World Organisation for Animal Health

中国动物疫病预防控制中心
China Animal Disease Control Center

MALAYSIA

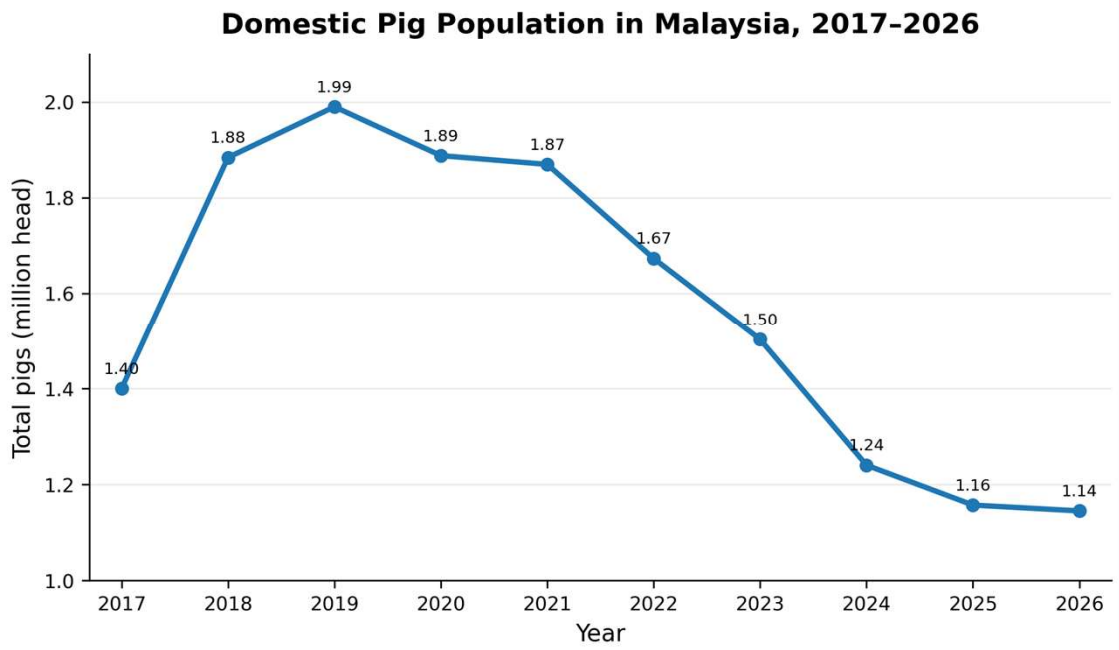
Member's updates on the main diseases in domestic swine population—— Nipah

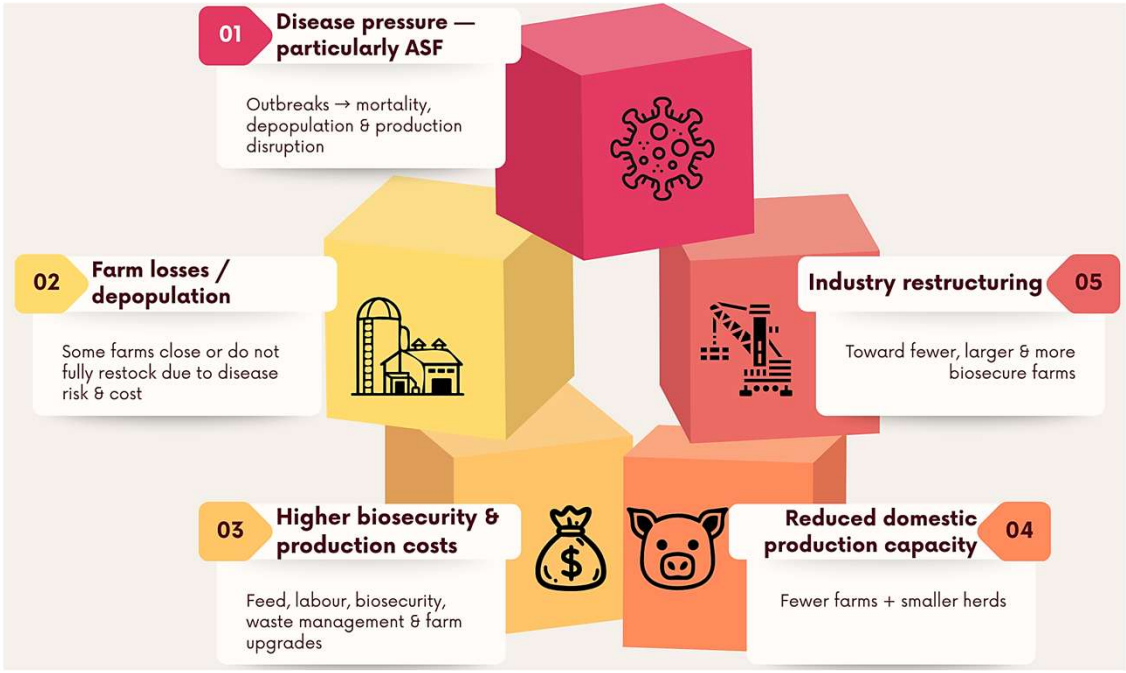
NUR AIMI SYARINA BINTI PAUZI
RESEARCH OFFICER
VETERINARY RESEARCH INSTITUTE (VRI)

DR. LEE CHIAN HOEY
VETERINARY OFFICER
DEPARTMENT OF VETERINARY SERVICES

The Sixth WOAH Regional Training on Swine Disease Control in Asia and the Pacific
Beijing, People's Republic of China
13-16 October 2026

Member's profile





RISK OF INCURSION AND SPREAD OF MAJOR SWINE DISEASES IN MALAYSIA

HEALTHY ENVIRONMENT | HEALTHY ANIMALS | HEALTHY PEOPLE | A SAFER MALAYSIA

AFRICAN SWINE FEVER (ASFV)

HIGH RISK

Multiple entry and spread pathways, including animal movement, contaminated materials, trade and wild-pig interfaces.

Animal movement and transport

Trade and contaminated pork products

Contaminated materials (equipment, vehicle, personnel)

Wild-pig interface (domestic and wild pigs)

NIPAH VIRUS (NiV)

INTERMEDIATE RISK

Persistent fruit-bat reservoir and bat-pig interface, but risk is reduced by strengthened biosecurity, surveillance and movement control.

Fruit-bat reservoir (Pteropus spp.)

Bat-pig interface (near fruit trees/orchards)

Farm biosecurity (open housing increases risk)

Reduced risk with surveillance and movement control

OTHER MAJOR SWINE DISEASES (e.g. CSFV, PRRSV, PCV, JE, SIV)

INTERMEDIATE RISK

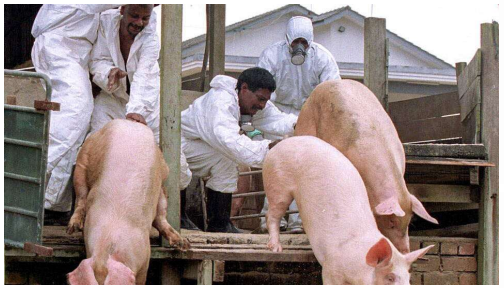
Risk driven mainly by **animal movement, trade, farm biosecurity and regional disease pressure.**

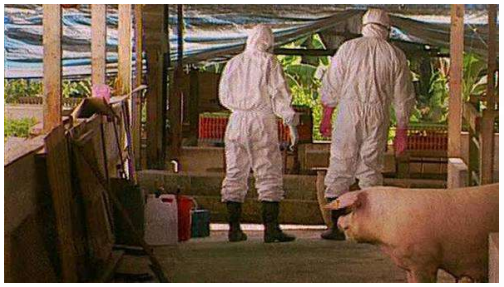
Animal movement and transport

Trade and international/regional disease pressure

Farm biosecurity and management

Multiple circulating swine pathogens in the region





Malaysia – Nipah Virus Encephalitis

Disease significance

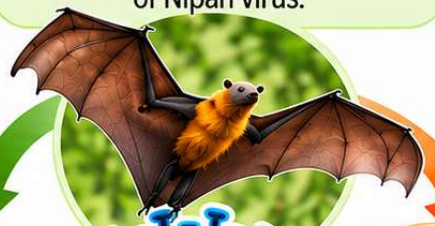
Nipah virus infection is a **zoonotic disease** and a **WOAH-listed disease.**

Malaysia experienced the first recognised Nipah virus outbreak in **1998–1999.**

The outbreak involved pig farms and human encephalitis cases.

Natural reservoir

Fruit bats (*Pteropus* spp.) are the natural reservoir hosts of Nipah virus.



Amplifying host

During the Malaysian outbreak, domestic pigs acted as an **amplifying host** for Nipah virus.

Zoonotic transmission

The virus can be transmitted between animals and humans, causing severe disease in people (encephalitis).

Current status

Malaysia maintains **historical freedom from infection with Nipah virus.**

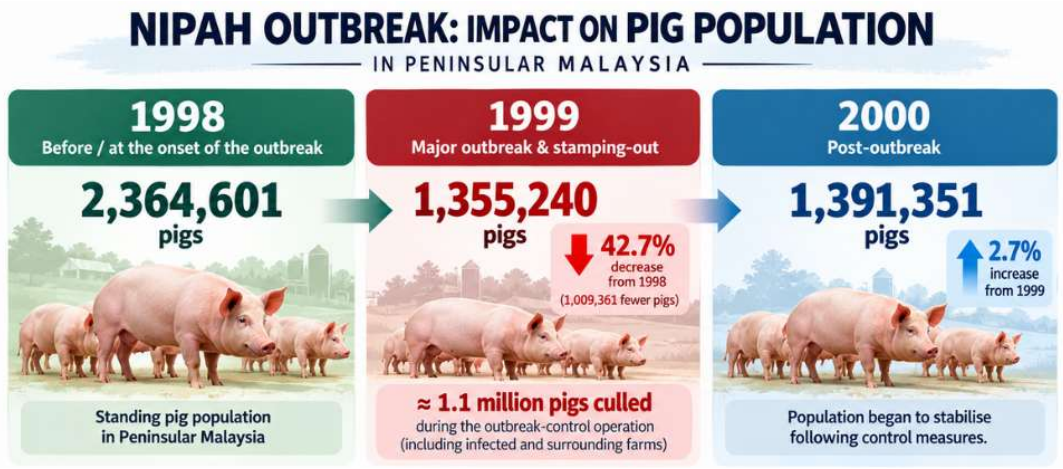
Disease situations - Historical outbreak

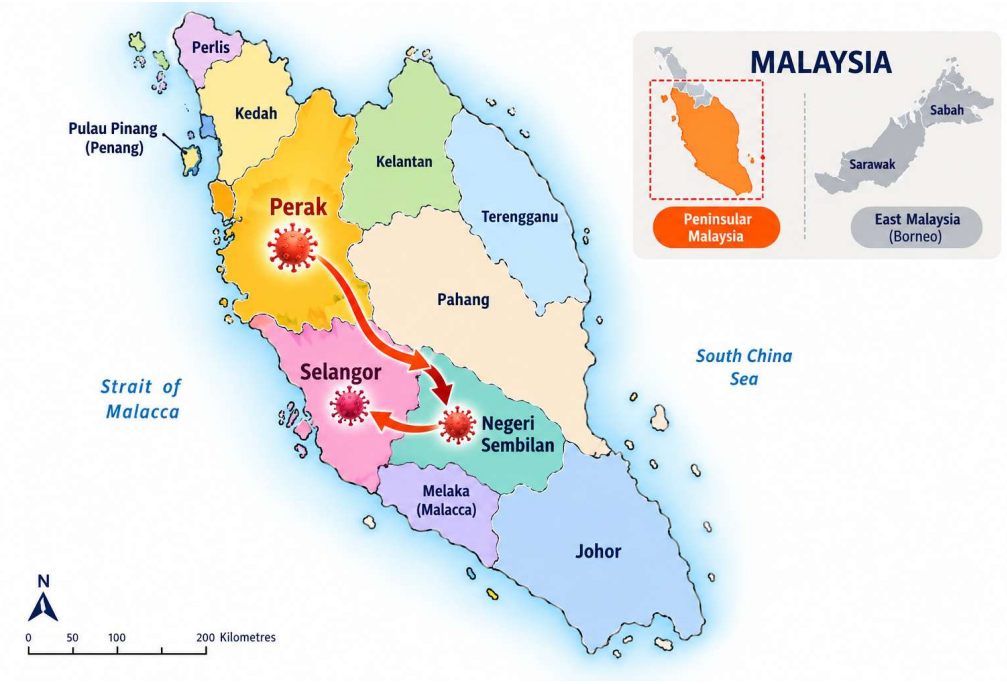
The Diagnostic Trap

Initial misdiagnosis of JE resulted in inappropriate vector control measures and a catastrophic 4-month delay in targeted intervention.

The Direct Link

Amplification occurs rapidly in high-density swine populations before jumping to humans.





Pig movements carried the virus from Perak to other parts of Peninsular Malaysia (such as Bukit Pelanduk in Negeri Sembilan and Sepang, Selangor) and even to abattoir workers in Singapore.

FROM OUTBREAK CONTROL TO MAINTAINING FREEDOM

Current Nipah virus situation in Malaysia

1999
Outbreak controlled

2001
Self-declaration of freedom published by WOAH

2026
Freedom maintained through continuous vigilance

1 NO ACTIVE DISEASE

Malaysia remains **free** from Nipah virus.

2 CONTINUOUS SURVEILLANCE

Annual surveillance in **domestic pigs** and **wild pigs**.

3 PREPAREDNESS & PREVENTION

- Early detection
- Biosecurity
- Import controls
- Rapid reporting

2025 SURVEILLANCE

>2,000 domestic pig samples

48 wild pig samples

ALL NEGATIVE

Disease freedom is not the end of surveillance – it is maintained by surveillance.

Sources: DVS Malaysia, 2026; Malaysia's WOAH self-declaration, 2025

Response to disease incursion

Laboratory capacity

LABORATORY CAPACITY

VRI's Diagnostic Capability for Major Swine Diseases

HEALTHY ENVIRONMENT | HEALTHY ANIMALS | HEALTHY PEOPLE | A SAFER MALAYSIA

MOLECULAR DETECTION

- Conventional RT-PCR
- Nested / Semi-nested RT-PCR
- Real-time RT-PCR (qRT-PCR)
- Multiplex RT-PCR

GENETIC CHARACTERISATION

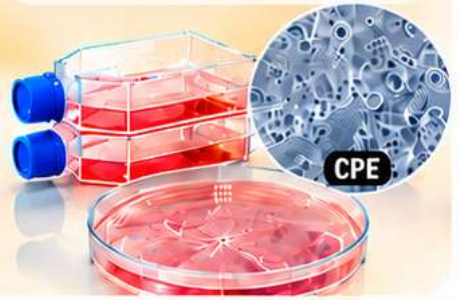
- Sanger sequencing (partial gene sequencing)
- Whole-genome sequencing (WGS)
- Phylogenetic and molecular epidemiology analysis

SEROLOGY (ANTIBODY DETECTION)

- Enzyme-Linked Immunosorbent Assay (ELISA)
- Serum Neutralisation Test (SNT)

CELL CULTURE (VIRUS ISOLATION)

- Virus isolation in suitable cell lines
- Observation of cytopathic effect (CPE)
- Confirmation by RT-PCR/ sequencing



MAJOR SWINE DISEASES COVERED

- Nipah virus (NiV)
- African swine fever virus (ASFV)
- Classical swine fever virus (CSFV)
- Porcine reproductive and respiratory syndrome virus (PRRSV)
- Porcine circovirus (PCV)
- Other swine viruses (e.g. JE, SIV)

Collaboration with other stakeholders

Challenge and possible solutions

CHALLENGES TO CONTROL NIPAH IN MALAYSIA
AND MALAYSIA'S ACTIONS TO OVERCOME THOSE CHALLENGES

A JOINT EFFORT FOR
HEALTHY ENVIRONMENT · HEALTHY ANIMALS · HEALTHY PEOPLE · A SAFER MALAYSIA

KEY CHALLENGES
Factors contributing to the challenges

1 Movement of infected or at-risk pigs
- Some farmers moved or sold pigs to other farms or markets when animals showed signs of illness to avoid financial losses from death or government culling.
- Difficult to trace animal movements.

2 High-density and intensive pig farming
- Large number of pigs kept in close proximity in certain areas increased the risk of rapid virus amplification and spread.
- Fast within-farm transmission.
- Greater impact during outbreaks.

3 Socio-economic impact and farmer compliance
- Culling of infected and in-contact pigs caused major financial losses, leading to reluctance to report, non-compliance with control measures and illegal movement of animals.

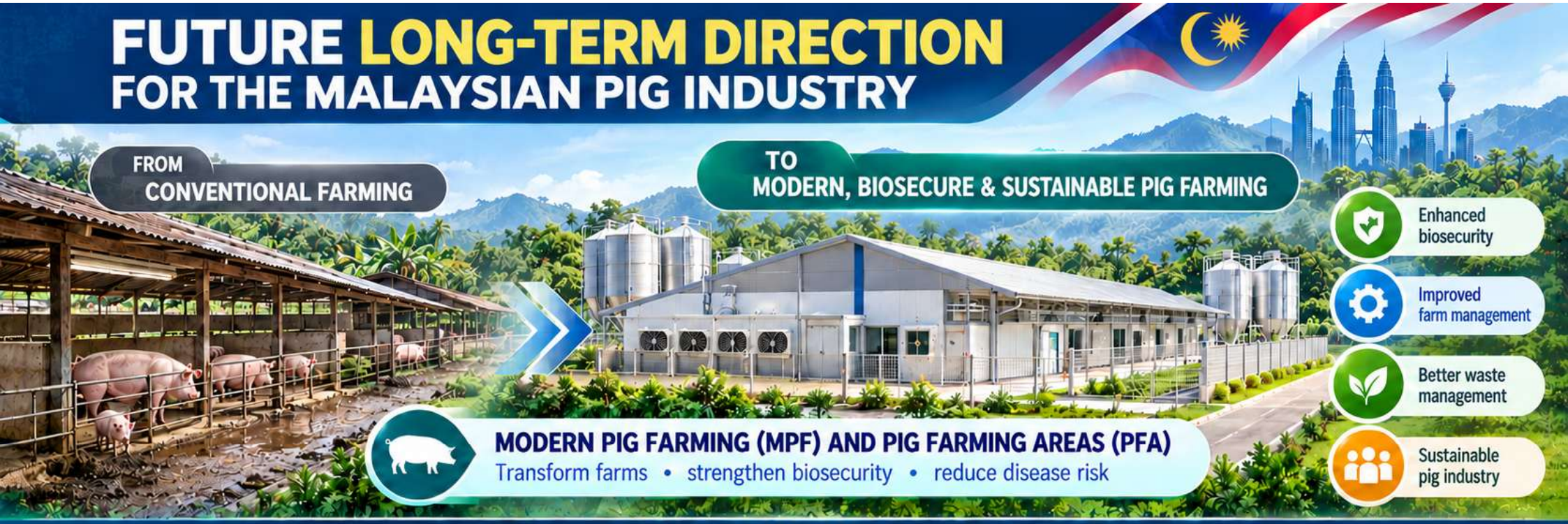
MALAYSIA'S ACTIONS
Strategies and measures implemented to overcome the challenges

1 Control of animal movement and traceability
- Movement control within and between states/areas.
- Quarantine and licensing for animal transport.
- Trace-back and trace-forward investigations.
- Enforcement by DVS with support from other agencies (e.g. police, local authorities).

2 Strengthened surveillance and early detection
- Active surveillance in pig farms, wildlife (bats) and environment.
- Enhanced diagnostic capacity (including BSL-3 for Nipah at VRI).
- Network of DVS laboratories across Malaysia.
- Improved disease reporting and information sharing.

3 Farmer awareness and support
- Continuous awareness campaigns on disease recognition.
- Guidance on reporting and not moving sick animals.
- Compensation for culled animals to reduce financial burden.
- Training on biosecurity and good farming practices.

FUTURE LONG-TERM DIRECTION FOR THE MALAYSIAN PIG INDUSTRY



DVS STRATEGIC PLAN 2022 – 2030 | KEY PRIORITIES

1. **DISEASE FREEDOM**
   Work towards freedom from ASF
2. **SURVEILLANCE**
   Active surveillance + MADIC reporting
3. **PREPAREDNESS**
   Simulation exercises + risk assessment
4. **DIAGNOSTICS**
   ISO 17025 + WOAH-aligned testing
5. **TRACEABILITY & BORDER CONTROL**
   Traceability + import risk & border controls

Sources: DVS Strategic Plan for Veterinary Disease Control & Biosecurity 2022 – 2030; KPKM Media Statement, 17 May 2025.

World Organisation for Animal Health

Thank you!

Contact information

DEPARTMENT OF VETERINARY SERVICES

nuraimi@dvs.gov.my

chian@dvs.gov.my

Facebook
Jabatan Perkhidmatan Veterinar
facebook.com/veterinarmalaysia

Instagram
DVS Malaysia
@dvsmalaysia_official

TikTok
DVS Malaysia
@dvsmalaysia

中国动物疫病预防控制中心
China Animal Disease Control Center

The Sixth WOAH Regional Training on Swine Disease Control in Asia and the Pacific
Beijing, People's Republic of China
13-16 October 2026