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جابتن قرتانين دن اكري ماكنن

Jabatan Pertanian dan Agrimakanan  
Kementerian Sumber-Sumber Utama dan Pelancongan

## SEACFMD Laboratory Network Meeting

### Current FMD Laboratory Activities in Brunei Darussalam

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*24-25 October 2023  
Lanzhou, China*



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



Brunei Darussalam is recognized as FMD-free country since year 2008 without vaccination.



**Whole nation surveillance** of the disease through **serological** and **clinical signs** observation of ruminant population in Brunei Darussalam.



**NSP-Ab ELISA** is used for the detection of antibodies against non-structural proteins of FMDV in serum samples of bovine and ovine origin.



Summary Data number of samples under FMD surveillance program for the **past 3 years**:

Year	No. of Samples (Blood taken)
2020	446
2021	290
2022	495
2023	553



Veterinary Laboratory Services (VLS) is a **National Veterinary Diagnostic Laboratory** equipped with **BSL2 and BSL3** facilities (PCR, MinION) to cater for FMD and other zoonotic diseases.



Continuously perform **serosurveillance** and monitoring using NSP-Ab ELISA test for the detection of antibodies against non-structural proteins of FMDV in serum samples. Currently, laboratory is developing method for confirmatory of FMD using PCR.



**ISO accreditation** for molecular testing by **2024**.



Readily available proper specimen transport container for transport of suspected sample from the field to the laboratory → Sample collection and submission guidelines booklet



## Proficiency testing during the past 5 years

Type of test	Type of programme	Organiser	Participating date/year
NSP ELISA	Proficiency Testing Program on FMD Serology	Regional Reference Laboratory for FMD in South East Asia, Pakchong, Thailand.	2019
NSP ELISA	Proficiency Testing Program on FMD Serology	VETQAS	2021
NSP ELISA	Proficiency Testing Program on FMD Serology	VETQAS	2022



## Qualification ISO/17045 or other

Framework	Assured Organisation	Participating date/year
ISO/IEC 17025 : 2017  Accreditation for Detection of Foot and Mouth Disease	SAC Singlas, Singapore	Accredited since 2020 and maintain accreditation status of the test yearly.



No FMD Research has been conducted.

Publication:

## The Current Status of FMD and Detection of Foot and Mouth Disease in Goats using ELISA method in Brunei Darussalam

*Scientia Bruneiana, Vol. 19, No. 2*

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### **Current status of Foot and Mouth Disease in goats in Brunei Darussalam and the efficacy of the ELISA-based detection method in detecting the presence of the disease**

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#### **Abstract**

Brunei Darussalam has been recognized as a Foot and Mouth Disease (FMD) free country. Nonetheless, control efforts must be exercised to maintain this status. A reliable and precise diagnostic test is needed for rapid detection, which is essential for fast decision-making by the national authorities. This study aims to update the current status of FMD in the country, and to prove that the ELISA method used by the Veterinary Laboratory Services (VLS) of Brunei Darussalam is reliable and sufficient for detecting the presence of FMD. According to data collection over the past 6 years, no FMD was detected in the blood serum from goats, which confirms that the country is free from FMD. The ELISA test that the VLS conducts has been validated and accredited to ISO / IEC 17025:2017 since 2019 and has also participated in Proficiency Testing with satisfactory results, confirming that the test is sufficient for detecting the presence of this disease. The method achieved 98% and 100% for Diagnostic Sensitivity and Diagnostic Specificity, with null false positives and only 1 false negative. The test was also found to be satisfactory in terms of repeatability, reproducibility and selectivity. With these satisfactory validation procedures, continuing use of the existing ELISA-based screening method can be recommended, to maintain the FMD-free status of the country. However, other detection methods, such as improved PCR-based techniques, need to be employed from time to time to exclude the possibility of experimental error that may occur during the ELISA-based assay.

*Index Terms:* Foot Mouth Disease, ELISA, goats, Brunei Darussalam, diagnostics



## Challenges:

- Serosurveillance is centred on detection of NSPs
- Non-exposure to disease outbreak → readiness and preparedness simulation is lacking, surge capacity is undetermined
- Limited Manpower and expertise

## Way forward:

- Validation of Molecular Diagnostic Testing RT-PCR for FMD confirmatory test
- To undergo self-assessment on Surge Capacity for laboratory –provision of SCAT tool in forecasting and planning capacity in labs
- To conduct Table-Top Exercise for FMD Disease for internal agencies
- To undergo self-analysis and evaluation of VS and subsequently PVS GAP Analysis



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**Thank You**



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