



World Organisation
for Animal Health
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SEACFMD Laboratory Network Meeting

Current FMD Laboratory Activities in SINGAPORE

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- Singapore is recognized by WOAHA as a FMD free country where vaccination is not practiced
- There has been no outbreak and evidence of FMD in Singapore since 1935
- The country has a very small ruminant population of around 105 heads of cattle and 1070 heads of goats, housed across 3 ruminant farms (as of June 2023)
- There is also a population of free-roaming wild boars in Singapore (between 5 to 6 wild boars per square kilometre, as of Feb 2023)
- Susceptible animals are also present in a zoological centre in Singapore



Description of any FMD surveillance activities over the past 3 years:

- Monitoring and surveillance of local ruminant (cattle and goat) populations in ruminant farms, synergised with other TADs
 - Animals are inspected monthly for clinical signs of ill-health and farms will be advised to seek further veterinary attention if necessary
 - Sera from blood samples were collected annually for the testing of antibodies to FMDV Non-Structural Protein (NSP) using ELISA
 - All samples collected in last 3 years were tested with negative results
- Surveillance of local wild boar population
 - Samples from wild boars that were found dead or euthanized as part of population control were sent for testing for the presence of FMDV
 - Sera from wild boar blood samples were also collected and tested for antibodies to FMDV Non-Structural Protein (NSP) using ELISA
 - All samples collected in last 3 years were tested negative for FMDV and FMDV NSP antibodies
- Surveillance of zoological animals
 - Samples from susceptible animals were sent in by the zoological centre (Mandai Wildlife Group) for testing for presence of FMDV or FMDV antibodies when necessary
 - All samples submitted in last 3 years were tested with negative results



- SOP and laboratory testing workflow in place for FMD diagnostics work in the event of FMD detections and outbreaks (i.e. Laboratory Diagnostics For Animal Disease Incidents SOP for FMD)
- Training and capability building for laboratory staff on FMD diagnostics
- Ensure a constant supply of reagents, kits and consumables required for FMD diagnostics testing
- Participation in FMD interlaboratory proficiency testing schemes annually to ensure laboratory's competency in FMD diagnostics
- Regular review of test procedures and workflows



Proficiency testing during the past 5 years

(a)

Type of test	Type of programme	Organiser	Participating date/year
Real-time PCR methods (3D and 5-UTR)	FMD Interlaboratory Proficiency Testing Scheme	The Pirbright Institute, UK	2018 – 2022 (100% correct results)
FMD Antigen Detection and Serotyping ELISA			
FMD NSP Antibody ELISA			
FMDV Antibody Serotyping ELISA (Asia 1, A, O and SAT2)			

(b)

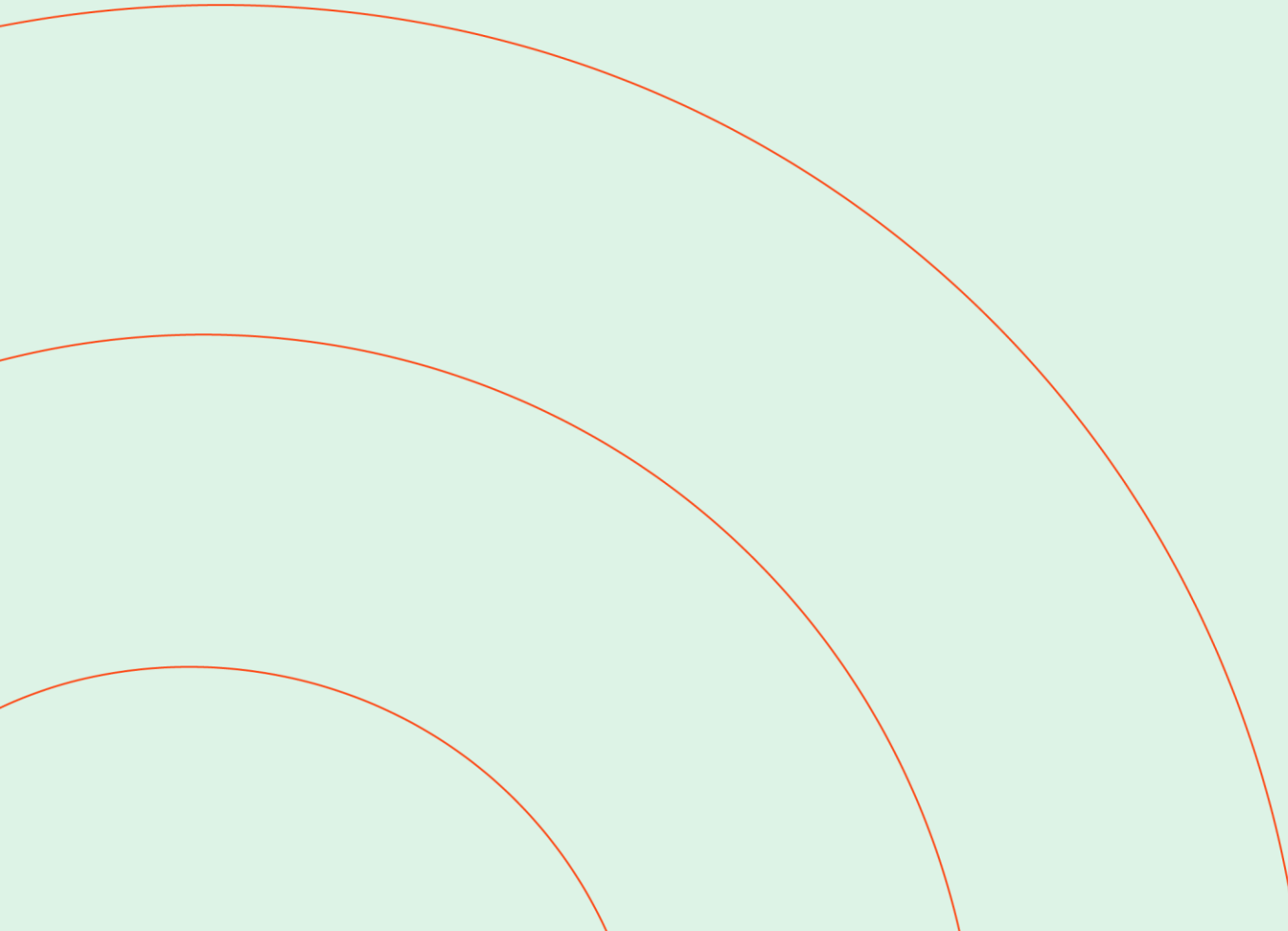
Type of test	Type of programme	Organiser	Participating date/year
Real-time PCR methods (3D and 5-UTR)	FMD Interlaboratory Proficiency Testing Scheme	Pakchong Regional Reference Laboratory for FMD, Thailand	2019 (100% correct results)



Qualification ISO/17045 or other

Framework	Assured Organisation	Participating date/year
ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories	Singapore Accreditation Council	Accredited since 2005

Use of Next Generation Sequencing (NGS) Technology and bioinformatics for whole genome sequence analysis of FMDV

- ✓ To aid in rapid diagnosis and pathogen characterization of the virus
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Challenges:

- Outbreaks of emerging and transboundary animal diseases (including FMD) and disruption to global supply chains (arising from pandemics, etc.), are a potential risk to Singapore's food security and animal health
- As Singapore is free from FMD, there is a constant need to ensure that contingency plans and its concept of operations are fit-for-purpose

Way forward:

- Regular training and capability-building activities for laboratory staff on FMD diagnostics and outbreak protocols.
- Conduct simulation exercises with industry stakeholders and improve inter-agency collaboration to enhance disease preparedness
- Constantly review & update contingency plans for animal diseases such as FMD
- Seeks the WOA's support on reviewing our animal health and veterinary legislation to combat animal diseases and zoonoses, as well as emergency preparedness and peacetime vaccination policies (e.g. in the event FMD outbreaks occur in zoological collections)
- Singapore is committed to participating actively and supporting the WOA's SRRSEA's initiatives and activities that are implemented as per the M&E framework for the SEACFMD Roadmap 2021-2025



Thank You