

SWEETPOTATO SILAGE MAKING FOR PIG FEED IN UGANDA: A PROPOSED BUSINESS CASE

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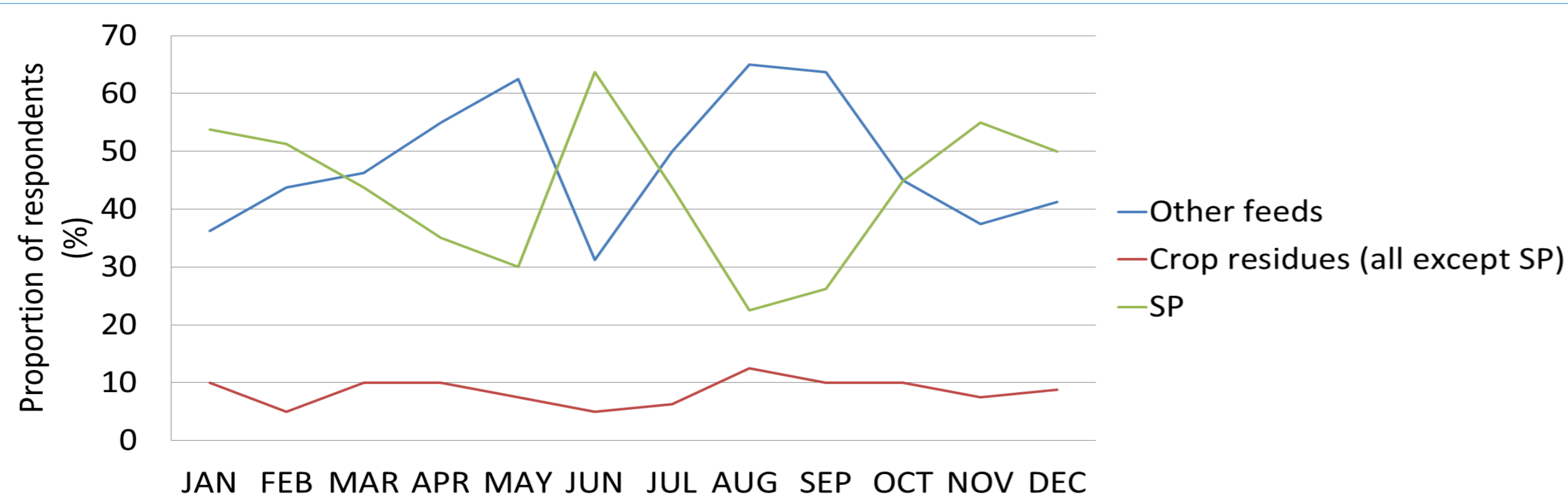
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Introduction

Over the last three decades pig population and pork consumption has increased by approximately 17 and 10-fold respectively (FAO, 2010); becoming a major source of income for both rural and peri-urban poor households in Uganda. However productivity of the traditional piggery is low because of a number of mutually reinforcing constraints, especially inadequate provision of feeds year round. Residues from non-grain starch staples notably sweetpotato (SP) roots, vines and peels are the most commonly used feed resources in rural and peri-urban piggery in Uganda (Ouma et al., 2014) but farmers underutilize these materials because they do not conserve them as off-season pig feed. SP vines and peels are convenient alternatives to farmers because of their high nutritional value (Chicco and Schultz, 1976). However, their availability is seasonal (Fig. 1). During periods of scarcity of SP, farmers often resort to other feeds, usually of lower nutritional value, before proceeding to destock the herd as a strategy to coping to feed scarcity. Such expressions of desperation are indicative of the need for SP conservation technologies as a feed crisis mitigation strategy.

FIG. 1 - SEASONALITY OF SP VINES AND PEELS COMPARED TO OTHER FEEDS IN KAMULI DISTRICT



Development goal

Within a period of 10 year the overall goal of the project is to improve food, nutrition and incomes security of at least 500,000 pig and SP producers and other off-farm actors in the SP and pig value chains in Uganda through integration and diversification of the enterprises.

- Increased adoption of high yielding dual-purpose SP varieties that produce nutritious food for people and feed for pigs concurrently under smallholder settings.
- Increased use of vines and root off-cuts from urban markets for feeding pigs as means to manage urban and household wastes, reducing negative environmental impacts.
- Increased volumes of sales and revenues from the enterprise integration.
- Increased employment opportunities for youth in SPS-pig systems value chain.

FIG. 3 - FAMILY INVOLVEMENT IN COLLECTION OF SP VINES, CASSAVA AND BANANA LEAVES FOR FEED



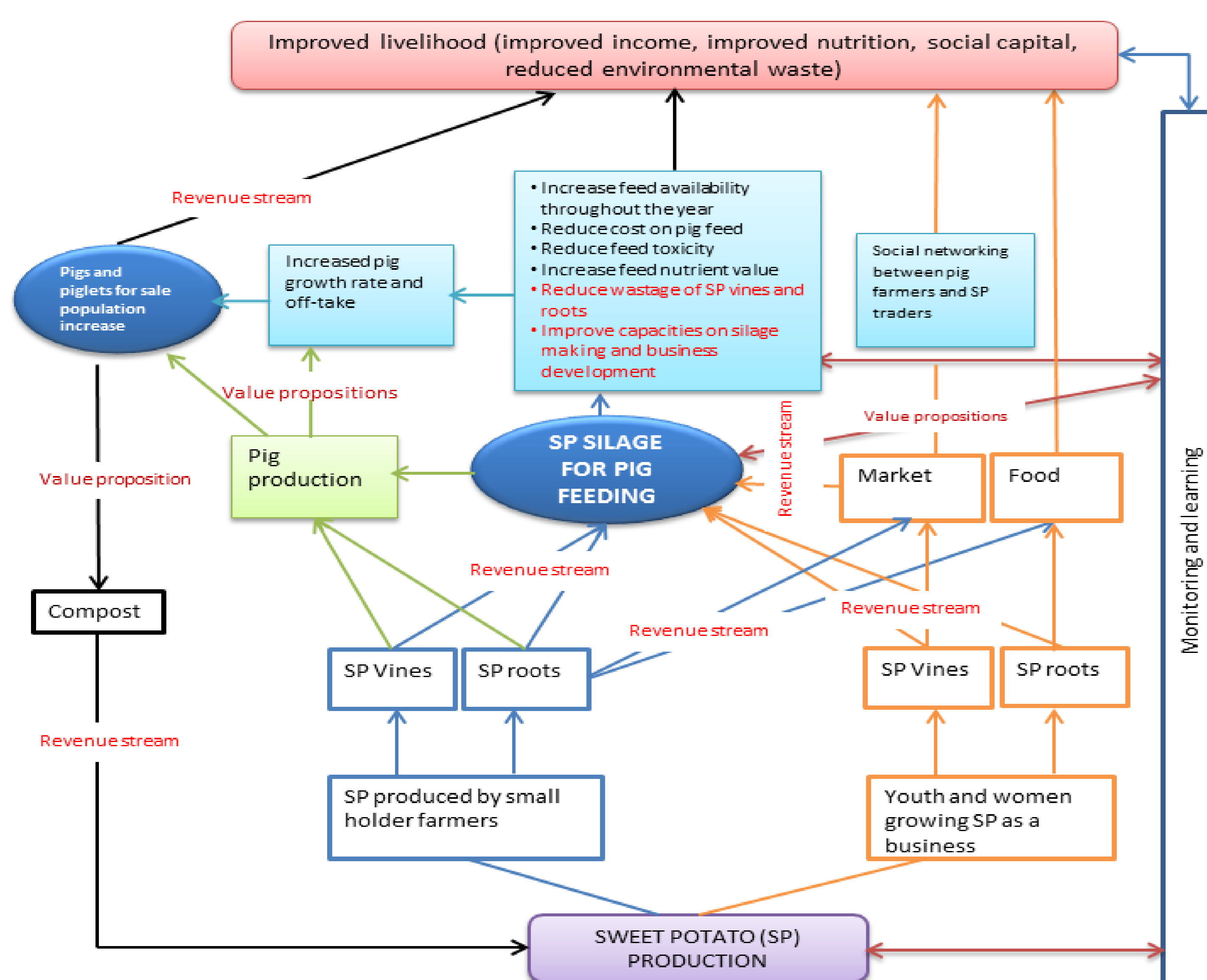
FIG. 4 - PRESERVATION TECHNIQUES USED IN MASAKA DISTRICT: a) BANANA PEELS b) DRIED CALLIANDRA LEAVES, c) CHOPPED ELEPHANT GRASS AND HAY BALES



Approach

- The business case will create a model for proper organization of SP value chains for production, conservation, and marketing of SP-based feed in form of silage at various levels of the value chains purposely for pig feeds (Fig. 2).
- Strengthen the existing linkages between pig farmers and SP traders in the peri-urban and urban markets to increase access of SP materials from markets and other RTB farms to silage making.
- Building capacity of women, men and youth for entrepreneurship and effective business operations of silage making and pig enterprise development on a regular basis coupled with business mentorship programs.
- The business model will be implemented through the existing SP and pig platforms.
- The business plan will be executed through pilot and monitoring activities. Two piloting channels are proposed: i) collective action with farmers group, and ii) individual innovation champion farmers.
- Silage making will allow women and youth to reduce time sourcing feeds for their animals. It will also cut on the time they spend and the labor in feeding practices that involve cooking of SP roots and other RTB, drying and pounding for pig feeding.

FIG. 2 - MULTI-LEVEL BUSINESS MODEL OF SWEETPOTATO SILAGE (SPS) IN THE SMALLHOLDER PIG VALUE CHAIN IN UGANDA



Research questions

- What are the best options for integrating SP and pig enterprises in Uganda that could be technically feasible; economically viable; socially acceptable and environmentally sustainable for SP- Pig System development in Uganda?
- What are the most effective, viable and socially acceptable SPS recipes and feeding regimes for smallholder pig production in Uganda?
- What are the best dual-purpose SP varieties for pig production in the targeted biophysical and socio-economic niches in Uganda?
- Which delivery mechanisms are most effective for producing and marketing SP silage to small and medium scale pig producers, especially women, in Uganda?

Feasibility

- In Southeast Asia, successful experiences using SPS for pig feeding have been widely documented.
- In East Africa, successful preparation of SP silage was reported in Tanzania but for goat feeding (Khali et al., 2013). Initiatives to introduce the technology in pigs in Uganda and Kenya are in progress.
- Studies have demonstrated that SPS is a cost effective feed conservation strategy for pig production, as it reduces the cost of feeding up to 17.3%. This reduction was mainly attributed to the reduced cost in labor (Giang et al., 2004).
- Ex-ante feasibility study showed high returns to investments (IRR-46%) when farmers produce silage using homegrown SP and hire services for silage preparation; thus creating jobs in the service sector.
- Feed silage making and pig feeding would translate into labour saving for women and children who collect feeds for pigs.
- Silage making will be an added advantage to the use of SP in the communities. Participation of men, women and youth in SPS making and trade may not be against the social norms as long as the innovation does not impact negatively on their time burden.
- Although livestock fodder markets are not common, huge potentials exist for SPS marketing especially during seasons of scarcity when most farmers are in need of feeds.

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