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RESEARCH PROGRAM ON Livestock and Fish

CGIAR

African swine fever: Uganda smallholder pig value chain capacity development training manual

European Union

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African swine fever:

Uganda smallholder pig value chain capacity development training manual

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Contents

Acronyms

ADDIE	Analysis, Design, Development, Implementation and Evaluation
AFRISA	Africa Institute for Strategic Resource Services and Development
ASF	African swine fever
BRAC	Bangladesh-based development organisation formerly known as the Bangladesh Rehabilitation Assistance Committee
CRP	CGIAR Research Program
DSIP	Development Strategy and Investment Plan
DVO	District Veterinary Officer
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
KCCA	Kampala Capital City Authority
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
NAADS	National Agriculture Advisory Service
NAGRIC	National Animal Genetic Resources Centre
NaLiRRI	National Livestock Research Institute
NARES	National Agricultural Research Systems
NGO	Non-Governmental Organization
PFA	Prosperity for All Programme
PMA	Plan for Modernization of Agriculture

SACCO	Savings and Credit Cooperative
UBOS	Ugandan Bureau of Statistics
UN	United Nations
UNDP	United Nations Development Programme
UPO	Uganda Piggery Organization
USAID	United States Agency for International Development
VEDCO	Volunteer Efforts for Development Concern

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Introduction

Pork production and consumption have risen rapidly in Uganda over the past decade, driven by population growth, urbanization, increasing incomes, and changing tastes. In 2011, Uganda had the highest per capita consumption of pork in East Africa (3.4 kg/person per year).

The number of pigs has increased more than tenfold from less than 200,000 three decades ago to roughly 3.2 million. More than 1 million households in Uganda raise those pigs. The majority of the pigs are kept by women in rural areas, with limited access to technology, services and markets.[1]

Figure 1. Trends (000) in the number of pigs in Uganda, 1991–2008.

Source: National Livestock Census Report (2008).

The CGIAR Research Program on Livestock and Fish,[2] led by the International Livestock Research Institute, started the Smallholder Pig Value Chain Development Project to improve the livelihoods of smallholder pig producers, particularly women, through increased productivity, reduced risk from disease, and improved market access.

A key activity of the project is to strengthen the capacity of women and men pig producers, and help them transform subsistence-level pig-keeping into viable, profitable businesses. A companion project, 'Safe Food, Fair Food', under the CGIAR Research Program on Agriculture for Nutrition and Health,[3] is working to improve pork safety and market access. These efforts, in turn, should enhance food security, help preserve natural resources and reduce poverty. Poverty in Uganda currently stands at 37.8 percent (people living on less than USD 1.25 per day).

These training modules are targeted to extension workers, veterinarians and para-veterinarians, and policy makers responsible for animal disease surveillance and control, and for livestock market development and regulation. Improved knowledge should help provide incentive for decision-makers to help poor pig farmers, and promote the sector.

1. Find ILRI pig value chain assessment slide share presentations here: http://slidesha.re/1IojJPX

2 CGIAR Research Program on Livestock and Fish, http://livestockfish.cgiar.org/

3. Learn more about the program here: http://www.ilri.org/crp

Others who may benefit from the training modular content include suppliers, pig producer organizations, transporters and entrepreneurs involved in the sale of live animals, pork and other pork products.

ILRI has also developed training modules on pig management, parasite control, feeding strategies, business management and marketing to help strengthen the capacity of farmers.

While designing the modules a process has been facilitated with research and development partners to practice the delivery of the packages.[4]

Glossary of technical terms used in this module

African swine fever: Acute viral contagious disease affecting domestic pigs.

Biosecurity: Measures taken to prevent disease from entering an area.

Sylvatic cycle: Cycle in which wild pigs and ticks transmit ASF to domestic pigs.

Vector: Any agent such as tick that carries and transmits an infectious pathogen into another living organism.

Expected outcomes

This module is designed to equip pig farmers with the knowledge and skills needed to control African swine fever effectively so that pig production improves. Participants in this training will learn specific skills to reduce the risk of introducing and spreading the disease, such as improved hygiene, isolating sick pigs, restricting the entry of outside pigs, proper management of leftover food and proper management of pig slaughtering. ILRI research shows that most smallholder farmers don't implement most of the biosecurity measures.

The training course is expected to help improve the income of the farmers, including women involved in smallholder pig rearing. This module builds on the information contained in the module on pig management. Both emphasize good management especially proper hygiene to prevent the spread of disease.

Upon successful completion of the module, the participants will be able to:

- Describe the clinical signs associated to African swine fever.
- Understand how biosecurity measures can protect their pigs from disease.
- Understand the importance of controlling pig movement.
- Demonstrate willingness to report, and understand the value of early reporting and management of African swine fever.

4. Learn more here: http://www.slideshare.net/ILRI/capacity-development-in-the-uganda-smallholder-pig-value-chain-development

Training methods

Facilitators will encourage experience sharing and other participatory principles. The module includes group discussions, brainstorm exercises and a field trip.

It is assumed that the majority of participants will be smallholder pig keepers who have been involved in the business a long time. In addition, traders, transporters and butchers also could benefit from this training because they too play an important role in controlling the spread of African swine fever.

Proposed training schedule

- 8:15 a.m. Devotions and introductions
- 8:30 a.m. Session 1: ASF causes, symptoms, transmission

  Brainstorming 30 minutes, Content 30 minutes
- 9:30 a.m. Session 2: Preventive or Biosecurity Practices

  Brainstorming 30 minutes, Content 30 minutes
- 10:30 a.m. Break
- 10:45 a.m. Session 3: Proper control of pig movement, early reporting of ASF

  Group discussion 30 minutes, Content 30 minutes
- 11:45 a.m. Module summary and review

  Evaluation 10 minutes
- 12:30 p.m. Lunch
- 2 p.m. Field trip

  Demonstration of biosecurity measures at a farm

Tools and materials (prepare in advance)

- Ring binder and outline of the training programme for each participant
- Training handouts
- Notebooks and pens
- PowerPoint or poster presentations
- Pictures, cards, newspaper excerpts
- Flip charts and markers, masking tape, manila paper
- Materials for field trip: disinfectant, brush, gumboots, wash basin

Training aids/handouts

- Poster on the transmission cycle of African swine fever.

Background

African swine fever is endemic in Uganda, with regular outbreak in all parts of the country. It is perceived to be the top threat of all swine diseases, according to farmers.

When an outbreak occurs, it can kill all the pigs on a farm, resulting in heavy losses in income and food security. This is especially devastating for smallholder farmers who depend on pigs for their livelihoods. There is currently no cure or vaccine for the disease.

In Uganda, studies show that swine fever and high pig death rates from the disease can be attributed partly to poor animal husbandry practices and poor preventive, or biosecurity, measures.

For smallholder pig farmers to be competitive and maximize their profits, it is important that losses due to ASF are minimised. This training module is intended to increase the knowledge and skills of farmers on the prevention and control of ASF. Such measures in turn will improve pig productivity, resulting in increased household incomes and food security.[5]

The control of swine fever in Uganda is governed under the Animal Diseases Act (1964), which requires farmers to notify authorities of swine disease. The act also calls for the destruction of infected pigs.

5. Learn more about African swine fever control: http://www.slideshare.net/ILRI/bioscience-day-bishop

Session 1: African swine fever causes, symptoms

Objective: By the end of the session, the participants should learn about the causes, symptoms, transmission and control of African swine fever.

Instructions: The content should be delivered through first a brainstorming session and then the combination of a presentation and discussion. During the presentation, content will be provided mainly through pictures and short statements.

Brainstorming discussion: (30 minutes)

Ask participants the following questions to stimulate a discussion

- What is the local name of ASF in your area
- List pig diseases that frequently occur in your area.
- Is ASF considered to be a constraint?
- Do you know farmers who have experienced ASF on their farms?
- What are the signs of ASF?
- What did farmers do when their pigs got sick or died?

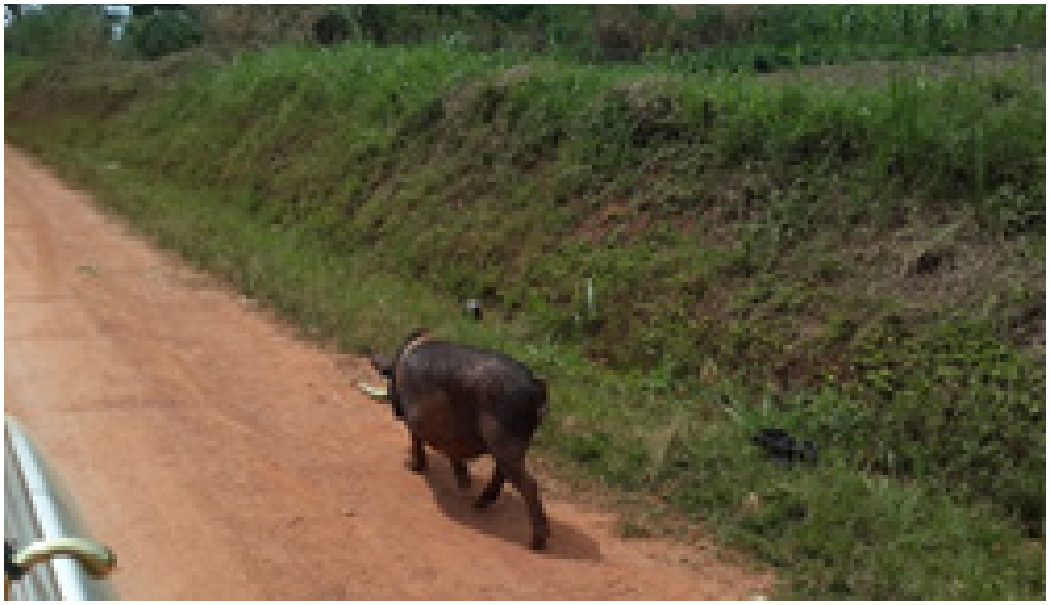
Instructions: Discuss the following content using a PowerPoint presentation, flip chart or other visual aids. (30 minutes)

What is African swine fever and what are the causes?

African swine fever is an acute contagious disease of domestic pigs. It is caused by a germ (virus) which is too small to be seen. The disease affects both domestic and wild pigs of all ages and sexes. Wild pigs carry the virus but don't get sick. Humans and other species are not affected by the disease.

The virus is released in the blood, faeces, saliva, urine and vomit of sick animals, which then can contaminate food, farm equipment, vehicles and other objects in the environment. Pigs pick up the virus when they eat infected food.

Pigs allowed to scavenge such as these in Uganda are more likely to get African swine fever.



Credit: ILRI/Michel Dione.

The rate pigs die will vary from just a few pigs to all the pigs on a farm or in the village. Sometimes pigs die without showing any clinical signs. Almost all pigs that develop symptoms will die within seven days. Several pigs can die from different groups in the neighbourhood or village. Some pigs may be infected without showing symptoms. Those pigs pose a special danger because they will release the virus into the environment thus infecting other pigs.

What are the signs of ASF?

- Lack of appetite
- High body temperature (shivering)
- Change in the colour of the body (red or bluish spots on the skin, often starting with the ears)
- Difficult breathing
- Uncoordinated movements
- Vomiting, sometimes with blood
- Diarrhoea
- Sudden death: some pigs die without showing symptoms. The number of pigs that die will vary from just a few to all on a farm. The disease also may spread to different groups in the neighbourhood or village.

Pigs with ASF are feverish, have red or blue spots and do not eat well.

Credit: ASPS Programme (2007).

Transmission and spread of ASF

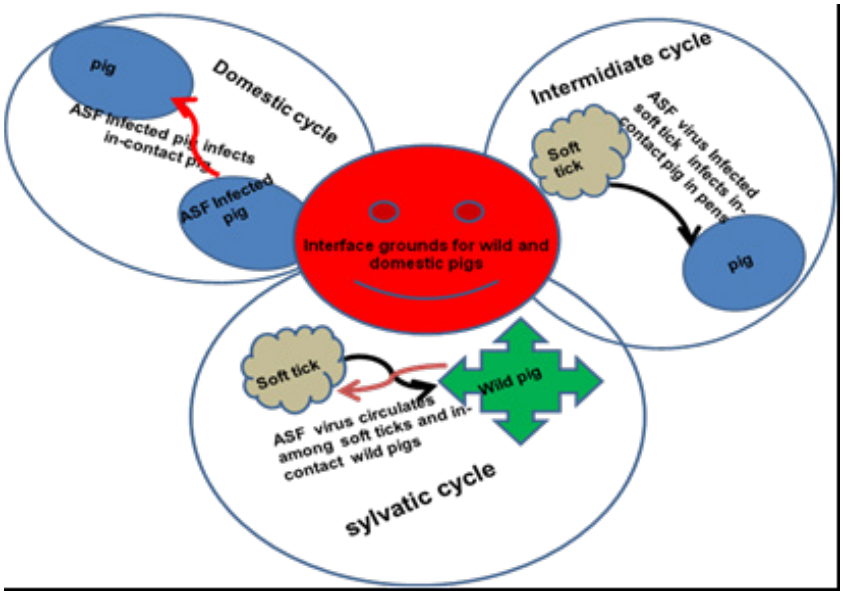
An infected pig excretes the virus in all body secretions. Such excretions can start before the pig shows any clinical signs. There are two primary transmission cycles: domestic to domestic, and sylvatic, or the wild to domestic.

Domestic to domestic cycle:

The disease is spread from pig to pig by direct contact or by indirect contact via contaminated items. Items that can get contaminated include vehicles used to transport infected animals, farm tools, feeding troughs, boots and veterinary equipment.

The virus is present in the meat, bones, blood, skin and all other body parts of infected pigs with the highest concentration of the virus in the blood. Thus pig meat and other body parts can transmit the disease. Avoid throwing away body parts after slaughtering sick pigs.

ASF transmission cycle.



Source: Nsadha (2013).

Sylvatic cycle

The cycle in which wild pigs (warthog and bushpig) and ticks transmit ASF to domestic pigs. The ASF virus is maintained in a species of soft-bodied ticks called *Ornithodoros moubata*. The ticks live in the burrows where warthogs live, bite them at night and can infect them. Wild pigs are susceptible to infection but don't show clinical signs.

ASF is transmitted from wild pigs (warthogs) to domestic pigs through the ticks or when the wild pigs contaminate the environment through their faeces. Domestic pigs can get infected when they feed on contaminated pasture or other material, or when they are bitten by infected ticks which may be hiding in the cracks or crevices of pig pens or human dwellings. Direct transmission of the virus from warthogs to domestic pigs has not been demonstrated.

Session 2: Preventive or biosecurity measures

Objective: Help participants understand the importance of implementing good biosecurity practices.

Instructions: Deliver the content as a brainstorming session followed by a presentation. Present the content using a PowerPoint presentation, flipchart or visual aids.

Controlling ASF:

- There is no vaccine against ASF.
- There is no treatment for the disease.
- Emphasis must be put on preventing the disease from entering your farm.

Pig farmers and field personnel should be aware of ASF, be able to recognize it and know what to do when they suspect it. The only way of controlling the disease is to apply preventive or biosecurity measures. Biosecurity may require the adoption of new attitudes and behaviours. Farmers also will have to incur some costs to implement the measures, but the expense likely will be justified in view of the substantial losses that could result if an ASF outbreak occurs.

Brainstorm exercise

- Discuss the measures that could be applied to prevent your pigs from being infected by ASF.
- Discuss the measures that could be applied to prevent the spread of ASF when your pigs are suspected to be infected or are already infected with ASF.

Biosecurity measures at the farm level

Farm hygiene

- Avoid free range as much as possible. Keep your pigs in pens even if they aren't covered by roofs. If you don't have pens, you should keep your pigs tethered to limit their movements. You should tether pigs in places that have short grass and use a short rope to prevent the pigs from being bitten by ticks in the thick bushes.
- Clean pig pens regularly to remove faeces. The faeces should be decomposed in a pit and used as manure in the garden. Contact with manure, urine and straw bedding from sick and dead pigs will increase the spread of the virus.
- Put a foot-bath filled with disinfectant such as jik (0.05%) at the entrance to the pens to ensure that people don't enter with contaminated material on their shoes or feet. Mix 5 ml of jik in 10 litres of water and replenish weekly depending on the frequency of people using the disinfectant.

- Install a fence around your pig unit to limit its entry by visitors and other domestic and wild pigs.
- Remove grass from around the pens to control ticks.
- Disinfect shared farm equipment because contaminated equipment can spread the virus from infected farms to clean farms.

Cleaning the pig unit.

Credit: ILRI/ASF project.

- After slaughtering pigs, it is important to properly dispose of the viscera (internal organs) as these could contaminate the environment if infected with ASF. If the organs aren't properly disposed of they easily can be carried away by dogs, pigs, birds or rodents to another place, thus spreading the disease.

Treatment of swill for feeding

- Before feeding your pigs, boil the swill for 20 minutes to kill any virus.

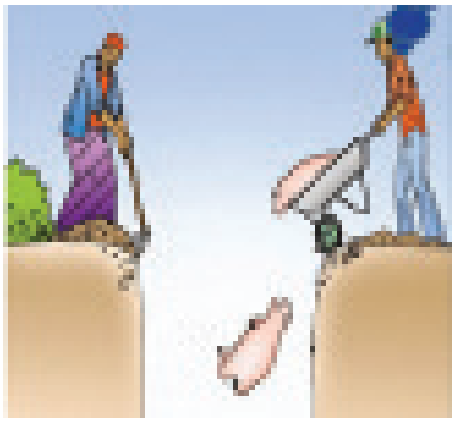
Heat swill for 20 minutes before feeding pigs.

Credit: ILRI/ASF project.

Disposal of dead animals and waste products from infected pigs

- Dead pigs and waste products from infected pigs should be buried on site in a 2 m deep pit.
- To avoid other people from stealing the buried carcass, pour paraffin on the carcass before burial.
- In cultures where burying is not culturally acceptable, pigs should be incinerated onsite.

Burial of dead pigs.



Credit: ILRI/ASF project.

Safe slaughter of pigs

- Slaughter should be performed on cement, tarpaulin or plastic that can easily be washed so that no pieces of the carcass are left on the ground.
- The slaughter place should have a drainage (like a pit latrine) to collect blood and water. If no drainage is available, the blood and water should be collected in a bucket and poured in a pit.

Session 3: Proper control of pig movement, early reporting of ASF

Objective: Train participants about the importance of proper control of movement of pigs and early reporting of ASF outbreaks.

Instructions: Deliver content using group discussions.

Group discussion

Divide the participants into groups of 4–6 people with each group having both males and females. Each group will be given a copy of the newspaper extract below and be asked to discuss the questions below. The trainer will comment.

Questions

- What are the key messages in the newspaper article?
- How will these messages help to prevent and control the spread of ASF?
- What might be some of the difficulties in implementing the measures contained in the message?

ASF: Government bans movement of pigs in Entebbe

Uganda—The government has instituted a ban on movement of pigs in Wakiso district following an outbreak of African swine fever (ASF) that has claimed many pigs.

AllAfrica.com reports that the quarantine was pronounced following an outbreak of the disease in Kikokiro in Kasengenge Parish.

'Quarantine restrictions are imposed on Wakiso district immediately. Movement of pigs, consumption of pork, salami, ham, sausages and bacon from and within this area is prohibited with immediate effect until further notice', Chris Rutebarika, the commissioner of Livestock Health and Entomology in the Ministry of Agriculture said in a press release yesterday. He added that African swine fever is a serious disease caused by a virus and can kill herds within a short time after contracting it.

The commissioner also urged farmers to take extra care of their pigs and quickly report cases of pigs showing any symptoms of the fever such as, loss of appetite, general weakness and difficulty to move, to area veterinary officers.

Others signs include vomiting blood, diarrhoea, difficulty in breathing, white pigs showing red spots on the skin and pregnant sows miscarrying.

Control of pig movement (30 minutes)

Why is it important to regulate movement of pigs?

- It is important to keep your pigs confined because when pigs are left to roam freely they can easily come in contact with infected pigs or contaminated objects and become infected themselves.

Interaction between scavenging and tethered pigs

Credit: ILRI/Michel Dione.

Scavenging pig

Credit: ILRI/Michel Dione.

Confined pigs in pen made of locally available material

Credit: ILRI/Michel Dione.

Improved pig housing type

Credit: ILRI/Michel Dione.

- If you have to bring new pigs to your farm, there is no way you will know if the new pigs are carrying the virus. Stress can cause infected but healthy-looking pigs to excrete and thereby transmit the virus before they show symptoms of the disease. It is therefore important to keep the new pigs separated from the old pigs at your farm for 15 days while monitoring their health before allowing them to mingle with your herd.
- It is advised to buy pigs from farms where the health status is known.
- The government requires a movement permit and health certificate from a veterinarian to move a pig from one district to another.

Why is it important not to sell or eat sick or dead pigs?

It is a common practice for smallholder farmers to sell pigs for slaughter as soon as disease is suspected. The selling of sick animals is a serious risk since these animals may spread ASF in the environment. It also is a major public health concern, as sick animals may transmit other diseases to humans. Despite the financial implications for smallholder farmers, the sale and consumption of sick or dead animals should be prohibited to limit the spread of the disease and associated public health related hazards.

Early reporting and management of ASF outbreaks

The Animal Diseases Act in Uganda stipulates that any person in possession of a sick animal shall as soon as possible notify the nearest administrative officer or veterinary officer. Any person who fails to comply with this law may face a prison sentence of up to 12 months and a fine. It is therefore important for both farmers and field personnel to be knowledgeable about the Act, and report sick animals promptly to help control outbreaks.

Why is it important to report ASF outbreaks to the veterinary authorities?

- Reporting early helps government authorities contain the outbreak and limit its spread.
- When people do not report disease outbreaks, the disease likely will spread and affect many villages, with many pigs dying.
- Farmers may not realize immediate benefits when they report ASF outbreaks to the veterinary authorities. However, they will benefit in the long run. Reporting helps to limit the spread of the diseases. Therefore outbreaks are more likely to be contained within a short time and farmers won't be affected by long quarantine periods and the unavailability of pigs for restocking.

Module review (20–30 minutes)

The facilitator should divide the participants into three groups. Request each group to prepare two questions related to the topic. Each group will be asked to discuss and answer the questions prepared by another group. The facilitator will make comments and ask the following additional questions if they weren't covered by the groups.

Key learning points

- ASF causes serious socio-economic impacts to the smallholder farmers resulting from a potentially large number of pigs dying within a short time.
- The disease has neither a cure nor vaccine.
- Biosecurity (preventive measures) is the only strategy currently available to control ASF.
- Implementing biosecurity measures will cost some money, but over the long run they are likely to help the pig enterprise become more profitable. Implementation will depend on the willingness and attitude of the farmer.
- Controlling the movement of pigs helps prevent ASF from spreading.
- ASF outbreaks should be reported as early as possible to the veterinary authorities so that the disease can be contained.

Evaluation

Each participant will be given a paper and requested to evaluate the session using the following form:

	1	2	3
Presentation			
Knowledge before the training			
Knowledge after the training			
Relevancy of the training			

1 = Poor 2 = Good 3 = Excellent

Special session: field visit (about 90 minutes excluding travel time)

The participants will visit a nearby farm where some of the preventive or biosecurity measures will be demonstrated. The participants will make observations and ask questions about some of the hygienic and ASF preventive measures applied at the farm. Some of the hygienic measures such as cleaning a pig house, use of a foot bath and treatment of swill will be demonstrated at the farm. At the end of the visit, the participants will briefly discuss the key lessons learnt and the facilitator will make comments.

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