



**Strengthen biosecurity for the control of ASF  
along the value chain  
- Scavenging for food and use of food waste**

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# Presentation outline

- Studies on pig movement
- Risk associated with feeding food waste to pigs
- Suggestions on control options
- Conclusions



# Free ranging pigs

- After infection, domestic pigs may shed infective amounts of ASFV for 24-48 hours before clinical signs appear
- During the acute stage of disease, enormous amounts of virus are shed in all secretions and excretions, and high levels of virus are present in tissues and blood
- Pigs that survive the acute disease remain infected for several months, but do not readily shed virus for more than 30 days
- Pigs travel an average of 4,340 m in a 12-hour period with mean home range of 10,343 m<sup>2</sup> with pigs spending 47% of their time outside their homestead of origin (Lian *et al* 2013)

Thomas *et al.* *BMC Veterinary Research* 2013, **9**:46  
<http://www.biomedcentral.com/1746-6148/9/46>



RESEARCH ARTICLE

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## The spatial ecology of free-ranging domestic pigs (*Sus scrofa*) in western Kenya

Lian F Thomas<sup>1,2</sup>, William A de Glanville<sup>1,2</sup>, Elizabeth A Cook<sup>1,2</sup> and Eric M Fèvre<sup>1,2\*</sup>

### Abstract

**Background:** In many parts of the developing world, pigs are kept under low-input systems where they roam freely to scavenge food. These systems allow poor farmers the opportunity to enter into livestock keeping without large capital investments. This, combined with a growing demand for pork, especially in urban areas, has led to an increase in the number of small-holder farmers keeping free range pigs as a commercial enterprise. Despite the

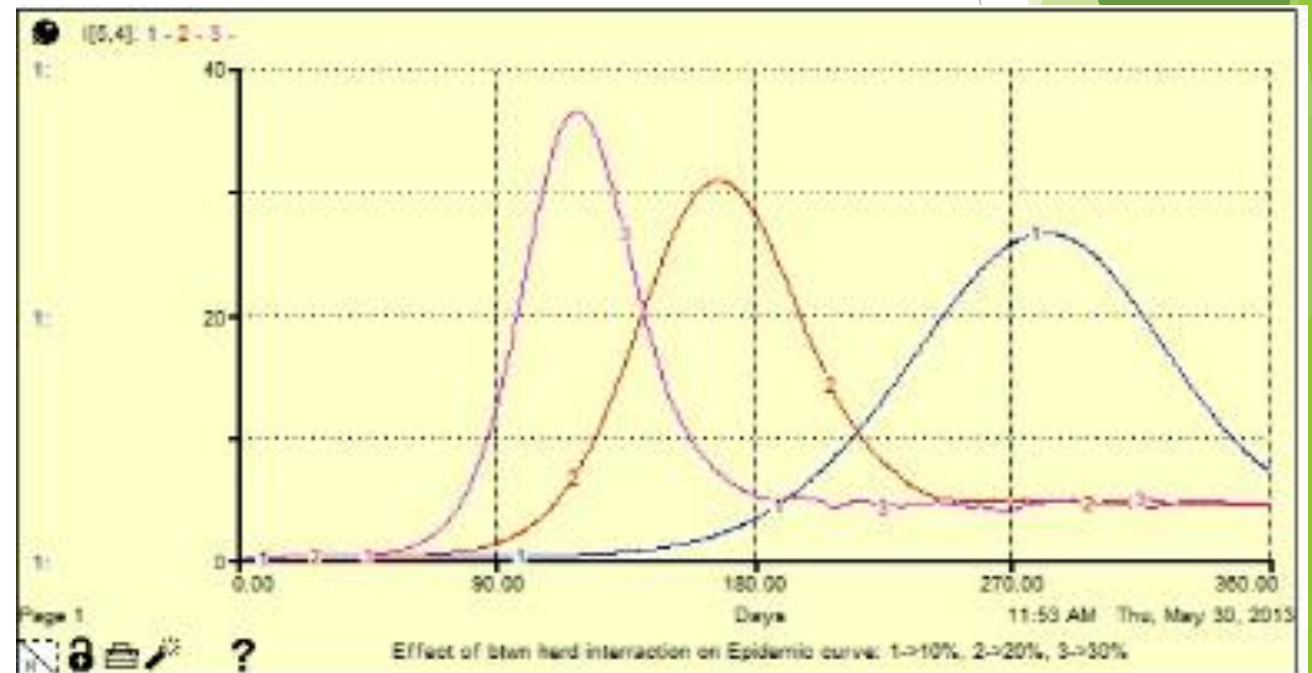


# Effect of herd interaction on epidemic curve

- Higher interaction results in earlier peaks.
- By reducing interaction from 30% to 10%, disease peak is traded for onset.
- Peaks increase with interaction

## A Mathematical Model that Simulates Control Options for African Swine Fever Virus (ASFV)

Mike B. Barongo<sup>1,2a\*</sup>, Richard P Bishop<sup>1</sup>, Eric M Fèvre<sup>1,2</sup>, Darryn L Knobel<sup>3,4b</sup>, Amos Ssematimba<sup>1,4</sup>





## Free ranging pigs

- Scavenging free ranging pigs present as risk to spread of ASF virus
- Confinement recommended
- Methods and levels of confinement depends on resource base
- Confinement include other biosecurity measures, at a minimum, including access control and contact with the pigs - by visitors or other animals
- Consider pig welfare in choice of confinement method- access to feed, water shade etc

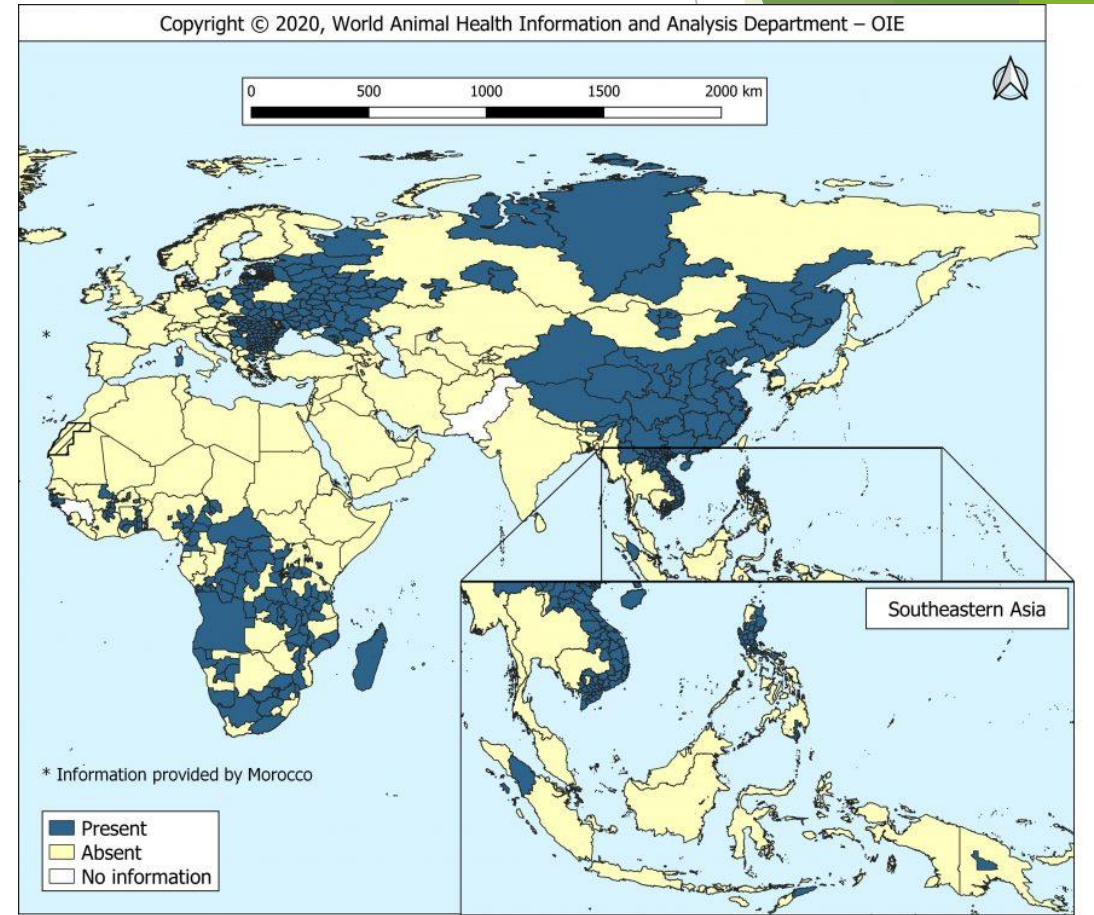






# Spread of ASFV outside Africa

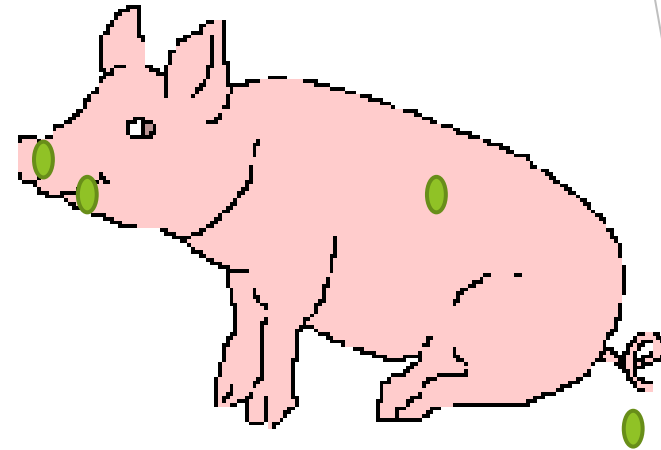
- The first spread of the disease outside Africa was into Europe (Portugal) in 1957 - near Lisbon airport associated with feeding swill
- During the 1970s, ASFV spread to the Caribbean and South America
- In June 2007 ASF was confirmed in pigs in the former Soviet republic of Georgia in the Caucasus region
- Source of infection was catering waste, including infected pig meat from ships in the Black Sea Port of Poti
- These outbreaks of ASF, mainly caused by movement of contaminated meat products





# Distribution and survival of ASF virus in various tissues/commodities

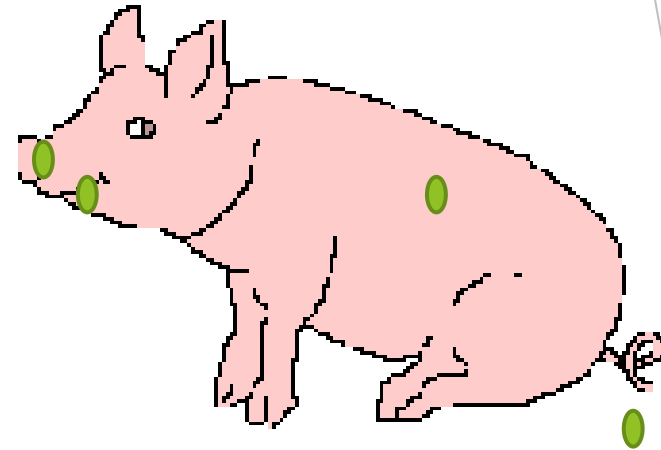
- Stable at PH 4-10 and thus not affected by meat maturation
- Requires heating at 60°C for 20 minutes to be inactivated
- Smoked sausages and air-dried ham require smoking at 32-49°C for 12 hours and 25-30 days of drying to be free from the virus
- Pork cured pork products can remain infectious for several months
- The virus can persist in the environment in fomites such as clothing, shoes, equipment and vehicles for several days
- ASF virus, in a suitable protein environment, is stable over a wide temperature and pH range. It has been shown to survive in serum at room temperature for 18 months, in refrigerated blood for 6 years, and in blood at 37°C for a month.
- Putrefaction does not necessarily inactivate the virus, which may remain viable in faeces for at least 11 days, decomposed serum for 15 weeks, and in bone marrow for months





# Inactivation of ASFV in tissues and environment

- Infective levels of virus are found mainly in lymphoid tissues
- Best ASFV inactivation:
  - Sodium hypochlorite, glutaraldehyde, caustic soda and potassium peroxymonosulfate
- Avoid or boil swill before feeding to pigs

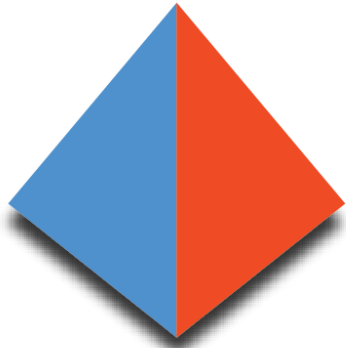






# Conclusions

- ASFV is very stable and can persist in hosts through varied transmission cycles
- Simple biosecurity measures can reduce ASF transmission
- Farmers need to invest in pig keeping in order to implement biosecurity (housing, feed), with co-benefits for increased productivity, higher returns and reduced zoonotic infection
- Farmers will act in their own self-interest to implement changes on farm if they trust that benefits are likely (requiring new knowledge) and have means to make changes (requiring capital, new feed sources, information and more open market access)



# GF-TADs

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