

World Organisation for Animal Health

SEACFMD Laboratory Network Meeting

2026 Country Report (Malaysia)

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Alternate SEACFMD LabNet

10-11 November 2026
Manila, The Philippines

FMD OUTBREAKS OVERVIEW (2023 – OCT 2026)

TOTAL OUTBREAKS

48

Across 4-year

2026 SURGE

+75%

16 cases; Serotype A surge

2023–2025: Serotype O Dominance

Ind2001e Lineage: Primary driver responsible for 29 cases across cattle, swine, and sheep populations.

2026: Shift to Serotype A

Sea-97 Lineage: Surged to 12 cattle cases, overturning three consecutive years of Serotype O prevalence.

Wildlife

1 Serotype O detected in captivated deer and 1 untyped case detected in wild cattle (Banteng).

Year	Total cases	Serotype O (Ind2001e/PanAsia)	Serotype A (Sea-97)	Untyped	Species affected
2023	8	4	1	3	Cattle
2024	15	14	0	1	Cattle (13), Swine (1), Deer (1)
2025	10	8	1	1	Cattle (9), Sheep (1)
2026 (Oct)	16	3	12	1	Cattle (15), Wild Banteng (1)

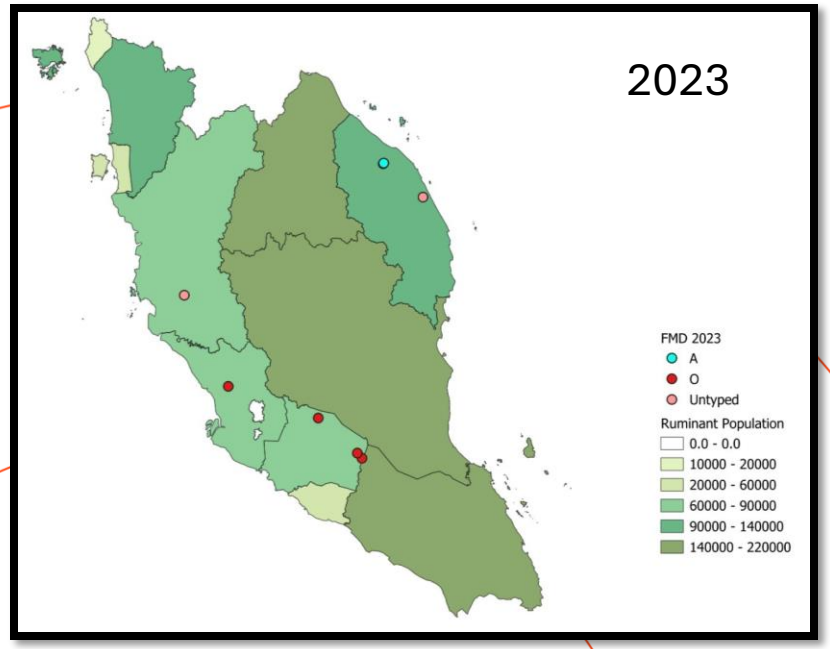
SPATIAL DISTRIBUTION OF FMD OUTBREAKS (2023 – OCT 2026)

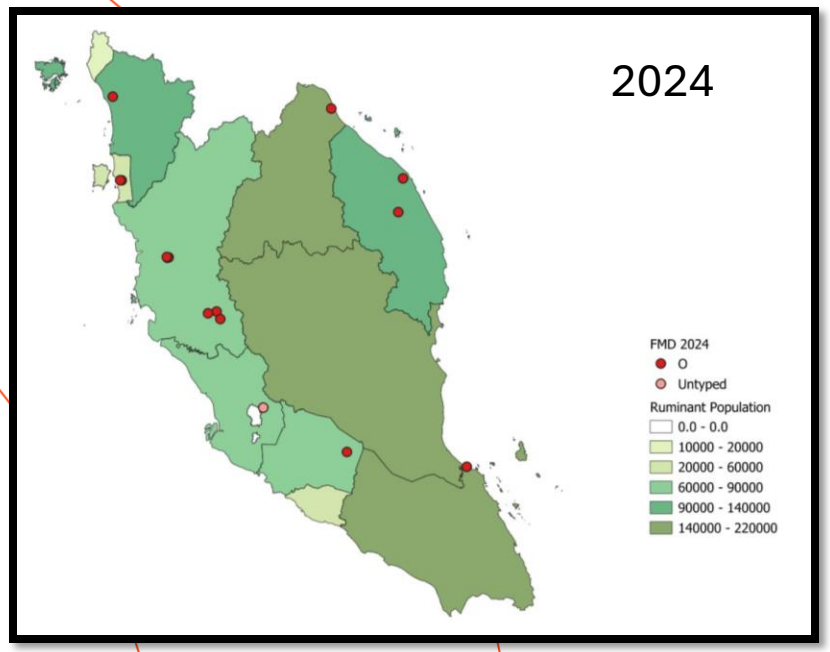
Cattle density correlation

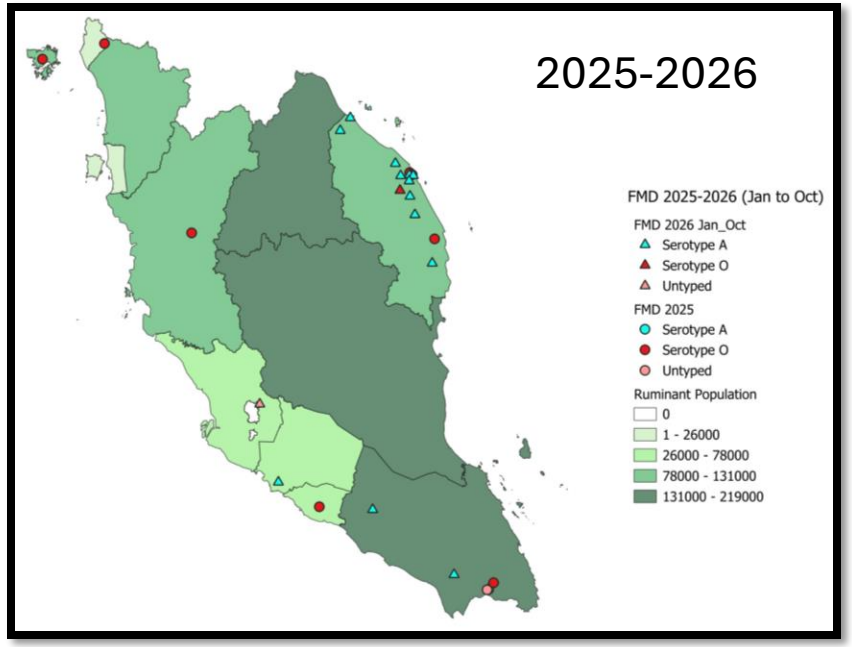
Outbreaks correlate directly with high-density ruminant zones (>60,000 head/district) in central and eastern region.

Spatial distribution

East Coast and Central regions show persistent clustering, with southern expansion in 2025–2026.

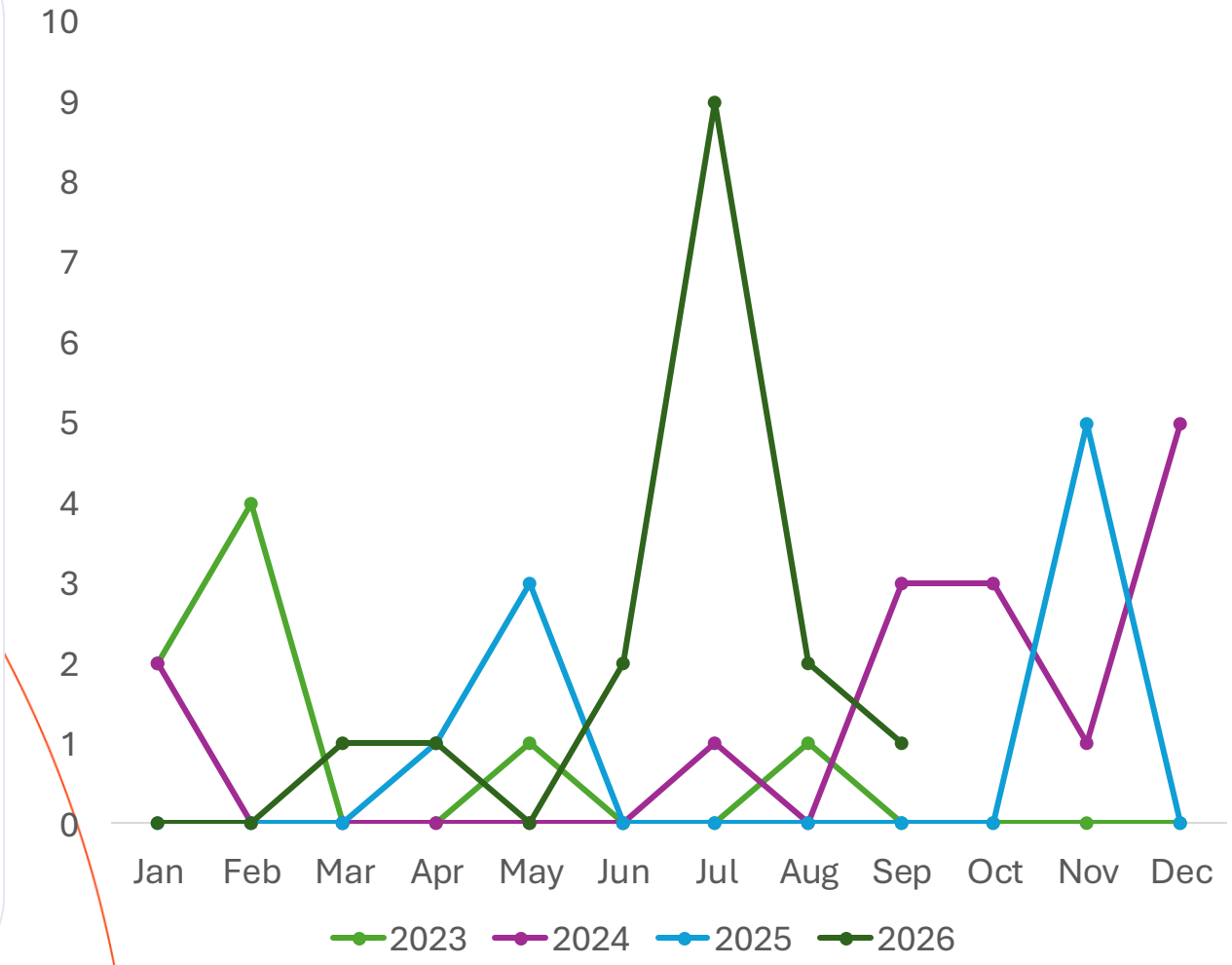






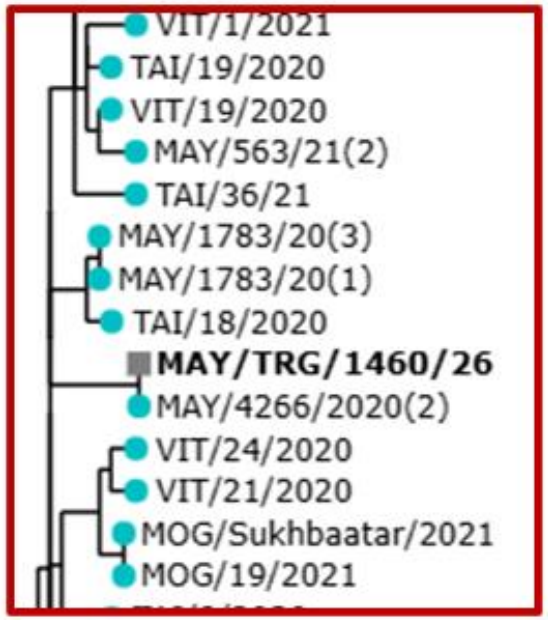
TEMPORAL EPIDEMIC CURVE (2023 – OCT 2026)

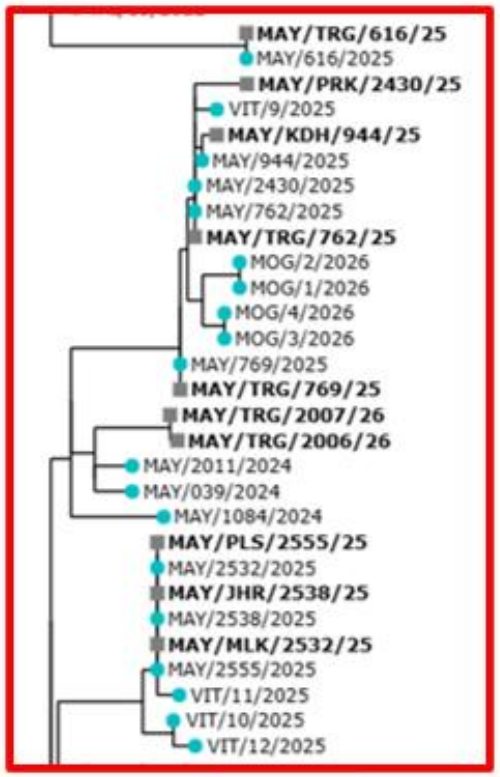
- Demonstrated episodic, non-uniform epidemic activity with shifting peak timings across years. One case recorded in April with zero reported cases across all remaining months.
- 2023 exhibited early first-quarter activity peaking in February (n=4), transmission shifted predominantly toward late-year clusters in 2024 (September–December).
- In 2025, a bimodal distribution was observed with distinct spikes in May (n=3) and November (n=5).
- 2026 marked the largest recorded single-month epidemic wave, reaching a peak of 9 cases in July before tapering off by September.
- This pattern is likely attributable to intensified livestock mobility and trade volumes during the Eid period.



PHYLOGENETIC ANALYSIS OF THE VP1 FOR SEROTYPE O/ME-SA/Ind2001e (2025 – OCT 2026)

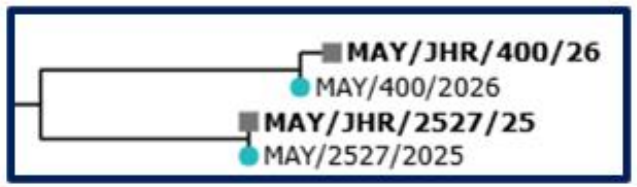
- A single 2026 isolate groups closely with 2020 reference strains from Thailand & Peninsular Malaysia, indicating localized persistence of an older sub-lineage.
- The main 2025–2026 outbreak clade links 2024 domestic cases directly to contemporary strains circulating in Vietnam and Mongolia.

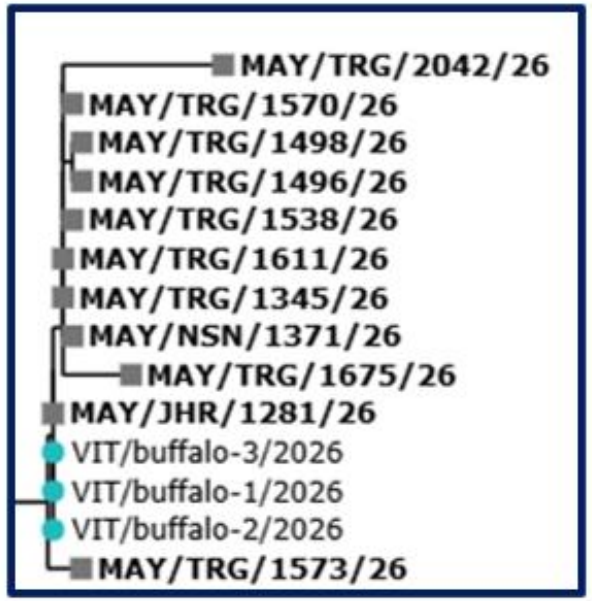




PHYLOGENETIC ANALYSIS OF THE VP1 FOR SEROTYPE A/SEA/Sea-97 (2025 – OCT 2026)

- A single isolate from 2025 and 2026 grouping closely with 2021-2022 Thai reference strains.
- A predominant 2026 cluster sharing a close common ancestor with Vietnamese strains.





NATIONAL SURVEILLANCE

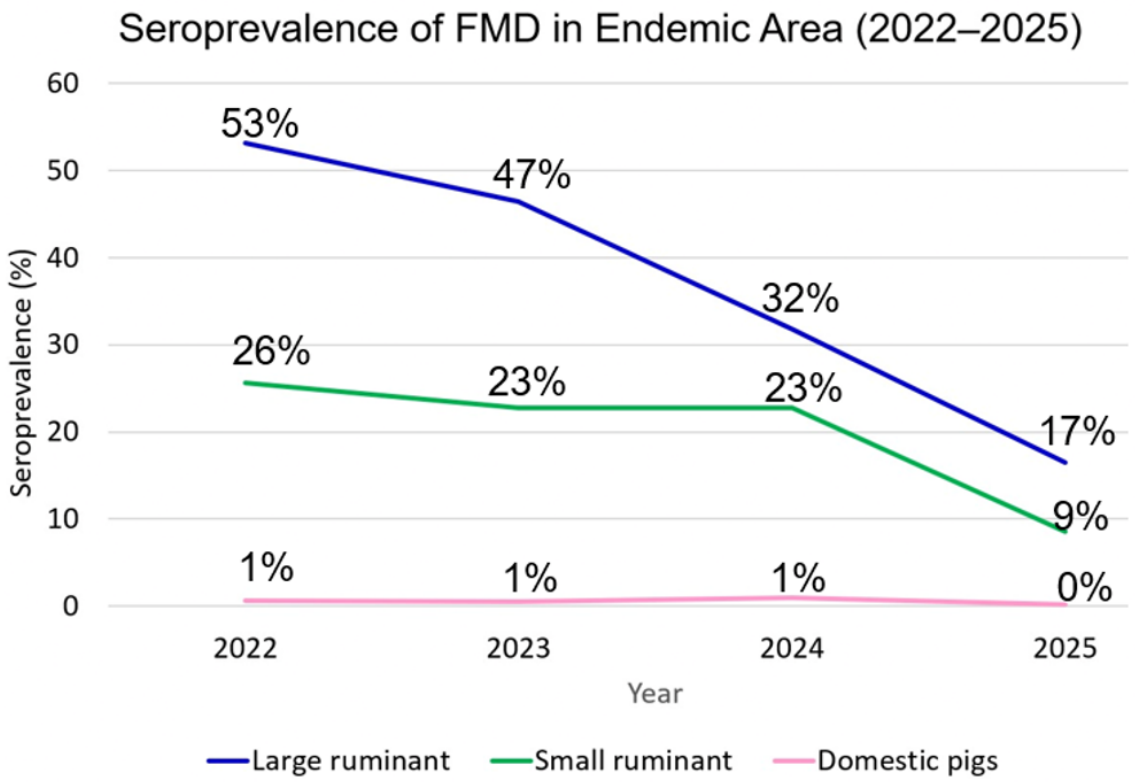
Passive Surveillance

Rapid response to field notifications.

- ✓ Epithelial tissues, blood, probang, and organ processed via real-time RT-PCR and RT-PCR for FMDV characterization.
- ✓ Serum for NSP FMDV ELISA.

Active Surveillance

- ✓ Outbreak: Clinical surveillance within 1–5 km radius of the Infected Premise (IP).
- ✓ Annual National FMD Surveillance design based on FMD status (NSP FMDV ELISA): Endemic (Peninsular) & Free Zone (Sabah & Sarawak).

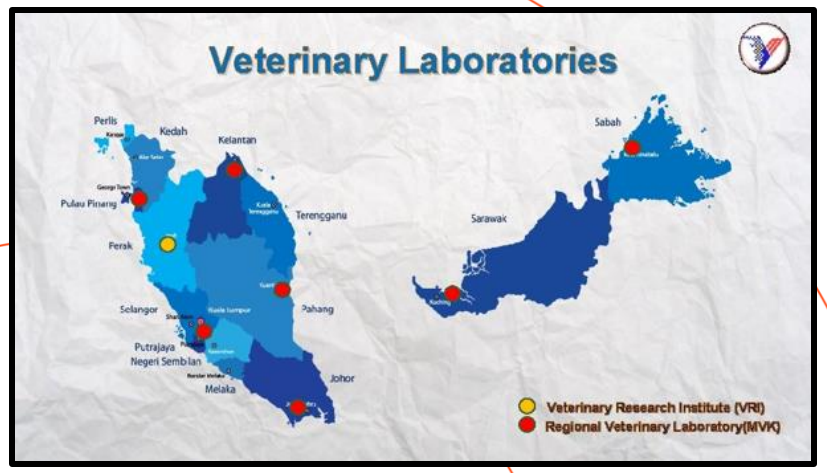


Endemic Zone (Peninsular Malaysia):

- ❑ Large ruminants: Marked reduction from 53% to 17%.
- ❑ Small ruminants: Dropped from 26% to 9%.
- ❑ Domestic pigs: Maintained at baseline 0% - 1%, confirming cattle and buffalo remain the primary maintenance hosts.

CURRENT PROJECTS AND PROGRAMMES SUPPORTING LABORATORY CAPACITY BUILDING

Project / Programme	Implementation Period	Main Focus Areas	Donor / Supporting Organisation	Laboratory Capacity-Building Activities / Outputs
Construction of Eastern Zone Veterinary Laboratory (Kelantan)	2021 – 2030 (12MP: 2021-2025 | 13MP: 2026-2030)	FMD diagnosis, surveillance, and other animal disease diagnostics	Government of Malaysia (Thirteenth & Twelfth Malaysia Plan – 13MP & 12MP)	Establishment of modern diagnostic infrastructure to expand regional diagnostic throughput and testing capabilities for priority livestock diseases.

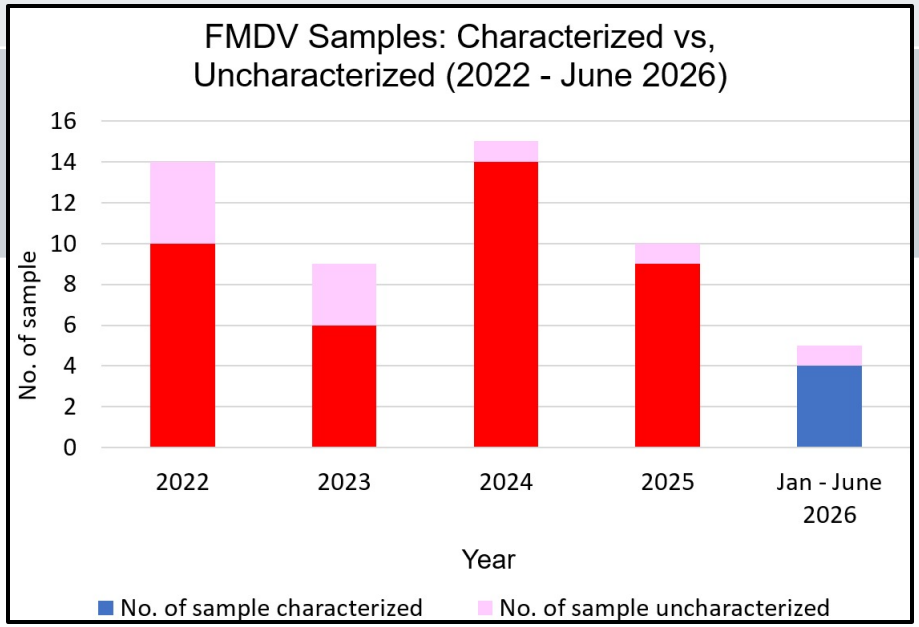




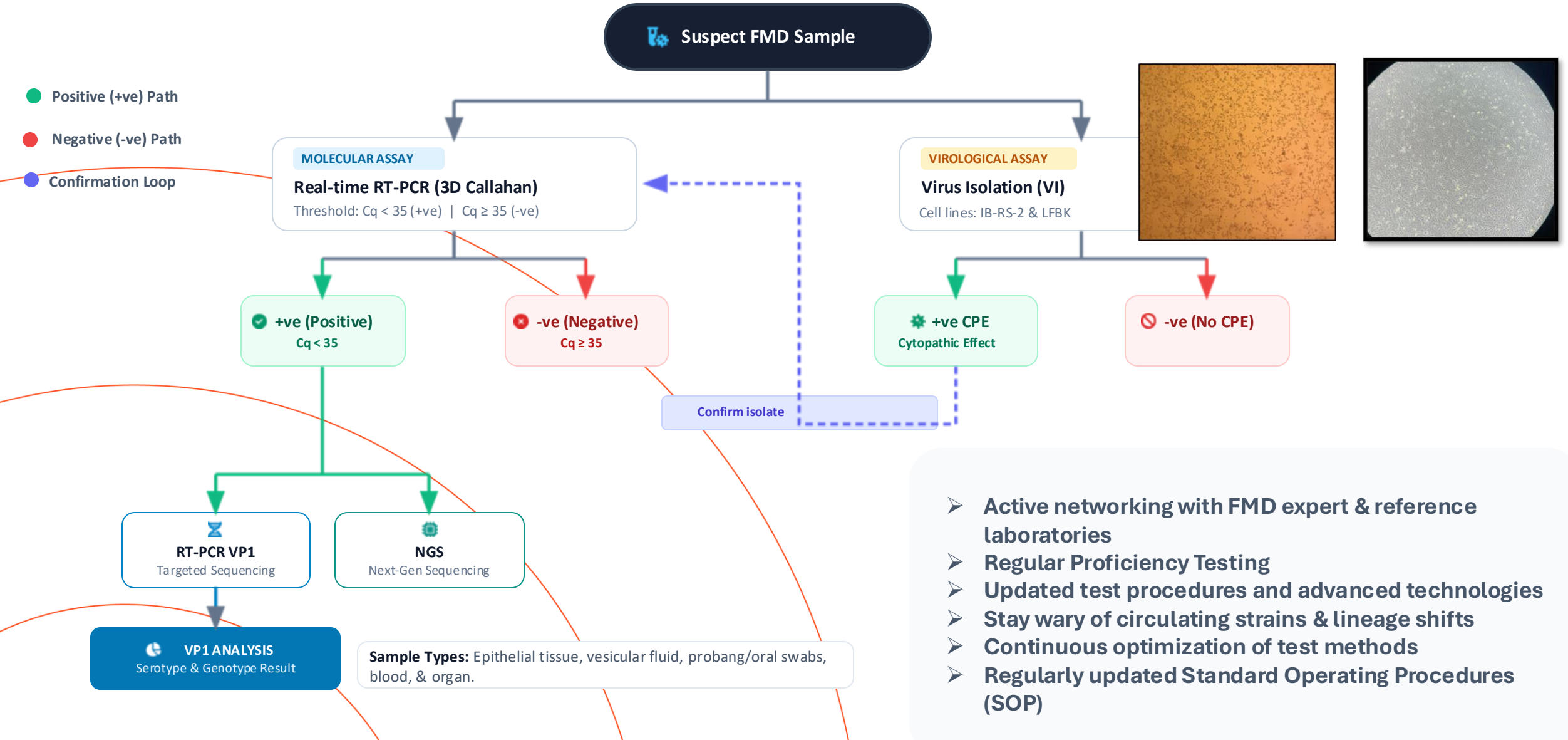


IMPORTANT CHANGES SINCE 2023 SEACFMD LABNET MEETING

Major Development & Improvements	New Challenges & Emerging Issues
Enhanced genetic characterization: Optimized Real-time RT-PCR cut-off values, improving success rates for VP1 sequencing.	**NGS data analysis & bioinformatics:** Limited technical capacity and pipeline familiarity to process, assemble, and interpret raw Next-Generation Sequencing data.
Active LabNet engagement: Sustained participation in Proficiency Testing (PT) panels and established peer consultation with reference lab for diagnostic troubleshooting.	**Continuous lineage evolution & spreading:** Need for ongoing assay (primers & probes) and positive controls against evolving regional FMDV strains.
Workflow modernization: Progressed toward current molecular protocols and updated platform standards.	



BEST PRACTICES AND EXPERIENCES TO SHARE



- Active networking with FMD expert & reference laboratories
- Regular Proficiency Testing
- Updated test procedures and advanced technologies
- Stay wary of circulating strains & lineage shifts
- Continuous optimization of test methods
- Regularly updated Standard Operating Procedures (SOP)

COLLABORATION AND NETWORK NEEDS

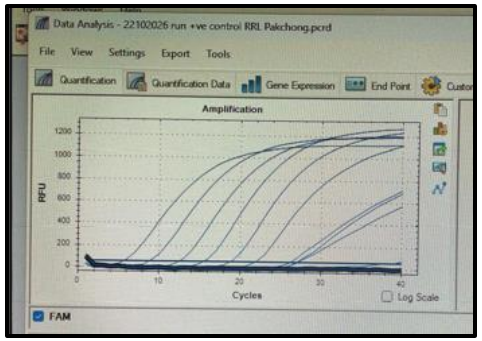
Continuous support for Proficiency Testing (PT) panels: Ensure quality assurance & diagnostic competency.

Reference & control sample: Technical support for sample validation, verification, and reliable reference materials.

Preparedness for emerging lineages: Guidance and support on the validated primers, probes, & positive controls for lineage-specific detection and early warning.

Capacity building on advanced diagnostics: Continuous theoretical and hands-on training for laboratory personnel on modern test procedures and emerging technologies.



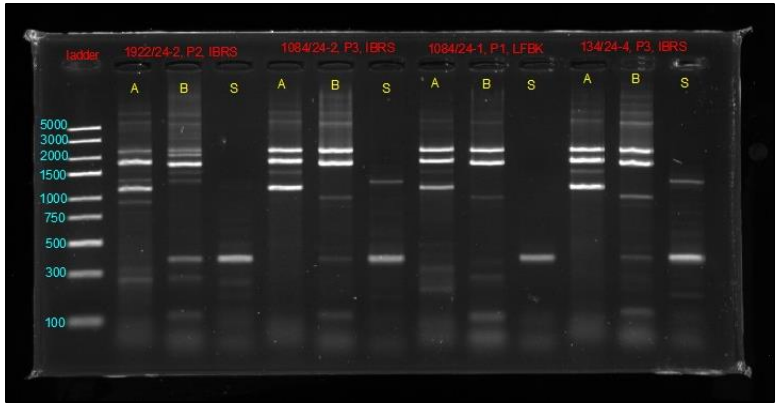




2026–2028 WAY FORWARD

PROPOSED ACTION

Priority Action	Expected Result	Regional Support / Collaboration Needed
Next-Generation Sequencing (NGS) of FMD Virus Circulation in Peninsular Malaysia	Complete whole genome sequences and phylogenetic profiles of circulating FMDV strains, identifying evolutionary trends over time and genetic variations across lineages in Peninsular Malaysia.	Regional Support needed: WOAH/FAO to support the hands-on training on NGS analysis.



THANK YOU