or co-investment by chain actors. The prioritized varieties will then be disseminated for mass propagation.
- Increased market benefits and transparency in unit pricing through product differentiation and piloting the weight-based pricing system: An in-depth market study will elucidate the actual and potential demand for different cooking banana presentations (forms, sale units) to inform product differentiation. Performance and acceptance of weight-based pricing will also be studied, as a means to increase market transparency and benefits captured by farmers.
- Promotion of sucker staggering for smoothing out banana production across seasons to avoid 3) sudden price drops and to obtain off-season price premiums: Farmers tend to defer sucker selection to a period of the year when labor demand from competing activities is low (end of the rainy season). Farmers usually select the most vigorous suckers as followers over a narrow period of time. When production peaks across farms, oversupply floods the market and prices plummet. In response, we will study an alternative sucker selection regime that allows to smooth out production over the year, with the hypothesis that staggered harvest helps to avoid price drops and to tap into off-season price premiums.
- Collective action among value chain actors for upgrading storage, transport and marketing: 4) Addressing bottlenecks identified in the value chain and fostering interaction among farmers, transporters, and traders, opportunities for value chain upgrading will be identified and capacities to implement these will be strengthened, with the ultimate goal to increase benefit capturing by farmers and generate higher value added along the chain.

Development Goal

Social feasibility: During the scoping study numerous value chain actors expressed strong interest in collaborating on the proposed innovations in view of:

- Banana growing is embedded in the culture of many Ugandans and all market preferred varieties are known and appreciated among the value chain actors;
- All VC actors experience, to varying degrees, postharvest losses and are eager to reduce them;
- Pilot experiences of weight-based unit pricing exist, though on a very small scale. Farmers, traders, and consumers appreciate its transparency and are willing to use (or invest in) it;
- The participation of both men and women in the proposed project is feasible because they are present at all levels of the value chain, from production, through marketing to consumption.

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Through adopting market-preferred varieties, technologies to reduce PH losses, and weight-based unit pricing, it is expected that in 10 years period:

- Reduced PH losses have increased income and supply of cooking banana for household consumption among 500,000 farmers in central and SW Uganda by 15% and 10%, respectively
- Incomes of 50,000 further actors along the value chain have also increased by 15%
- Participation of women in chain links with lucrative margins will have increased by 15%, as will have profit margins in links where they traditionally dominate (e.g. retail)
- Consumers have increased access to high quality cooking banana of preferred varieties throughout the season in different quantities and presentations

References

Ngambeki et al., 2010. The extent and causes of banana (Musa spp) market distortions in Uganda. Acta Horticulturae (ISHS) 879: 143-150.

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