

Smallholder pig value chain development project

Developing smallholder pig value chains in Uganda to increase rural incomes and adapt to climate change



Project context

Demand for pork in Uganda is increasing rapidly and is now the highest in East Africa at 3.4 kg per capita per year. Between 1982 and 2012, the number of pigs increased from 190,000 to 3.6 million, and pig production is now a major source of livelihoods for over 1.1 million households in the country. Mainly kept by smallholder farmers, pigs are preferred because they grow fast, farrow twice a year (a typical sow produces 16-20 piglets a year), and eat leftover food and crop residues. For many farmers, pigs are living banks as they can easily be sold for cash to meet household financial needs, such as school fees, and provide financial capital required to grow crops. However, growth of the pig value chain is limited by various production, marketing, policy and institutional constraints. The challenge is how to upgrade and improve the efficiency of pig value chains in a way that reduces their contribution to climate change, in particular by reducing greenhouse gas emissions, while increasing their resilience to climate change.

The EC-IFAD funded 'Smallholder Pig Value Chain Development' (SPVCD) project implemented by the International Livestock Research Institute (ILRI) has identified and piloted a number of 'best bet' interventions to

improve the livelihoods of small-scale pig producers in Uganda, taking into account the challenges of climate change.

The research programme in brief

The SPVCD project in Uganda addresses constraints and opportunities for smallholder pig producers to improve their incomes and assets. The project uses a value chain approach, to characterize the value chain actors, identify constraints and opportunities faced by producers and other actors in performing their functions, identify potential entry points for overcoming identified constraints and pilot technological and institutional interventions for learning and scaling out especially at production.

Results and impact

Transforming slaughter waste into clean energy and improving public health:

At Wambizzi abattoir in Kampala, the only urban pig slaughterhouse in Uganda, the project is piloting ways to make better and safer use of slaughter waste through biogas production, thereby reducing the public and environmental health risks from the waste.

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The European Commission has funded over €200 million in research in collaboration with IFAD and the CGIAR network in order to increase the resilience of smallholder farmers to climate change and to improve food security. Projects have been undertaken in many countries to bring the power of science to bear on developing solutions that can be scaled up to reach millions of people.

The International Livestock Research Institute (ILRI) works to improve food security and reduce poverty in developing countries through research for better and more sustainable use of livestock. ILRI is a member of the CGIAR Consortium which works for a food-secure future.

The biogas energy generated will be used to meet the energy needs of the slaughterhouse, particularly for heating water and lighting. Prior to the installation of the biogas digester, the abattoir used approximately 88 tons of firewood per year, mainly to heat water. This translates to about one tree per day. The effluent (bioslurry) from the biodigesters is being evaluated for its value as an organic fertilizer. When scaled up, this could help restore soil fertility in mixed crop-livestock systems, and reduce dependence on expensive inorganic fertilizers and their associated negative effects on the environment.

Using planted forage to expand pig feed options and improve soil carbon sequestration:

High-quality forage legumes can provide cheap farm-grown feeds to substitute collected forages in pig feeding. However, adoption of such forage has been low. Research in South East Asia has shown that improved forages can result in significant labour savings, especially for women, as well as improved growth rates of pigs. One hundred and thirty pig farmers in Kamuli and Masaka districts have planted improved forage legumes (*Cannavalia brasiliensis*, *Clitoria ternatea*, *Lablab purpureus*) and the *Brachiaria* “Mulato” hybrid, either as mono or intercrops.

These forages play a key role in soil carbon sequestration, and improve water and nutrient retention in organic matter holding soil carbon.

Sweet potato silage as pig feed, mitigating feed scarcity resulting from prolonged drought:

Simple silage making from sweet potato vines and roots for feed conservation, combined with strategic supplementation, is an easy and affordable option for pig feed during periods of feed scarcity and also contributes to reduce wastage of sweet potato residues. Previous studies show that commercial-based feeds cost twice as much per kilogram compared to silage-based feeds. In collaboration with the International Potato Center (CIP), ILRI is conducting participatory testing of sweet potato silage making and appropriate supplementation strategies with pig farmers in Kamuli and Masaka districts. The project needs to conduct further research on the formulation of balanced and cost-effective sweet potato silage-based feeds.

Piloting a business hub with Kabonera Kyanamukaaka pig farmers’ cooperative society to strengthen resilience of climate change effects

The pig business hub will improve market linkages and access to business development services for the Kabonera-Kyanamukaaka pig farmers’ cooperative, thereby enabling smallholder farmers to earn

more from their businesses. Collective action by farmers, such as bulk feed purchases and feed conservation practices in the form of silage making, improves resilience to climate change effects by enhancing feed availability to members during periods of scarcity. The hub has also encouraged the adoption of climate-smart agricultural practices, like planting of forage for use as pig feed.

Future directions and scaling up

Private-public partnership to improve pork safety and increase profit margins for pig farmers through the construction of a centralized pig slaughterhouse in Masaka municipality.

The project has been supporting a feasibility study to build a pig abattoir in Masaka. A business plan for the pig abattoir has so far been developed and will be submitted for funding consideration under the EU special investment funds programme for small and medium agribusinesses in Uganda. The proposed abattoir is expected to promote better waste management through production of biogas. There is also the possibility of enhancing farmers’ access to better protein-rich diets for their pigs through the production of blood and bone meal from slaughterhouse waste. Furthermore, public health concerns will be addressed through centralized pork inspection and certification. Centralized pig slaughtering will also minimize the spread of diseases, such as African Swine Fever (ASF), that could result from poor biosecurity practices observed during farm gate pig marketing.

Interventions for climate change adaptation

- Crop and fodder choices and management in order to cope with changing climatic conditions and increase smallholder resilience
- Breed selection practices designed to better cope with changing climate conditions, including heat stress
- Adaptation to climate change-driven modifications in pathogens impacting pig and human health, including zoonoses
- Improved market integration for smallholders to strengthen their resilience
- Reduction of greenhouse gases through better waste and manure management – including integrative nutrient management – at production and slaughter stages

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