

Thermally stable swabs and ASF surveillance in Timor-Leste



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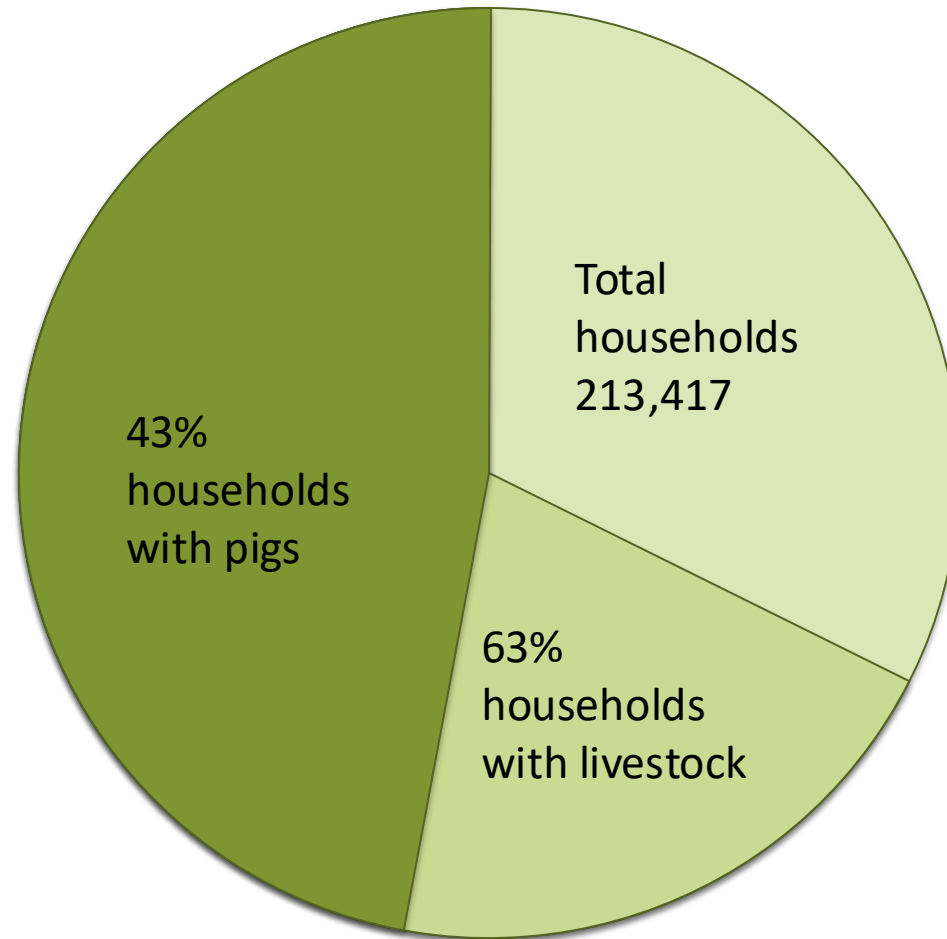
2019 Census data



Average village pig holding
=3.4 pigs



More than USD
\$1000 per
household



Total Population 1.2
million

Initial ASF incursion into Timor Leste and subsequent outbreak

In September 2019, ASF was detected in pigs in Timor Leste, firstly in the and around the capital, Dili, and subsequently spread rapidly, with nationwide mortalities estimated to have exceeded 50,000 by March 2020*

* Barnes TS, et al. First steps in managing the challenge of African Swine Fever in Timor-Leste. One Health. 2020;10:100151.

**Smith D, et al. Counting the cost: The potential impact of African Swine Fever on smallholders in Timor-Leste. One Health. 2019;8:100109.

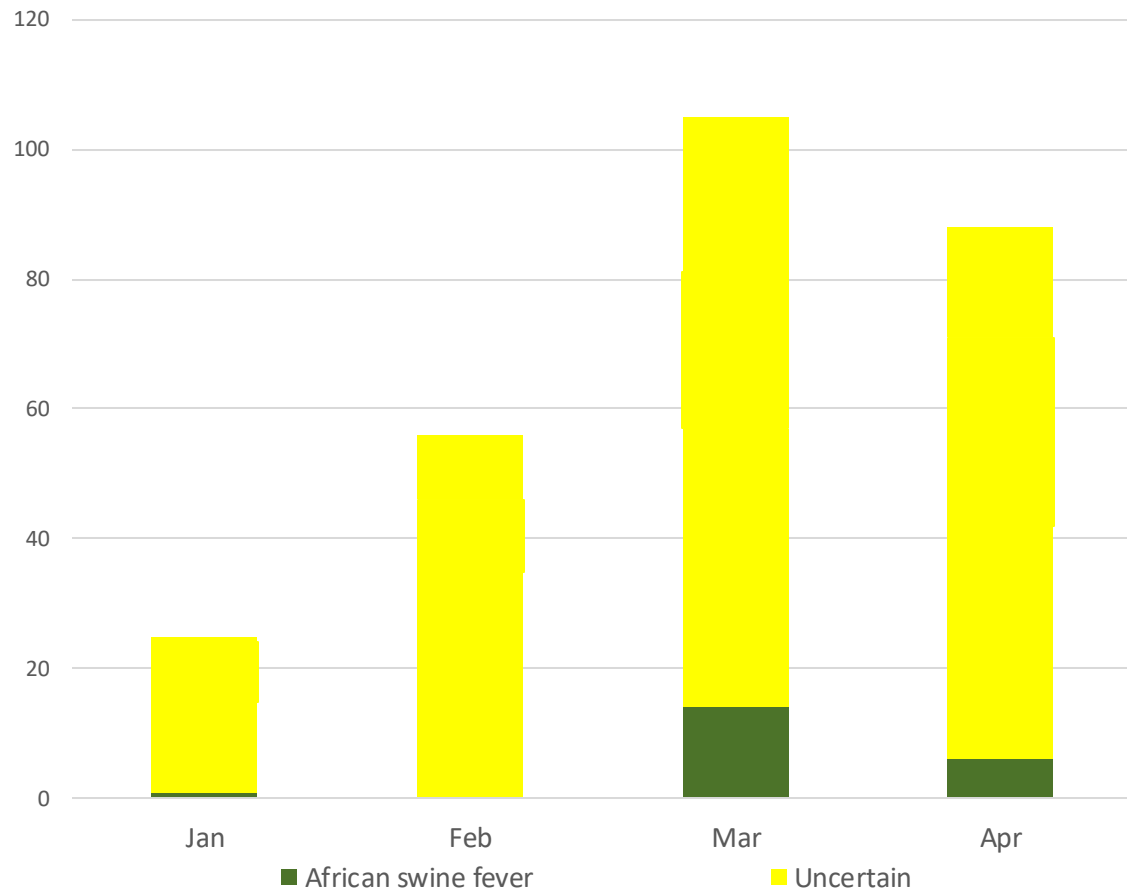


The national pig herd, estimated at 420,000 head, was valued at USD 160 million**. Losses in the first 6 months of the outbreak equated to at least USD 19 million.

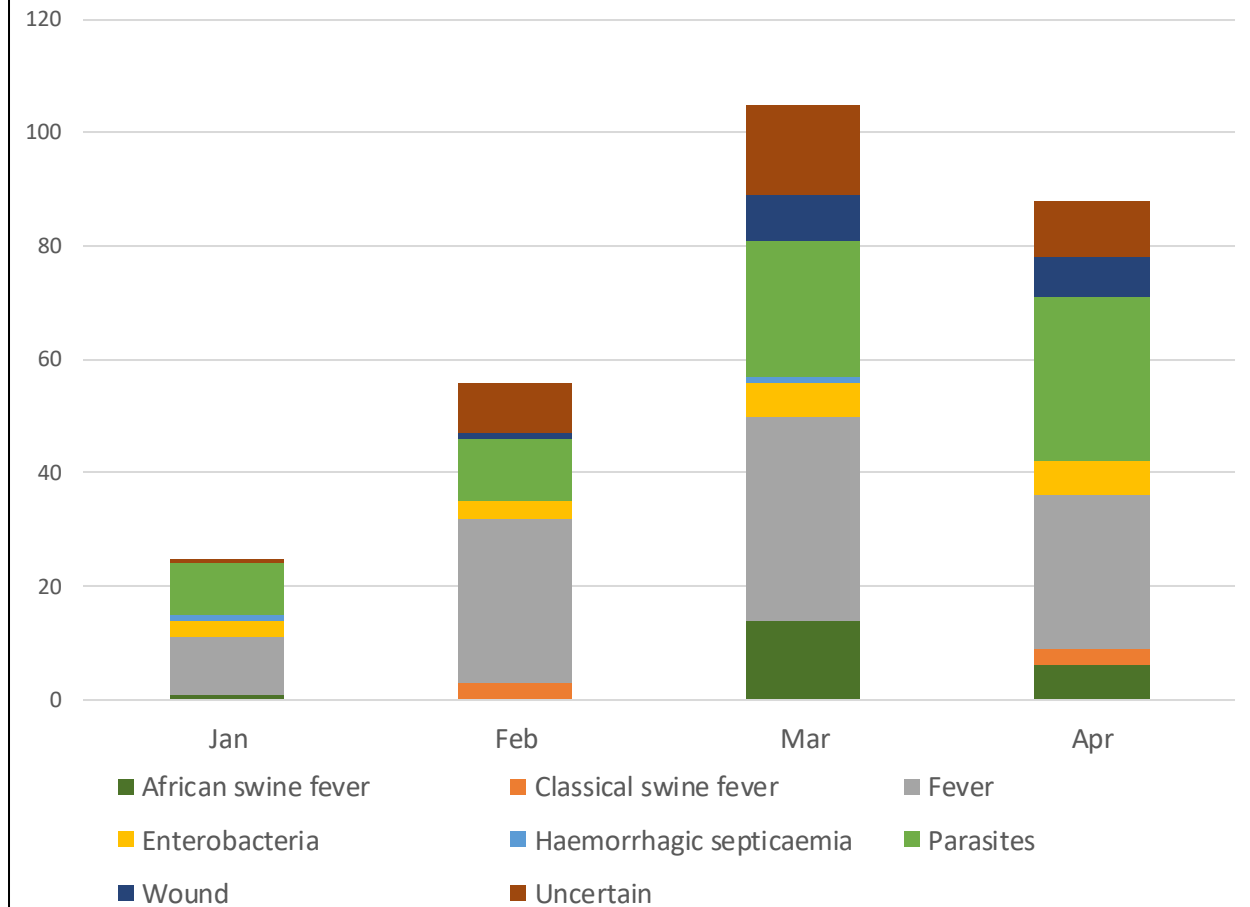


ASF and Timor Leste in 2024

Suspect pig diseases reported in Timor Leste passive surveillance 2024



Suspect pig diseases reported in Timor Leste passive surveillance 2024



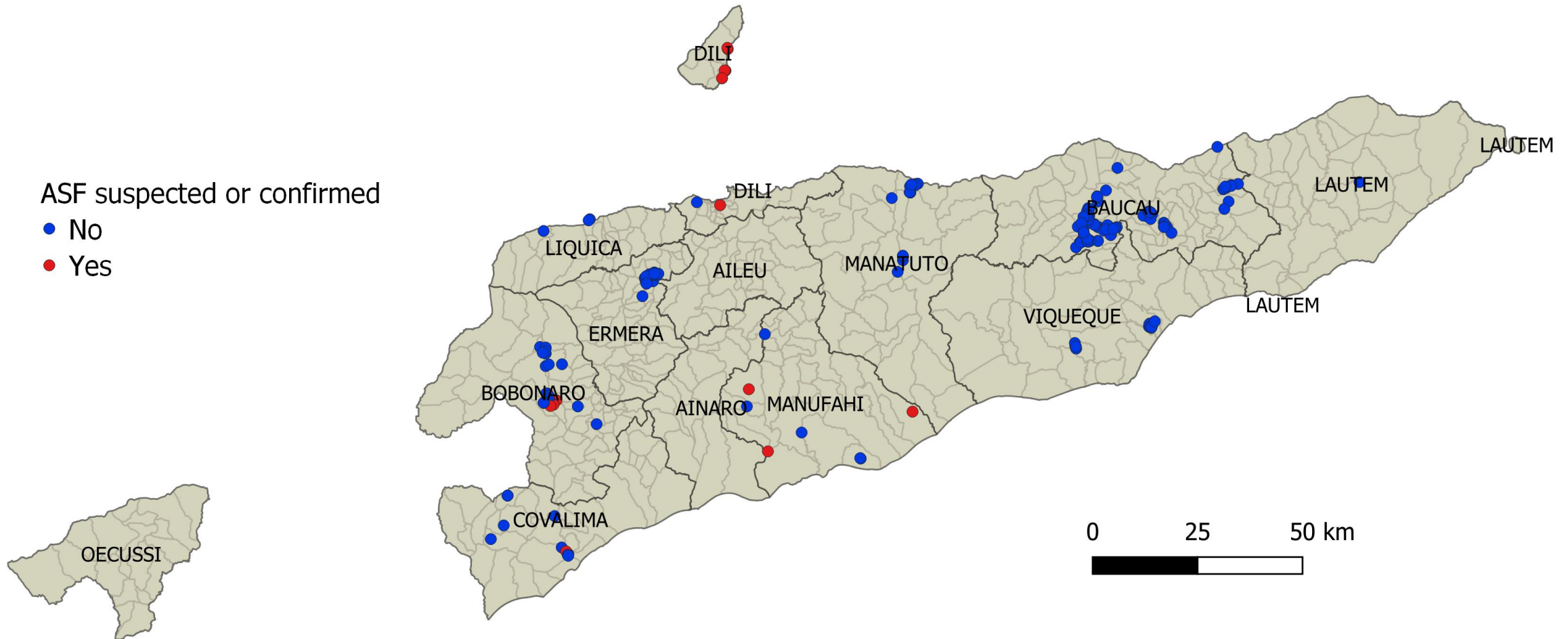
Map of current reports of ASF outbreaks

TL pig surveillance 2024 (Jan-April)

ASF suspected or confirmed

• No

• Yes



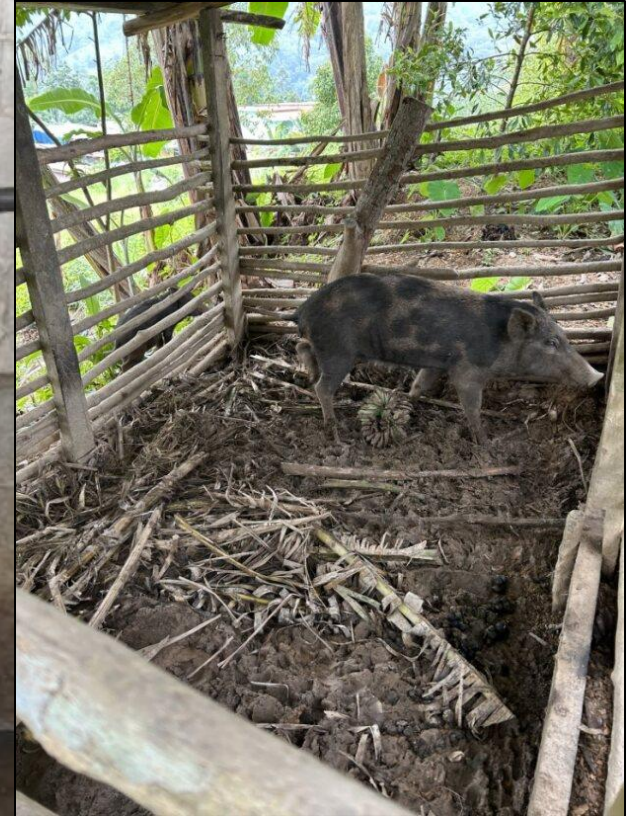
Barriers to surveillance and sample collection

- Notification of disease to animal technicians/vets
- Availability of trained staff
- Sampling equipment and PPE
- Cold chain storage
- Transport
- Laboratory tests and staff

High risk of disease introduction

- Inadequate containment of village pigs
- Swill feeding
- Poor biosecurity
 - Access to pigs
 - Breeding of pigs
 - Lack of quarantine

Example: housing types- proportion in population and probability of risk

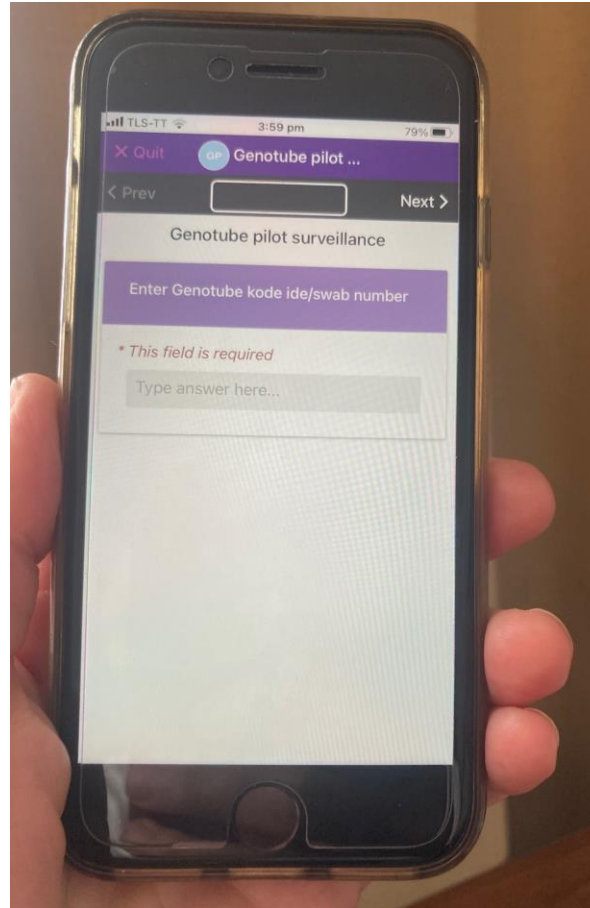


Probability of collecting samples



Can sample collection be easier?

- Sampling with swab technology- thermally stable samples (Genotube Livestock Swabs®)
- Training
 - Lab staff
 - Field staff
- Passive surveillance TL and Targeted Surveillance data collection using Epicollect5.



Advantages of swab sampling

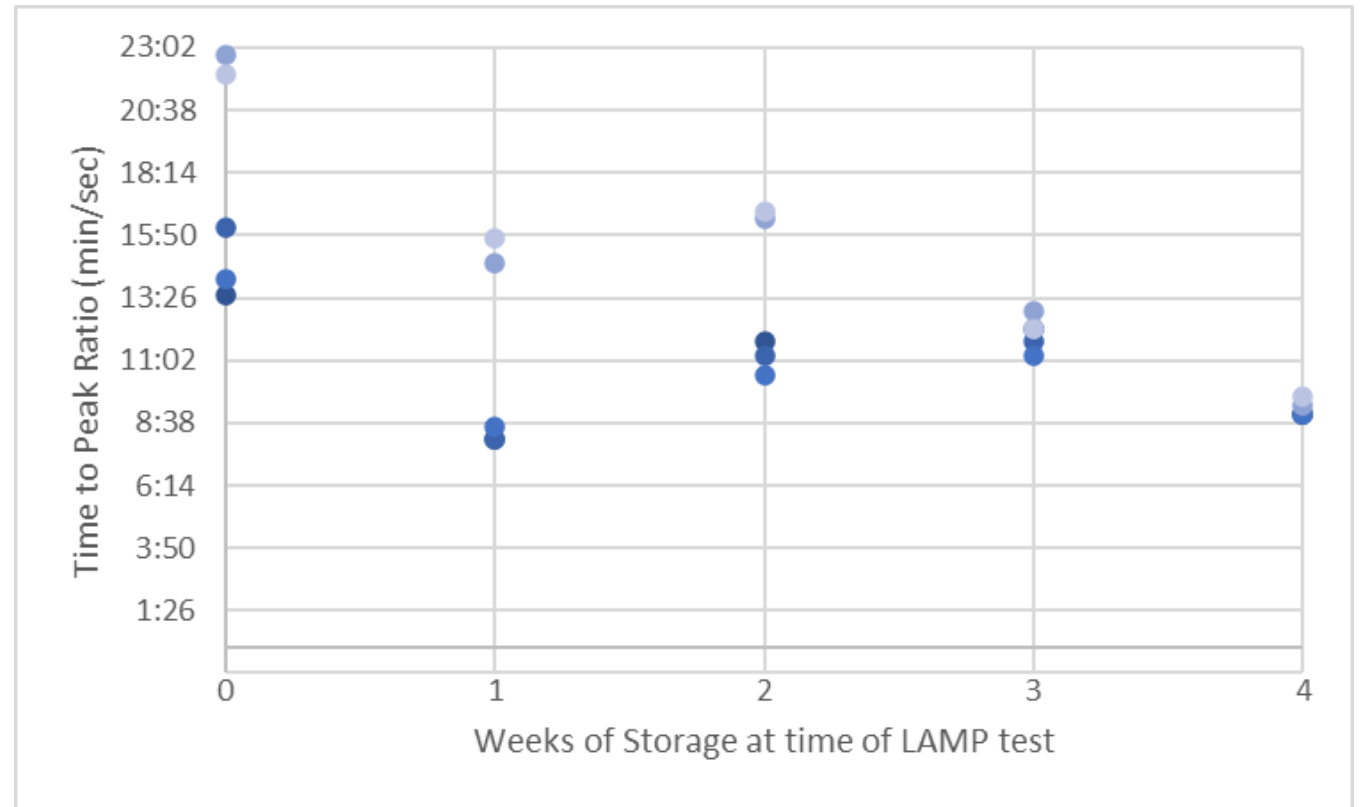
- Local transport options
- Reduced time and resources for animal health staff
- Low cost
- No refrigeration
- Timeliness of results



Demonstration of stability of swab samples (Dili national lab)

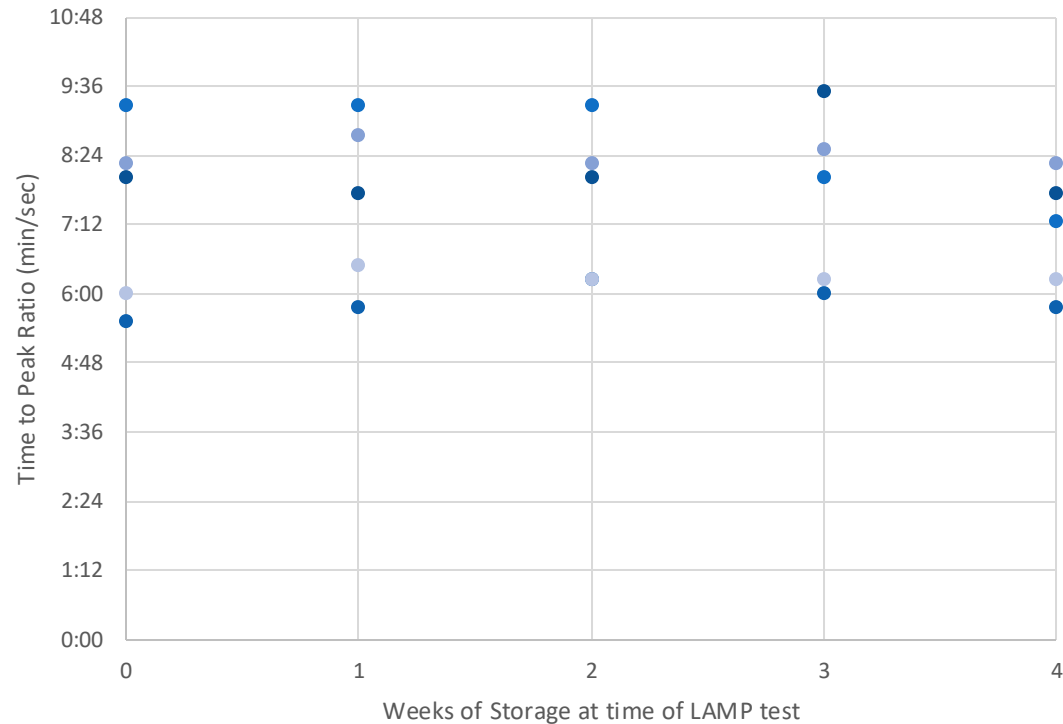
“This study used Genotube® swabs stored in temperate and tropical climates without refrigeration for four weeks after collection to demonstrate there was no change in test performance and results using loop mediated isothermal amplification (LAMP) ASFV detection on a series of pig serum samples.....”

Phillips, D., Felisiano, d. C., Joanita Bendita da, C. J., Rawlin, G., & Mee, P. (2024). Stability of genotube® swabs for african swine fever virus detection using loop-mediated isothermal (LAMP) laboratory testing on samples stored without refrigeration. *Viruses*, 16(2), 263. doi:<https://doi.org/10.3390/v16020263>

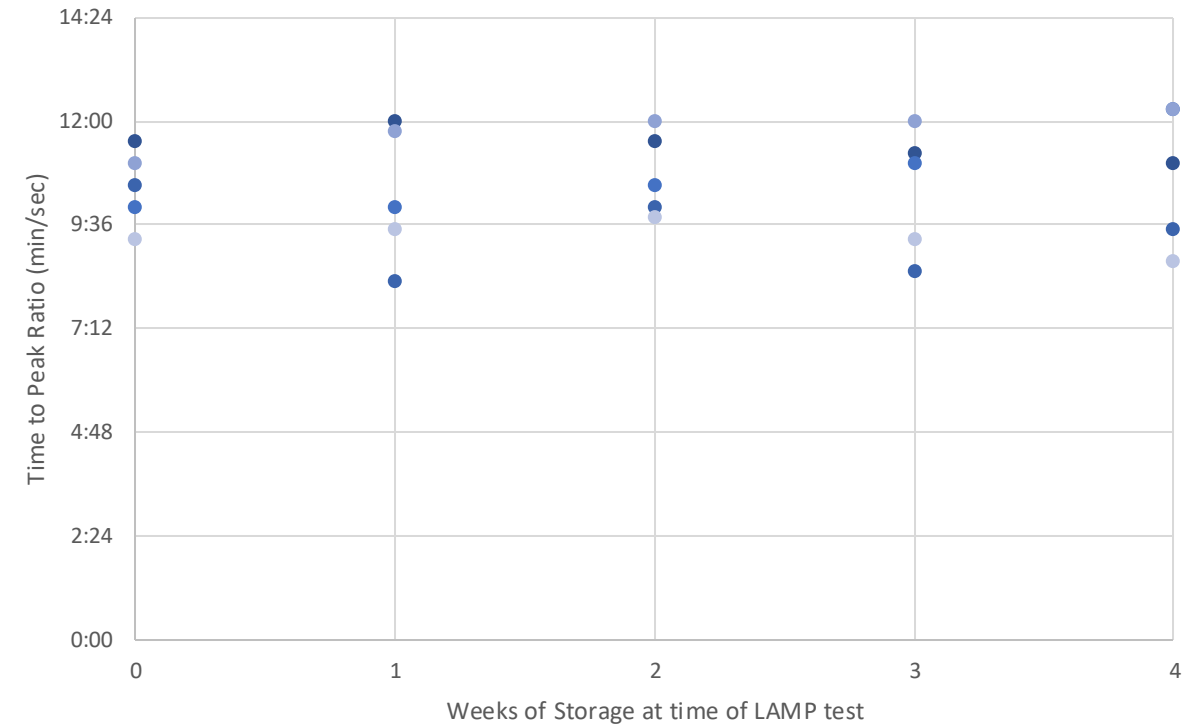


Peak ratios (PRs) of naturally acquired ASF-positive swabs tested on LAMP

Demonstration of stability of swab samples (AgriBio)



Peak ratios (PRs) low dilution synthetic ASF positive swabs



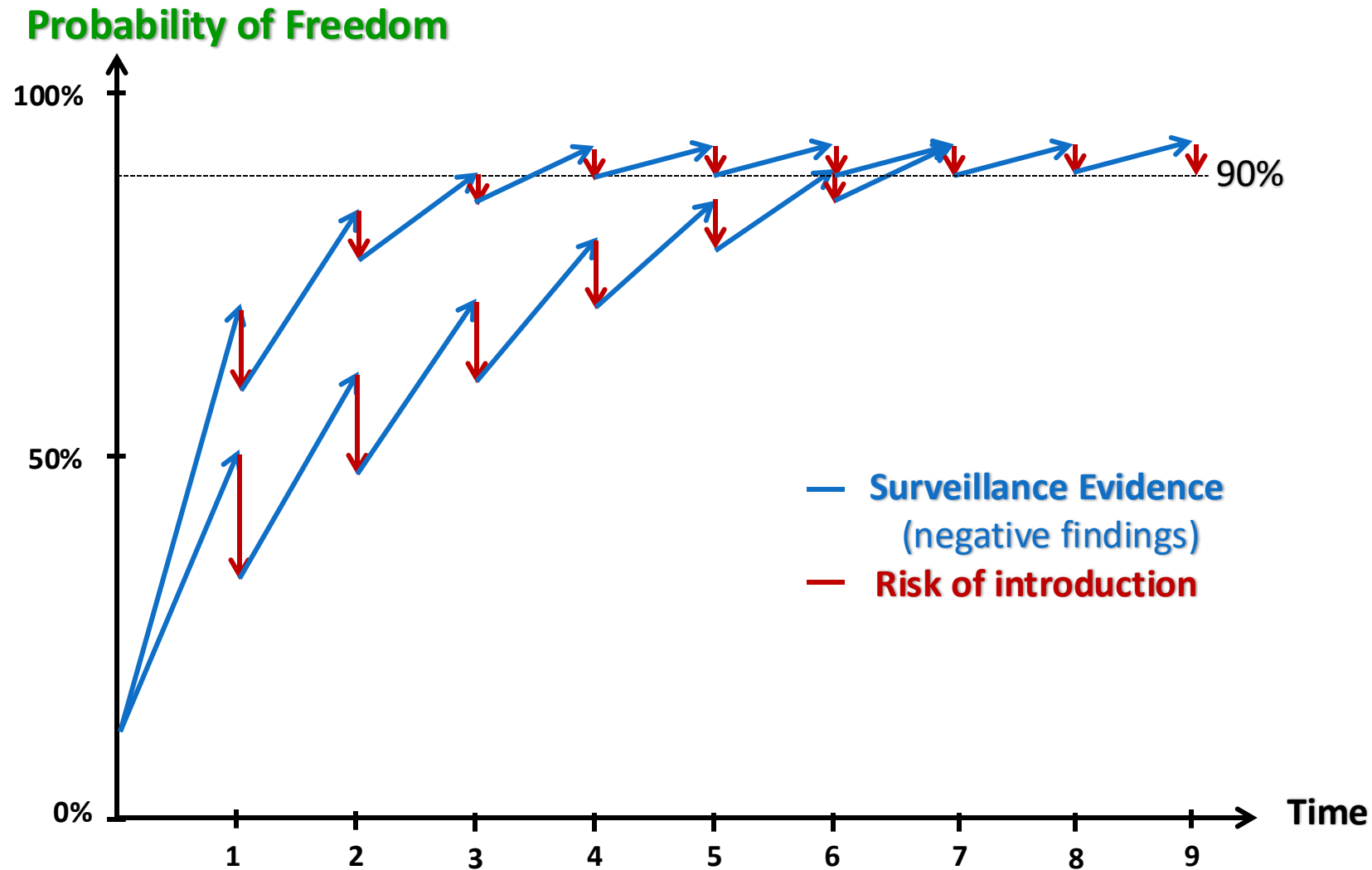
Peak ratios (PRs) high dilution synthetic ASF positive swabs

Uses in Australia

- Feral animal surveillance
- Citizen science
- Remote area surveillance
- ELISA testing



Ongoing surveillance- proof of freedom



Questions?

Acknowledgements and thanks

- Dr Charles Caraguel and Professor Grant Rawlin
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- University of Adelaide

