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Participatory assessment of animal health and husbandry practices in smallholder pig production systems in three high poverty districts in Uganda

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ABSTRACT

While animal health constraints have been identified as a major limiting factor in smallholder pig production in Uganda, researchers and policy makers lack information on the relative incidence of diseases and their impacts on pig production. This study aimed to assess animal health and management practices, constraints and opportunities for intervention in smallholder pig value chains in three high poverty districts of Uganda. Semi-qualitative interview checklists through Focus Group Discussions (FGDs) were administered to 340 pig farmers in 35 villages in Masaka, Kamuli and Mukono districts. Quantitative data was obtained during the exercise through group consensus. Results of FGDs were further triangulated with secondary data and information obtained from key informant interviews. Findings show that pig keeping systems are dominated by tethering and scavenging in rural areas. In peri-urban and urban areas, intensive production systems are more practiced, with pigs confined in pens. The main constraints identified by farmers include high disease burden such as African swine fever (ASF) and parasites, poor housing and feeding practices, poor veterinary services, ineffective drugs and a general lack of knowledge on piggery management. According to farmers, ASF is the primary cause of pig mortality with epidemics occurring mainly during the dry season. Worms and ectoparasites namely; mange, lice and flies are endemic leading to stunted growth which reduces the market value of pigs. Diarrhoea and malnutrition are common in piglets. Ninety-three percent of farmers say they practice deworming, 37% practice ectoparasite spraying and 77% castrate their boars. Indigenous curative treatments include the application of human urine and concoctions of local herbs for ASF control and use of old engine oil or tobacco extracts to control ectoparasites. There is a need for better technical services to assist farmers with these problems.

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1. Introduction

Pork has become increasingly important in Uganda. Whereas in the 1960s it accounted for only 1–2% of the 11–12 kg annual per capita meat consumption, it now contributes at least a third of the current 10 kg of meat consumed by Ugandans each year (FAOSTAT, 2010). Beyond meat, pigs help rural and urban households to improve their livelihoods and they frequently serve as a source of cash in times of need.

Exploiting the full potential of pig production is however constrained by many pig diseases and ailments (Waiswa et al., 2007; Muhanguzi et al., 2012; Muwonge et al., 2012). Addressing these is in turn constrained by limited information on the relative incidence of the different diseases and their impacts on production.

To identify 'best-bet' interventions to improve the pig value chains, this study set out to draw on farmers' practices and knowledge to discover their perceptions on prevailing diseases and their role in constraining production.

2. Material and methods

2.1. Site selection

This study was conducted between November 2012 and March 2013 in 3 of 112 administrative districts in Uganda, namely Masaka, Mukono and Kamuli. These districts were selected as study sites for the Smallholder Pig Value Chain Development Project (SPVCD) implemented by the International Livestock Research Institute (ILRI) in Uganda (Pezo et al., 2014).

The selection of study sites followed several steps:

Geographical targeting (step 1) was done using GIS characterization and existing spatial data. Data on pig population density, human poverty levels and market access were used to depict differences in the districts and variations in value chain domains (Ouma et al., 2014). Time taken to reach nearest urban centres was used to proxy market access and served an important role in classifying the districts into the different target value chain domains: rural production for rural consumption (R–R), rural production for urban consumption (R–U) and peri-urban/urban production for urban consumption (U–U). Data on pig population density was derived from the 2008 livestock census (UBOS, 2009). Poverty levels, based on head count ratios were derived from human population census data, gridded population maps and the national poverty lines. The GIS process identified 10 potential districts with high pig population density and high human poverty levels.

Stakeholder involvement (step 2) was done through a site selection workshop to validate the GIS characterization results and to identify other 'soft' criteria not covered in the spatial analysis. These additional criteria identified by the stakeholders included the (1) potential for partnerships with on-going complementary projects, (2) districts having a high disease burden in pigs especially African swine fever, (3) current input market linkages especially access to input service providers and (4) year round access to the site.

Final decision (step 3) was taken after a process to score the 10 GIS identified potential districts by stakeholders against the stakeholder "soft" criteria. For the scoring, a matrix was constructed with the list of selected districts based on GIS criteria against the four "soft" criteria generated by the project's stakeholders. Each individual was given four cards to score against the districts based on their perception and knowledge about prevailing soft criteria. After the scoring, three districts – Masaka, Mukono and Kamuli were ranked top based on the scores and selected for project work (Ouma et al., 2014).

2.2. Village's selection

To identify specific site locations within the selected districts, a further assessment was done using pig population data at sub-county level from the livestock census data of 2008 (UBOS, 2009). In each district, 3–6 sub-counties with high pig population were selected for further scrutiny through site scoping surveys to identify their associated value chain domain type. Within each selected sub-county, 2–4 villages were randomly selected among all villages using excel random selection formula. The selected villages were considered for the pig value chain activities. In the end, 35 villages were selected for the value chain assessment exercise (Table 1).

2.3. Sampling strategy

Farmers selected to participate in the group discussions were drawn from lists of pig farmers prepared by village leaders with staff of the National Agricultural Advisory Services (NAADS) or local government staff working in each sub-county. A random sample of 40 pig farmers was drawn from the lists for each of the 35 villages. The percentage of men and women in each group was representative of their proportions in the population. Selected farmers were invited for a meeting in a local school or church in each of the sampled villages. In each village, the group of 40 farmers were randomly divided into four groups of 10 individuals using hand count to discuss four subject domains including feeds/breeds, animal health/husbandry practices, value chain mapping/marketing, and food safety/nutrition, with all four sessions held in concurrently. Up to 350 farmers participated in each thematic session. A few farmers did not attend the meetings for unknown reasons. For the animal health and husbandry practices sessions, to which this study refers to, 340 of the initially targeted 350 farmers actually participated in the FGDs.

2.4. Assessment design

Surveys tools to assess the animal health and husbandry practices included proportional piling, listing, sample ranking, scoring, seasonal calendar, matrix/pair-wise comparison and problem-opportunity matrix as described by Catley et al. (2011). These tools were semi-qualitative in nature and covered different topics including housing systems, husbandry practices, disease burden, and constraints and opportunities of smallholder pig production. Some