



# CURRENT FMD LABORATORY ACTIVITIES IN CHINA

**SEACFMD LabNet Meeting**

**Pakchong, Thailand**

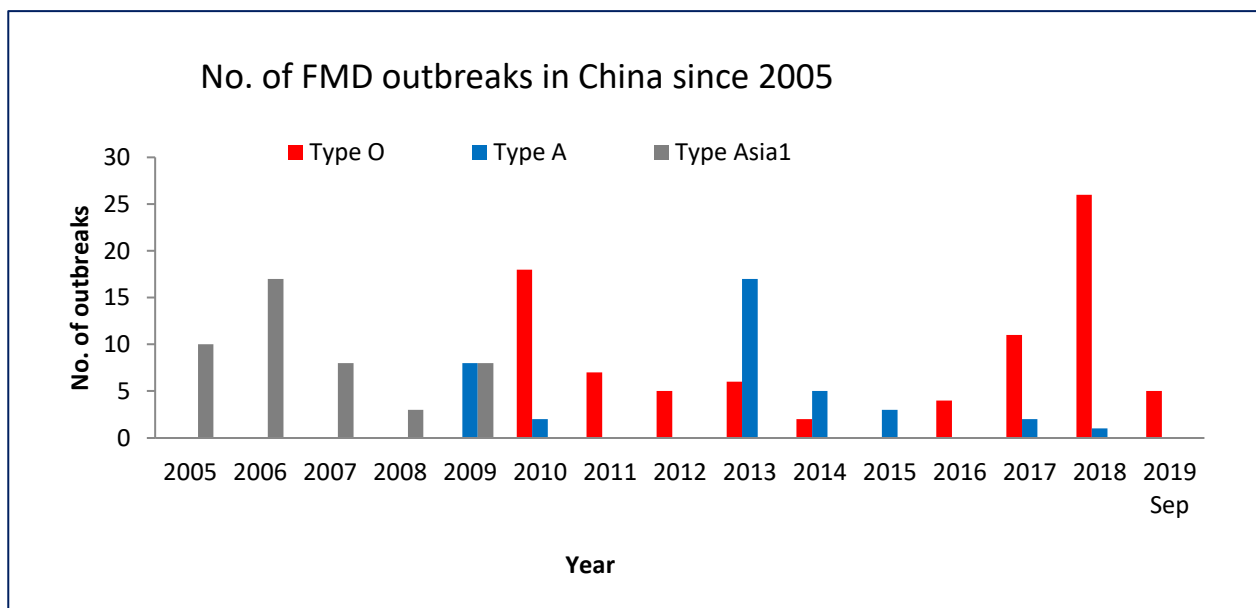
**November 4-5, 2019**



# OUTLINE

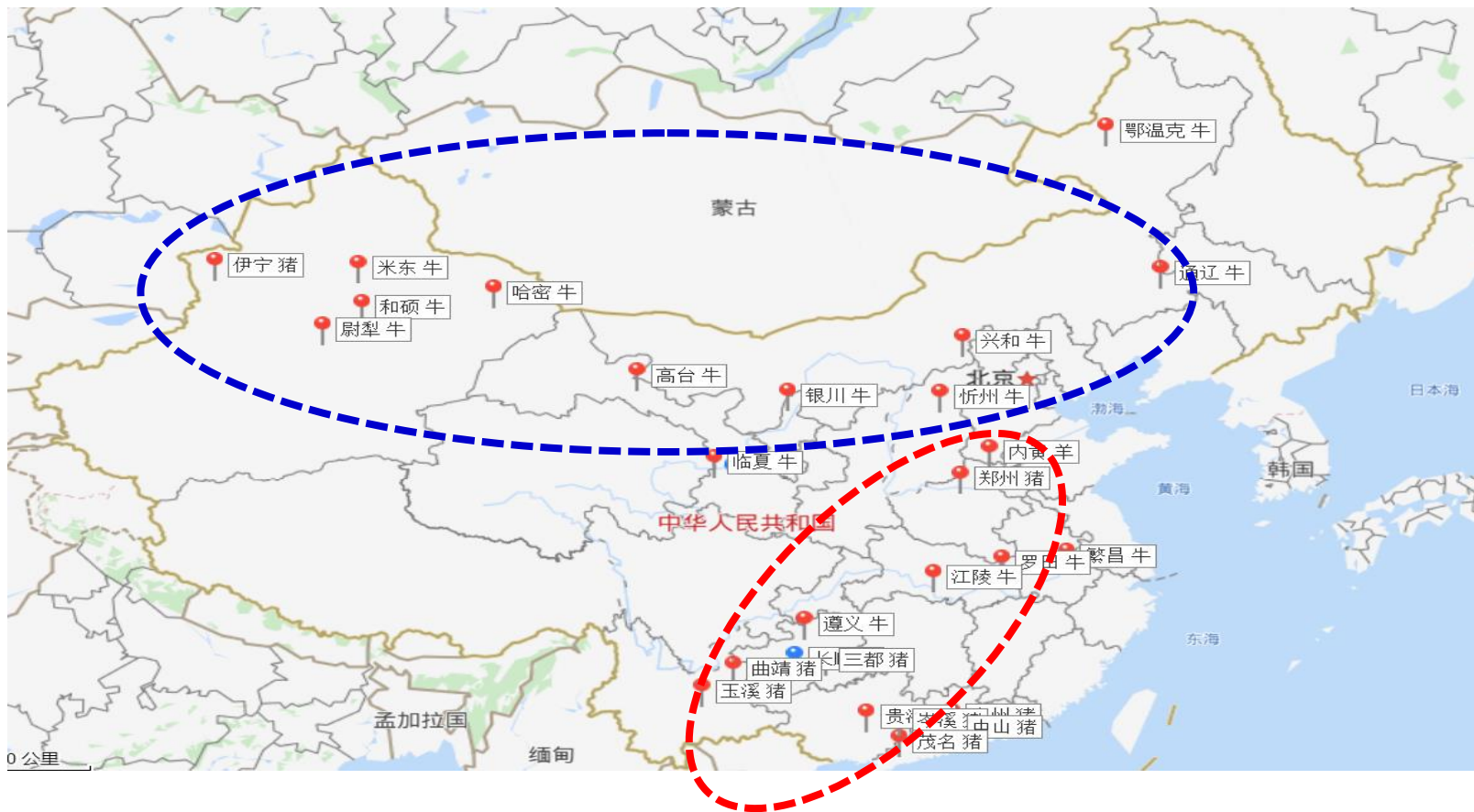
- FMD situation 2018 – Sep 2019
- FMD laboratory diagnosis, including virus serotyping and genotyping
- Vaccination and surveillance programme
- Post vaccination monitoring activities and results 2018
- Quality assurance

# Notified outbreaks since 2005



- **84 type O outbreaks since 2010**
- **28 type A outbreaks since 2013**
- **46 type Asia1 outbreaks 2005-2009, no more new cases since 2010**

# Spatial distribution of FMD outbreaks in 2018



# Spatial distribution of FMD outbreaks Jan-Sep 2019



# FMD SITUATION (2016 – Sep 2019)

## FMDV strains circulating

Year	Type O virus			Type A virus		Type Asia 1 virus
	SEA/Mya-98	ME-SA/PanAsia	ME-SA/IND2001	Cathay	ASIA/Sea-97	ASIA/G-V
2016	√			√		
2017	√		√		√	
2018	√	√	√	√	√	
Jan-Sep 2019			√	√		

## FMD virus characterization (serotyping and genotyping)

Year	No. samples submitted to national lab	No. of serotype O viruses	No. of serotype A viruses	No. of serotype Asia 1	No virus detected
2015	38	0	14	0	24
2016	23	14	0	0	9
2017	39	16	8	0	15
2018	81	25	1	0	55

◆ We have sent some sequences of the isolates to WRL for further analysis.

# FMD vaccination programme

## Compulsory immunisation policy

- Pigs have been vaccinated with type **O**
- Cattle, sheep/goats, camels and deer have been vaccinated with type **O**; Those from certain regions and border areas have been vaccinated with type **A**
- Dairy cattle and breeding bulls have been vaccinated with type **A**
- Vaccination of Type Asia 1 has been withdrawn since 1<sup>st</sup> July 2018
- The coverage for target animals should be 100%

### 农业农村部文件

农牧发〔2019〕4号

#### 农业农村部关于印发《2019年国家动物疫病强制免疫计划》的通知

各省、自治区、直辖市及计划单列市畜牧兽医(农业农村、农牧)厅(局、委、办),新疆生产建设兵团畜牧兽医局,部属有关事业单位:

为认真贯彻《国家中长期动物疫病防治规划(2012—2020年)》,切实做好2019年全国动物疫病强制免疫工作,根据《中华人民共和国动物防疫法》等法律法规规定,我部组织制定了《2019年国家动物疫病强制免疫计划》。现印发给你们,请遵照执行。

农业农村部  
2019年1月15日

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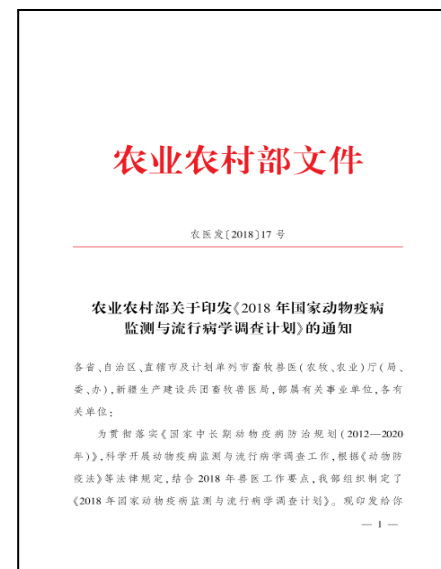
# Current vaccine strains

Serotype	International vaccines	Local vaccine
Type <b>O</b>	/	<b>O/Myr-98 strains</b>
Type <b>A</b>	/	<b>A/SEA-97 strains</b>



# FMD national surveillance scheme

- **Provincial CADC and local laboratories**
  - Clinical surveillance
  - Routine and fixed-point surveillance (serology and virology)
  - Spring and autumn surveillance every year
- **FMDRL participated in the scheme designing, sampling, primary and confirmatory testing of samples**
- **The antibody level should be over 70%**
- **Results published in the Veterinary Bulletin**



# FMD detection methods for surveillance and PVM

## ➤ **Virological samples : Probang, blood, lymph node**

- RT-PCR
- Real-time RT-PCR
- VP1 sequencing
- Virus isolation

## ➤ **Serum samples**

- LBPE for FMDV antibody type O, A and Asia1
- 3ABC ELISA for FMDV NSP antibody

# PVM activities and findings-2018

➤ In total of **3,691,167** serum samples have been collected and tested

## •Pigs

- Type O 88.33%

## •Cattle

- Type O 91.05%
- Type Asia1 85.58%
- Type A 89.51%

## •Sheep/goat

- Type O 85.82%
- Type Asia1 77.40%
- Type A 71.66%

# PVM activities and findings-Jan-June 2019

➤ In total of 997,037 serum samples have been collected and tested

## •Pigs

- Type O 89.07%

## •Cattle

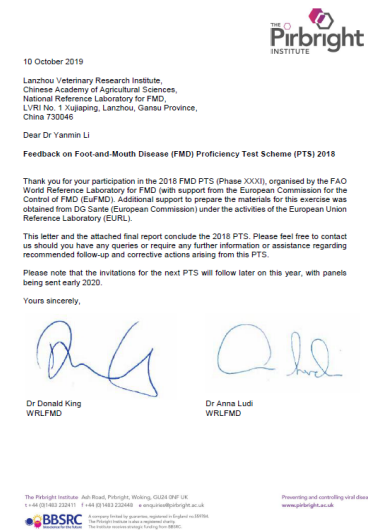
- Type O 91.63%
- Type A 88.89%

## •Sheep/goat

- Type O 87.35%
- Type A 75.74%

# Quality assurance

- The National Reference Laboratory was accredited ISO 17025 in July 2017 ; maintained for 2018-2019
- The laboratory participated in the 2014, 2016 and 2018 FMD PTS which were organized by WRL/EURL FMD, respectively. Panel 1 (2018), 2, 3 and 4 samples from each PTS were received and tested . The results from all or the most samples were comparable to other labs.
- The laboratory participated in the 2014 and 2016 FMD PTS which were organized by Beijing Inspection and Quarantine Testing Centre, respectively. The results from all samples were correct.
- The CNFMDRL and the CADC jointly organise the PTS annually for the provincial labs (around 32 labs) in China. **FMDV and SVV qRT-PCR PTS in 2018**



# Training provided

- **National Training**
  - ✓ Workshops organized by provincial labs (>300 participants)
  - ✓ Diagnostic technology training jointly organized by FMDRL and Diagnosis Center, LVRI (>600 participants)
  - ✓ Biosafety trainings held in LVRI
  - ✓ Field training (sampling during active surveillance)
- **International Training**
  - ✓ Workshop on TADs (FMD, PPR, Sheep/goat Pox) diagnosis technologies were held in Nov 2018 in Lanzhou: 8 countries, 23 participants



# Acknowledgement

- ✓ **The Diagnosis Group, The Chinese National/OIE Reference Laboratory for FMD, LVRI**
- ✓ **The State Key Laboratory for Veterinary Etiological Biology , LVRI**
- ✓ **The Animal Husbandry and Veterinary Bureau, MARA, China for the funding**
- ✓ **The WRL for FMD, The Pirbright Institute, UK**





***Thank you for your attention***



Danxia Landform

THANK YOU