



Strengthening capacity of Ugandan veterinarians: Report from a training for “Pig Herd Health Champions” at Swedish University of Agricultural Sciences, 2-13 March 2020



Michel Dione¹, Ulf Magnusson², Magdalena Jacobson² and Pius Lutakome¹

¹International Livestock Research Institute

²Swedish University of Agricultural Sciences

May 2020

CGIAR is a global partnership that unites organizations engaged in research for a food-secure future. The CGIAR Research Program on Livestock provides research-based solutions to help smallholder farmers, pastoralists and agro-pastoralists transition to sustainable, resilient livelihoods and to productive enterprises that will help feed future generations. It aims to increase the productivity of livestock agri-food systems in sustainable ways, making meat, milk and eggs more available and affordable across the developing world. The Program brings together five core partners: the International Livestock Research Institute (ILRI) with a mandate on livestock; the International Center for Tropical Agriculture (CIAT), which works on forages; the International Center for Research in the Dry Areas (ICARDA), which works on small ruminants and dryland systems; the Swedish University of Agricultural Sciences (SLU) with expertise particularly in animal health and genetics and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) which connects research into development and innovation and scaling processes.


The Program thanks all donors and organizations who globally supported its work through their contributions to the [CGIAR Trust Fund](#)

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Contents

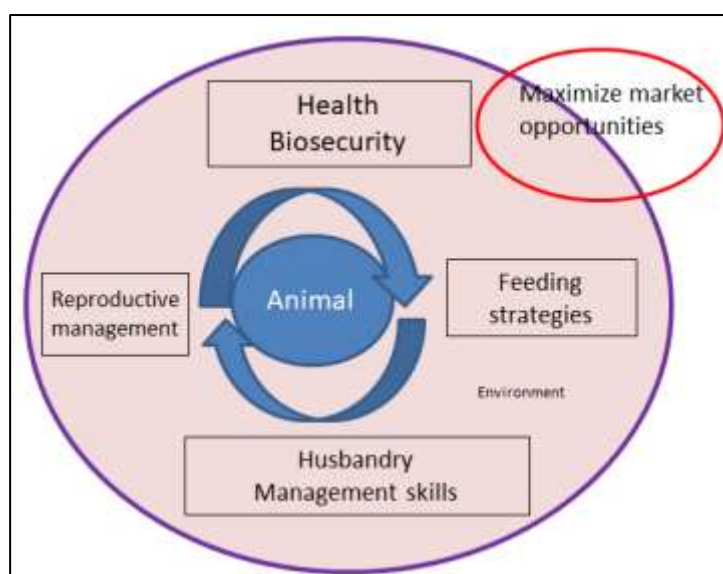
Background	1
Training strategy	2
Objective of the training course	2
Participants	2
Timetable and content of the course	3
Summary of Training Evaluation by Pig Herd Health Champions.....	7
Conclusions	8
Acknowledgements.....	8
References	8
Annexes.....	9

Background

In the past, the pig health research agenda of the smallholder pig value chain in Uganda has focused on single infectious diseases, which have been looked at separately. This has generated a lot of useful information that helped characterize the pig health status (Dione et al., 2014; Ouma et al., 2015; Dione et al., 2016; Roesel et al., 2017; Dione et al., 2018). However, the link of health issues to the wider herd ecosystem has been missing. For example, the importance of feeding strategies, co-infection, and reproductive management is not fully acknowledged. Herd Health Management (HHM) is a method to optimize health, welfare, and production in a herd. Pigs are within a delicate ecosystem which needs to be analyzed when managing a herd. In the HHM, one doesn't focus on a single infectious disease, but rather on general farm conditions such as feed strategies, biosecurity, general health, reproductive management, husbandry, and management skills. The whole need to ensure sustainable production to maximize profit (Figure 1). However, some externalities such as greenhouse gas emissions, antimicrobial resistance (AMR), and animal welfare need to be addressed to ensure that the production system remains sustainable and resource-efficient into the future.

In Uganda, the CGIAR Research Program on Livestock (CRP Livestock) runs this project that aims to improve the livelihoods of women and men farmers through a market systems approach, by supporting a stronger and more profitable market linkages between pig aggregators (buyers) and pig producers. This is done through market arrangements that strengthen backward linkages and incentivize the adoption of integrated productivity-enhancing best-bet interventions. Integration of the piloted best-bet interventions (feeds, disease control, and herd health services, coupled with improved genetics) especially at the production node may result in higher gains and positive outcomes for farmers and other actors due to interaction effects as documented by Wainaina et al. (2017) and Kassie et al. (2018). Therefore, a heavy focus will be given to the capacity building of the value chain actors on the best-bet interventions.

In this project, the Animal Health Flagship of the CRP Livestock will contribute in strengthening advisory services in herd health and best practices in biosecurity with value chain actors (farmers, traders, and butchers), and bringing in ICT-based channels for information dissemination to reach all value chain actors (including veterinary input suppliers). A specific focus will be given to the application of HHM in respective districts.



Herd Health Management Framework

Training strategy

We adopted a *Training of Trainer Approach*. The trainers are called “*vet champions*”. One veterinarian (vet champion) from each the district local government selected to participate in the project was nominated by the district veterinary officer following the criteria below:

- Be a staff from the district veterinary office, working under the supervision of the District Veterinary Officer;
- Hold a bachelor’s in veterinary medicine;
- Be willing to upscale the training to district public and private vets after return from the training in line with the project strategy and objectives: up to 6 pieces of training of vets and animal health workers per year per district;
- Actively participate in the CRP Livestock interventions for the next two years (2020 and 2021).
- Willing to embed the training into the district animal health program

The vet champions received two weeks of intensive training at Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden. Upon return, they are expected to become lead pig herd health champions in the country. They will also be available to provide support, training, and mentorship to fellow veterinarians in applying herd health principles at the farm level during the CRP programme implementation and beyond.

Objective of the training course

This training course aimed at equipping Ugandan veterinarians in skills on HHM. It also allows them to exchange knowledge and experience with Swedish veterinary expertise and learn from them.

Participants

Name	District	Role	Gender
Bamundaga Kyobe Godfrey	Wakiso	Senior Veterinary Officer	Male
Alinaitwe Justine	Kampala	Veterinary Officer	Female
Wakulira Lubega Stephen	Masaka	Veterinary Officer	Male
David Ssimbwa	Mukono	Veterinary Officer	Male
Cecil Podpodo	Lira	Veterinary Officer	Male

Timetable and content of the course

Time	Activity	Responsible	Address
Monday 2 March 2020: Welcome and introduction			
09.00-09.30	Welcome and overview of the training's program	Prof Magdalena Jacobson Prof Ulf Magnusson	Division of Pig Medicine (course organiser) Division of Reproduction (course organiser)
09.30-10.30	<i>Lecture GRP10: Development of the Swedish pig sector</i>	Prof Nils Lundeheim	Division of Animal Breeding and Genetics
Biosecurity			
10.30-12.30	<i>Lecture GRP10: Biosecurity in small scale farming</i>	Prof Susanna Sternberg-Lewerin	Division of Epizootology
Practical training (House 3)			
13.30-16.00	Personal biosecurity ("hygienskåpet")	Desirée Karlsson	Department of Clinical Sciences, Stable
Tuesday 3 March 2020: Parasitology I			
09.00-12.00	<i>Lecture GRP 10: Pig parasites and their life cycles</i>	Prof Arvid Uggla	Division of parasitology
13.00-16.00	Feecal sample examination, <i>Parasitology lab</i> , preparing samples and microscopy	Vet Elin Gertzell Vet Emelie Pettersson	Division of Pig Medicine National Veterinary Institute
Wednesday 4 March 2020: Parasitology II			
09.00-11.00	<i>Lecture GRP 10: Prophylaxis and treatment</i>	Vet Emelie Pettersson	National Veterinary Institute
	<i>Excercise GRP10: Journal cases from farms</i>	Vet Emelie Pettersson	National Veterinary Institute

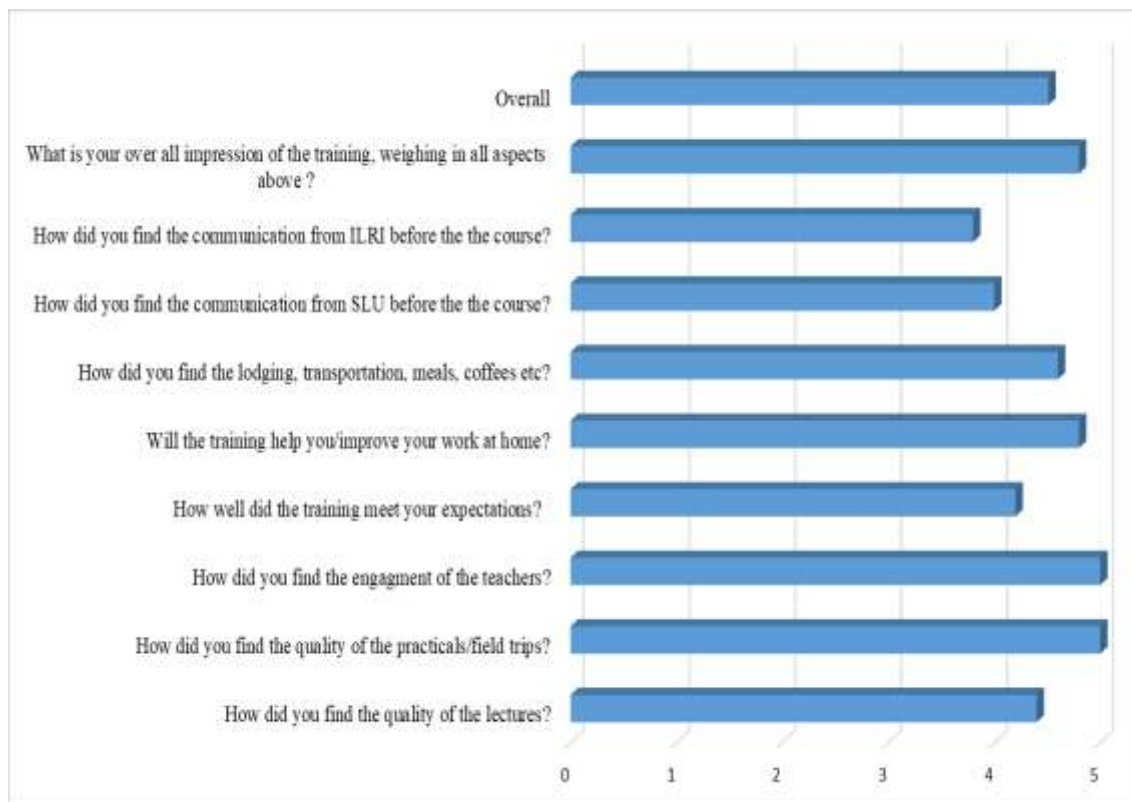
		Vet Elin Gertzell	Division of Pig Medicine
11.00-17.00	Processing, reporting, and discussion	Vet Emelie Pettersson	National Veterinary Institute
		Vet Elin Gertzell	Division of Pig Medicine
	<i>Other:</i> 1 (2) McMaster-chambers as a gift for each participant	Vet Emelie Pettersson	National Veterinary Institute
		Vet Elin Gertzell	Division of Pig Medicine
Thursday 5 th March 2020: Bacterial and Viral diseases I			
09.00-12.00	<i>Lecturers GRP10:</i> Diarrheal diseases	Prof Magdalena Jacobson	Division of Pig Medicine
13.00-14.00	<i>Lecturers GRP10:</i> Erysipelosis and other infectious diseases	Prof Per Wallgren	National Veterinary Institute
14.00-16.00	<i>Lecturers GRP10:</i> Respiratory diseases	Prof Per Wallgren	National Veterinary Institute
Friday 6 th March 2020: Bacterial and Viral diseases II			
9.00-12.00	Lectures GRP 10: Time of disposal	Dr. Marie Sjölund	National Veterinary Institute
13.00-14.00	<i>Lecturers GRP10:</i> Piglet survival	Dr. Marie Sjölund	National Veterinary Institute
14.00-15.00	Lecturers GRP10: AFS	State Epizootologist Karl Ståhl	National Veterinary Institute
Monday 9 th March 2020: Reproductive management			
	Reproductive physiology in gilts and sows		

09.00 -12.00	Puberty in the gilt	Prof Anne-Marie Dalin	Division of Reproduction
	Oestrus in sows after weaning		
	Reproductive performance		
	Reproductive disorder		
	Reproductive physiology in the boar		
	Pregnancy and farrowing		
	Agalaktia and other reproductive infections		
	Practical training		
13.00 -16.00	Heat detection	Prof Ulf Magnusson	Division of Reproduction
	Demonstration: Artificial Insemination <i>Lövsta</i>		
Tuesday 10 th March 2020: Postmortem examinations			
09.00 -10.00	<i>Lectures GRP 10: Practical pathology</i>	Dr. Lisa Lindström	Division of Pathology
10.00-15.00	Practical training: Post mortem examination		
Wednesday 11 th March 2020: Herd health management I			
10.00-11.00	<i>Lecture GRP 09: Surgery, castration</i>	Prof Magdalena Jacobson	Division of Pig Medicine (course organiser)
13.00 -15.00	Lecture GRP 09	Dr. Lena Eliasson -Sellin,	Farm and Animal Health ltd

Thursday 12 th March 2020: Herd health management II			
09.00-12.00	<i>Exercise GRP 09: Farm visit with specific tasks</i>	Cecilia Kellerman Prof Ulf Magnusson	Farm and Animal Health ltd Division of Reproduction (course organiser)
13.00-16.00	Reporting and discussion based on the visit	Cecilia Kellerman	Farm and Animal Health ltd
Friday 13 th March 2020: Guided tour and Closing			
9.00 –10.00	Guided tour at the animal facilities	Dr. Marie Sjölund	National Veterinary Institute
10.15 -12.00	Antibiotic use and resistance		
13.00-14.00	Closing: Diploma, evaluation, etc	Prof Magdalena Jacobson Prof Ulf Magnusson	Division of Pig Medicine (course organiser) Division of Reproduction (course organiser)

Summary of Training Evaluation by Pig Herd Health Champions.

At the end of the training, trainees were asked to evaluate the efficiency and the quality of the training using pre-defined criteria such as communication, importance, logistics, quality of lectures amongst others. The ranking was carried out between one to five, with one (1) being considered as bad, disappointed, unsatisfied, and five (5) being considered as very good, very satisfied/pleased. The results are shown in Figure 2. The rating of the overall “level” of the training was as follows: Too simple (0 participants); about right (4 participants) and too advanced (1 participant).



Training evaluation by participants

Conclusions

Herd Health is an important topic to improve animal productivity. Such a topic is not well developed in Uganda veterinary curriculum. The CRP Livestock programme made important efforts to promote Herd Health in the pig system in Uganda to increase the productivity of the pig systems. The exchange of knowledge between Uganda and Sweden is a good lesson to acknowledge.

Acknowledgements

We thank all District Veterinary officers who nominated their staff and Sheila Ayoo of ILRI Uganda who organized the travel logistics during this training.

References

- Dione, M., Masembe, C., Akol, J., Winfred, Amia, W.C., Kungu, J., Kungud, Lee, H.S., Wieland, B., 2018. The importance of on-farm biosecurity: Sero-prevalence and risk factors of bacterial and viral pathogens in smallholder pig systems in Uganda. *Acta Tropica* 187, 214-221.
- Dione, M., Ouma, E., Opio, F., Kawuma, B., Pezo, D., 2016. Qualitative analysis of the risks and practices associated with the spread of African swine fever within the smallholder pig value chains in Uganda. *Preventive Veterinary Medicine* 1, 102-112.
- Dione, M.M., Ouma, E.A., Roesel, K., Kungu, J., Lule, P., Pezo, D., 2014. Participatory assessment of animal health and husbandry practices in smallholder pig production systems in three high poverty districts in Uganda. *Preventive Veterinary Medicine* 117, 565-576.
- Kassie, M., Marennya, P., Tessema, Y., Jaleta, M., Zeng, D., Erenstein, O., Rahut, D., 2018. Measuring Farm and Market Level Economic Impacts of Improved Maize Production Technologies in Ethiopia: Evidence from Panel Data. *J Agric Econ*, 69, 76-95.
- Ouma, E., Dione, M., Lule, P.M., Pezo, D., Marshall, K., Roesel, K., Mayega, L., Kiryabwire, D., Nadiope, G., Jagwe, J., 2015. Smallholder pig value chain assessment in Uganda: results from producer focus group discussions and key informant interviews. ILRI, Nairobi, Kenya.
- Roesel, K., Dohoo, I., Baumann, M., Dione, M., Grace, D., Clausen, P.H., 2017. Prevalence and risk factors for gastrointestinal parasites in small-scale pig enterprises in Central and Eastern Uganda. *Parasitol. Res.* 116, 335-345.
- Wainaina, P., Tongruksawattana, S., Qaim, M., 2017. Synergies between Different Types of Agricultural Technologies in the Kenyan Small Farm Sector. *The Journal of Development Studies*.

Annexes



From left to right Dr. Alinaitwe Justine (Veterinary Officer, Kampala); Dr. David Ssimbwa (Veterinary Officer, Masaka); Prof Magdalena Jacobson, Division of Pig Medicine, SLU (course organiser); Prof Ulf Magnusson, Division of Reproduction, SLU (course organiser); Dr. Bamundaga Kyobe Godfrey (Senior Veterinary Officer Wakiso); Dr. Wakulira Stephen Lubega (Veterinary Officer, Masaka); and Dr. Podpodo Cecil (Veterinary Officer, Lira)



Training participants during a farm field visit with SLU teachers

Example of a training certificate

