Participatory research for development to upgrade smallholder pig value chains in Uganda

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Our vision: Improve the livelihoods of smallholder pig value chain actors in Uganda. Our mission: Showcase how existing livestock value chains can be upgraded for the benefit of all actors in the system, especially the many poor. Our challenge: Very little has been documented about how smallholder pig value chains operate in Uganda, except that pork production and consumption have exploded over the past three decades, and 70% of the pigs are in the hands of smallholder farmers, many of them women. Who are the actors in the current system? What are input and output channels? Who benefits and who bears economic health risks? Which problems do the various actors face, how do they deal with them and can these problems provide opportunities?

Materials & methods

- Questionnaire survey: 26 feed stockists, 52 village vets, 36 agrovet stockists, 80 village boar owners
- Participatory rural appraisal and key informant interviews (n=15)
- Questionnaire survey with pig farmers on animal health & husbandry (n=1,200)
- Pig-sampling (blood, feces) of >1,200 animals in 22 villages for multiple disease prevalence estimates
- Feed samples for nutritional analysis (n=212)
- Gender-differentiated focus group discussions (n=10)
- Questionnaire survey: (n=15)
- Questionnaire survey: (n=45)
- Questionnaire survey: 84 pork samples
- GIS-mapping of urban pork outlets
- Participatory rural appraisal (n=15)
- Focus group discussions with rural mothers of children under 5 (n=15)
- Focus group discussions with urban mothers of children under 5 (n=15)
- Questionnaire survey with pig farmers on food safety and nutrition (n=1,200)

Results: Constraints & opportunities

- Pigs are not a priority in government’s agricultural sector agenda
- Weak implementation of policies related to feeds and veterinary drugs
- Many outdated rules and regulations regarding pig farming, transport, slaughtering and marketing (e.g. Public Health Act but updated in 1962)
- High risk for spread of transboundary diseases due to lack of surveillance and enforcement (e.g. fraudulent use of movement permits, movement at night)
- Lack of qualified extension staff specialised in pigs

- Expensive, of poor quality and difficult to access
- Risk of disease transmission from/to village boars due to commodal use
- Scarce and price fluctuation of raw materials for feeds
- Commercial feeds and ingredients contaminated or adulterated
- Weak implementation of quality assurance systems
- Inappropriate storage of bore hole drills and lack of education of pig owners on why this drug is administered.

- Poor buzzing power, lack of organisation and lack of knowledge among pig farmers
- Poor access to extension services and market information, especially for women
- Lack of capacity to formulate borehole, nutritionally balanced feeds
- Lack of monitoring
- Lax biosecurity measures
- Inappropriate farm layout and equipment manger change as major disease vectors
- Prevailing survey in 25 villages showed no evidence of Brucella suis, Pasteurella multocida and Escherichia coli but high prevalence of gastrointestinal helminths (E. vermicular, Strongelloides stercoralis, Trichuris suis, Schistosoma mekongi and Hymenolepis nana) and high seroprevalence for Leptospira icterohaemorrhagiae and Salmonella enterica serovar Typhimurium (n=15), strongyle egg count (n=24) and high worm burden for Fasciola hepatica and Dasypodium caninum
- Poor humidity; pest and hunger and visibility.
- Lack of knowledge and management of bacterial diseases
- Lack of appropriate disease diagnosis and treatment
- Inappropriate drug administration (type, dose, frequency, route)

- High transaction costs (transportation cost for sales)
- Poor quality pigs (i.e. underweight) due to poor management and disease
- Poor handling during transport resulting in poor animal welfare and reduced quality of meat
- Poor biomass measures resulting in disease spread especially ASF between farms or villages

- Pork delivery delays
- Inability to meet consumer demands (quality and quantity) due to unsound supply
- Lack of prerequisites for pork storage and processing: good hygiene (cold chain, water)
- Religious constraints; Muslim control of rural space precludes pork sellers (i.e. butchers, pork joints and sausages hawkers)

- No critical mass demanding pork safety
- Lack of awareness on pork illnesses
- High consumption in urban areas, at pork joints often associated with alcohol consumption (96% in Kampala)
- Poor quality pigs remain in villages for rural consumption
- Pork consumed well-cooked but with relish composed of raw vegetables
- Evidence of presence of pathogens causing common diseases, such as anthrax, listeria, salmonella, Enterobacteriaceae, toxoplasmosis, trichinellosis

Value chain actors

Enabling environment

<table>
<thead>
<tr>
<th>Inputs &amp; services</th>
<th>Pig farms</th>
<th>Live pig collection</th>
<th>Slaughter &amp; processing</th>
<th>Meat transport</th>
<th>Retail</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominated by men (72%), mostly formal</td>
<td>Dominated by women (49%), mostly informal and predominantly smallholders (9%)</td>
<td>Dominated by men (67%), vertical integration (multiple sites) and mostly predominantly informal (49%)</td>
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Situational analyses

- Stakeholder engagement and consultation from the start of the project
- Focus groups
- Pig Multistakeholder (PMS) to enable peer learning and networking among actors

Develop biosecurity protocol for extension services and training of health workers and drug resistance on disease management and use

Develop and disseminate well-balanced feed rations from locally available ingredients

Feasibility testing of implementation of biosecurity protocols, scheduled deworming, improved housing (i.e. Indigenous Microorganisms), manure management

Validation of selected local herbal remedies for control of internal parasites

Validation of organisational models for value chain coordination and integration to improve access to inputs, services and output markets (e.g. woman group)

Launch off training modules on identified constraints

Organizational models for better and efficient and effective buying and service providers

Develop biosecurity protocol for ASF control

Convert slaughter waste into energy

Training of meat inspectors and linkage with buyers and service providers

Develop biosecurity protocol for control of ASF and other diseases

Incentive-based training on good hygienic practices

Consumer sensitization on pork consumption and overconsumption and good practice butcheries

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