RESEARCH PROGRAM ON Livestock

More meat, milk and eggs by and for the poor

MorePork II project Uganda

Report of the pig welfare survey in project sites

Zachary Nsadha[1], Peter Oba[2], Michel Dione[3] and Rebecca Doyle[4]

[1]College of Veterinary Medicine, Animal Resources and Biosecurity, Makerere University, Uganda
[2]International Livestock Research Institute, Kampala, Uganda
[3]International Livestock Research Institute, c/o AfricaRice Sahel Station, Dakar, Senegal
[4]Animal Welfare Science Centre, Faculty of Veterinary and Agricultural Sciences, University of Melbourne, Parkville, VIC 3052, Australia

August 2021

ILRI thanks all donors and organizations which globally support its work through their contributions to the CGIAR Trust FundThis publication is copyrighted by the International Livestock Research Institute (ILRI). It is licensed for use under the Creative Commons Attribution 4.0 International Licence. To view this licence, visit https://creativecommons.org/licenses/by/4.0.

Editing, design and layout—ILRI Editorial and Publishing Services, Addis Ababa, Ethiopia.

Cover photo—ILRI/K. Dhanji

Citation: Nsadha, Z., Oba P., Dione, M. and Doyle R. 2021. *MorePork II project Uganda: Report of the pig welfare survey in project sites*. Kampala, Uganda: ILRI.

Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 422 3001
Email ilri-kenya@cgiar.org

ilri.org
better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

ILRI has offices in East Africa • South Asia • Southeast and East Asia • Southern Africa • West Africa

Contents

Background

The animal health flagship is one of the components of the project 'Improving pig productivity and incomes through an environmentally sustainable and gender-inclusive integrated intervention package' (MorePork II) project, which is implemented by partners of the CGIAR Research Program on Livestock (CRP Livestock) in Uganda.

The focus of the animal health flagship is to contribute to the delivery of context-specific intervention packages for improving pig productivity in Uganda. As part of the animal health intervention packages for the CRP Livestock integrated project, we designed a tool to assess the current status of pig welfare in project sites. The information collected will be used to guide the design of subsequent interventions to improve overall pig welfare, herd health and productivity.

Provision of facilities for domesticated pigs provides good welfare to the pigs and is a key element in pig farming. Pigs attain their fullest potential in growth and productivity if the ambience, feed and treatment provided by the farmers are adequate to meet all physiological needs. This constitutes the adequate welfare of the pig.

This pig welfare survey aimed to collect data on what the farmers are providing to the pigs and identify any gaps in relation to animal welfare. The survey revealed that three pig management systems: intensive, semi-intensive and free-range, are practiced in the four project sites in Mukono and Masaka, the intervention sites and in Mpigi and Wakiso, the control sites. However, farms using the free-range system were not included in the survey because pig housing is one of the important aspects considered in the evaluation of pig welfare.

Objective of the pig welfare survey

This survey aimed to establish the status of pig welfare in the project target districts to provide baseline information for animal health-related interventions.

Open Data Kit (ODK) tool development, pretesting and field use

Before the welfare survey was conducted, a questionnaire was designed to collect welfare indicators. The pig welfare assessment framework was derived from the European Food Safety Authority (EFSA) and the EU-funded Welfare Quality® project, which used four core principles and 12 animal-based criteria as guidelines for assessing animal welfare. The core principles include good housing, good feeding, good health and the freedom to express appropriate (natural) behaviour, from which the 12 specific welfare indicators were generated. These criteria were adapted to Uganda's pig production systems.

In addition to the animal-based measures, the welfare assessment considered observations of on-farm practices, housing facilities and equipment to get more detailed information. The tool was pretested in Wakiso and Mukono districts, revised and later configured to the ODK tool to facilitate collection of data.

Training of enumerators

Survey enumerators were selected from Masaka and Mukono districts. These were veterinary extension staff with knowledge and experience in the field of animal health. Four enumerators were selected for the survey. The trainers were a consultant, Zachary Nsadha, of Makerere University College of Veterinary Medicine, Animal Resources and Biosecurity (CoVAB) and Peter Oba, a pig researcher (research fellow) at the International Livestock Research Institute (ILRI). The training was held 14–16 April 2021 at the ILRI Uganda offices in Kampala.

The purpose of the training was to:

i. equip enumerators with knowledge of the concept of animal welfare, its relationship with pig performance and productivity and how to evaluate pig welfare using specific indicators, and

ii. build capacity of veterinary and extension services in pig welfare assessments.

The major outputs of this training were that enumerators gained better knowledge of pig welfare, welfare indicators at farm and pig level, and their technical capacity to assess pig welfare using the ODK tool was built.

Survey sites' selection

Masaka and Mukono were identified as the intervention sites in the CRP Livestock project design, while the control sites were Mpigi and Wakiso. The farmers linked to pig aggregators in each district were sampled for the survey. Scoping studies showed that most farmers that were linked to the aggregators in the pilot districts were located within the Greater Mukono and Greater Masaka areas. These sites are the same for the other integrated technology components of the project.

Data collection process and outputs

Following the training, the team embarked on the field survey in all the project sites. To expedite the activity, two districts (intervention and control) were allocated to each supervisor, who oversaw the field exercise. Peter Oba supervised two enumerators, Ssimbwa David and Happy Noeline in Mukono and Wakiso districts, while Zachary Nsadha supervised Sserwanyiri Henry and Lubega Stephen in Masaka and Mpigi districts. On each day of the survey, supervisors cross-checked entries in the ODK tool in data collection to correct any errors.

The field survey commenced on 19 April 2021 and ended on 1 May 2021 in all project sites. Table 1 below shows a summary of the number of farmers interviewed in each project site.

Table 1: Number of farmers interviewed by district and sub-county, disaggregated by gender

Project site	District	Sub-county	No of farmers interviewed		Total
			Males	Females	
Intervention districts	Mukono	Kasawo	14	22	36
		Nakisunga	12	28	40
	Masaka	Kimanya-Kabonera	9	19	28
		Katwe-Butego	5	7	12
		Buwunga	5	2	7
		Nyendo-Bukungwe	6	12	18
		Kimanya-Kyabakuza	6	5	11
Control districts	Mpigi	Nkozi	24	27	51
		Buwama	6	5	11
		Wakiso T/C	9	7	16
	Wakiso	Wakiso	8	4	12
		Mende	7	7	14
		Kakiri	4	10	14
Total farmers interviewed					270

Field observations

In brief, farms could be classified as good, moderate or poor depending on specific welfare indicators.

(i) Good farms (good welfare indicators)

It was observed that out of the 270 farms visited, two had most of the provisions which account for good pig welfare in place. Structures which allowed for good sanitation on the farm and clean, healthy looking pigs, were observed in these farms. The spacing of the pens allowed animals movement to the cool or warm side of the pen depending on the needs of the pig. The farms had flowing water with access nipples, which gave the pigs full-time access to water.

Farms with good welfare indicators in Masaka and Wakiso districts: (a) and (b) with clean floors, good-looking healthy sows suckling their litters (c), (d) pens with a good shade giving a cool environment for pigs (photo credit: ILRI/Peter Oba)

ii. Farms with poor welfare indicators

Most of the farms visited in Masaka are yet to put in place most of the provision that constitute a good welfare piggery system. The following were observed:

(a) Some farms, despite the previous trainings conducted for farmers, had piglets roaming freely. Some pig shelters were very poor and apart from keeping the pigs in one area, there were no structures to shelter the pigs from bad weather. Other structures had very small pens and the pigs did not have the adequate room for comfortable movement.

(b) In some farms, the materials used for construction of pens were hard to clean and disinfect, thereby increasing the risk and further spread of hardy and contagious infections such as African swine fever (ASF), since pathogens can easily remain on the difficult-to-clean surfaces. This was exemplified at a farm in the Kyabakuza area where a herd of about 500

pigs was wiped out by ASF. The farm had wooden structures that were difficult to disinfect and flares of ASF and other infections recurred easily.

Due to the limited level of confinement of pigs in the Masaka study area, the flares of ASF may be attributed to high numbers of roaming pigs. ASF flares could also be attributed to viruses being resistant to disinfectants used.

A pig pen where the wood surfaces were rough (a), (b), where cleaning and disinfection could not be achieved to the required optimal level and (c) and (d) pens with rough, dirty floors (photo credit: ILRI/Peter Oba).

In general, the following observations were made:

i. Several pig welfare issues/challenges were observed in most farms – ranging from poor housing, health, feeding and hygiene/sanitation. It was apparent that information and knowledge gaps existed among pig farmers on various issues of animal welfare in general.

II. There is need for training in various aspects of pig husbandry to enable farmers improve the management of their animals. Emphasis on feeds and feeding, reproduction, housing, welfare and animal health should be made.

III. Services such as artificial insemination (AI) were expensive in the Mukono areas. Farmers confirmed that they were charged per insemination by private firms, despite poor results of reproductive performance in sows.

Challenges

I. As the survey was conducted during the rainy season, this did not allow objective evaluation of heat stress/ panting behaviour, because it was relatively cool for most days of the survey.

II. A few respondents (~5%) declined to participate in the survey. They complained of lack of feedback from the surveys they had previously participated in.

General observations on the survey tool

While the tool was comprehensive and covered key elements of pig welfare, we found out that some aspects of the tool still needed to be improved to better capture information from the Uganda project context. For example, some aspects of the ODK tool below will need to be revised for future surveys:

i. Water availability

For their physiological well-being, pigs must always have access to water . Unfortunately, the provisions in the survey tool for water availability did not give an option for entry where the enumerators found no water in the pens. Therefore, an option for 'no water' should be included so that situations where pigs are found without water are captured.

ii. Animal interest in humans

The pigs will show an interest in the person who feeds them if they have not been fed at the time of the visit. If the pig has fed and is satisfied, it will reluctantly show interest in approaching a human being. If the animal is hungry, it will readily respond to the approach of any human in expectation of being served with feed. Enumerators need to probe further if pigs have been fed, while evaluating pig-human interactions.

iii. Boar evaluation

The revised tool should have provision for evaluation of both the sow and boar, not just the sow as is the current tool.

iv. Respondents

In many instances, the respondents were different from the ones that had participated in the previous assessment. The attributes in such instances about the respondents such as sex, marital status, age, etc. changed relative to what had been captured before. We therefore recommend that basing on the ID of the farm, there is need to maintain the respondent attributes, even where changes have taken place.

v. Proportion of castrated piglets

This section of the tool needed the enumerator to write the proportion of castrated piglets either as a fraction or percentage. Unfortunately, the tool could not allow inputting of percentage entries. The team therefore decided that a figure be written to represent a percentage (e.g. if a farmer castrated 6 out 10 piglets, we the enumerators wrote 60 to represent 60%). The tool should be revised to enable percentage entries.

Recommendations on how best to collect pig welfare data in the future

i. Weather

Animal welfare is assessed using environment-based or the animal-based characteristics. The environmental characteristics rarely change and when they do, they are often just a temporal change of events. They can therefore be used as a reliable indicator (e.g. to find out the presentation of the environment in the farm on the previous day).

On the other hand, the animal-based factors often change as the physiological needs of the animal change. This means that the time of the interview may have a profound influence on the response of pigs to variables such as temperature. Thus, the enumerator must be aware of these temperature variations during the interviews, as panting or heat stress of pigs is easily detected on a hot day, for example. Because this study was conducted during a rainy season, for most days the weather was cool and so evaluation of heat stress would not have given an accurate evaluation of what happens during hot weather. To effectively assess heat stress, we recommend that future studies be conducted during a dry season.

ii. Entry of data

The tool did not have an option for inputting data on pigs that were not in pens but were tethered. This raised confusion on how best to treat such cases. The team proposed that where the pigs were tethered, the enumerators used zero (0) as pen number and then indicate number of pigs in the pen and approximate size of the pen since the size was indefinite.

Next activity plans

Data cleaning is ongoing in preparation for analysis. The next steps are to:

a. Organize a feedback dissemination workshop to share preliminary findings with the stakeholders (respondents, farmers, district local governments).

b. Analyse data and produce a detailed report of the findings.

c. Draft a manuscript on the status of pig welfare and welfare indicators in pig farms in Uganda for submission to a peer reviewed journal for publication.