

**Epidemiological Investigations and  
Control Measures of ASF in China**  
**中国非洲猪瘟流行病学调查与防控对策**

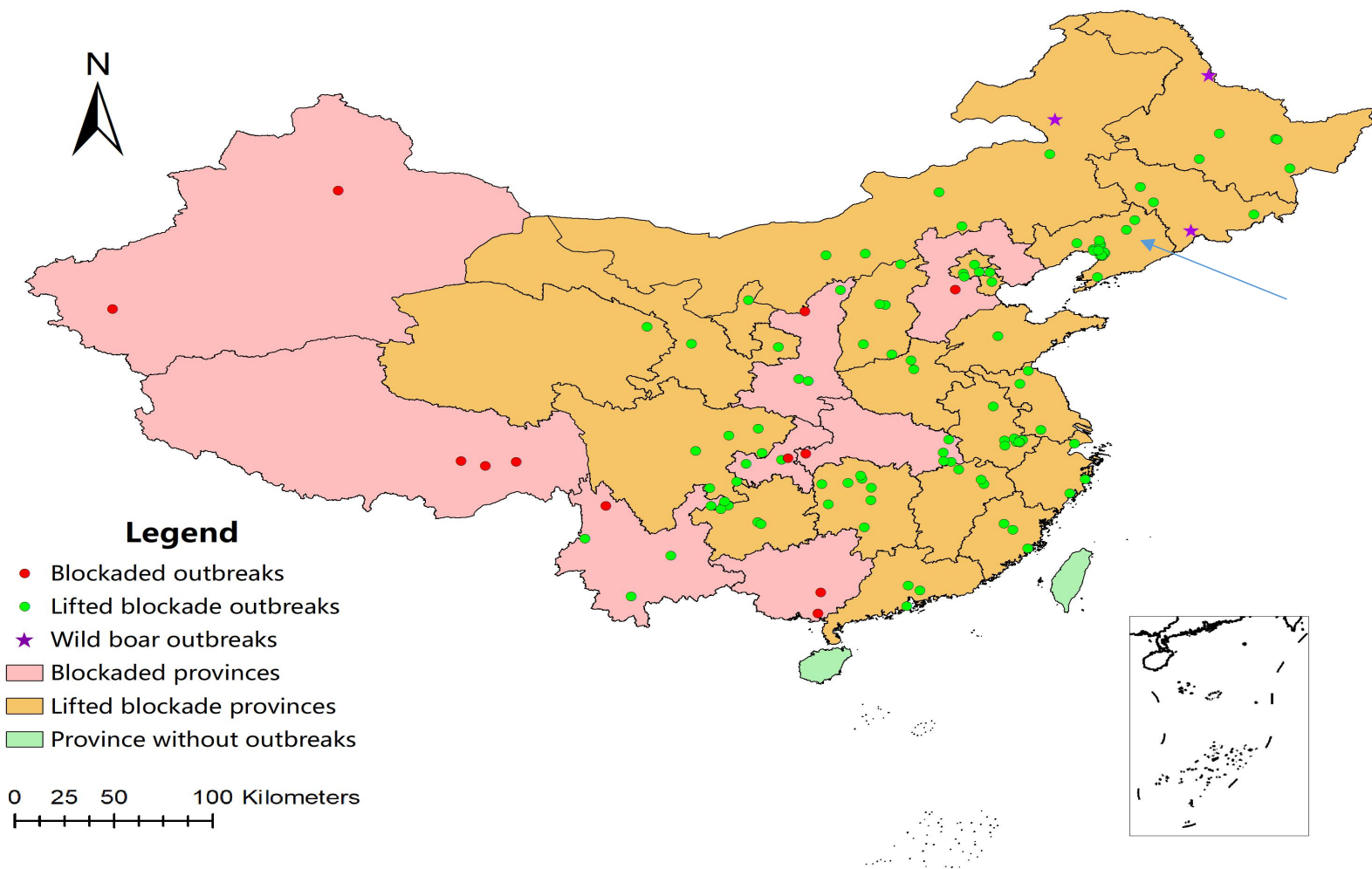
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# 122 outbreaks in 30 provinces (as of 8<sup>th</sup> April)

## 疫情空间分布



First outbreak 第一起疫情

# Emergency responses 疫情应急处置



- Outbreak investigation 流行病学调查
- Stamping out / Compensation 扑杀/补偿
- Cleaning and disinfection 清洗消毒
- Disposal 无害化处理
- Surveillance 风险监测
- Zoning and movement control 区划和流通限制
- Recovery / sentinel animal 恢复生产（哨兵动物）

# Prompt epidemiological investigations 及时开展流行病学调查

- MARA dispatched the Working Groups (WGs) to the field for **each outbreak**

## ***Role of WGs***

- *Coordinate and supervise emergency response*
  - *Conduct epidemiological investigations*
- About **300 professionals** were dispatched to conduct the **field epidemiological investigation**.



# Identify transmission patterns and risk factors

## 疫情传播的主要风险因素

### Transmission routes of outbreaks

(n=111, domestic pig)

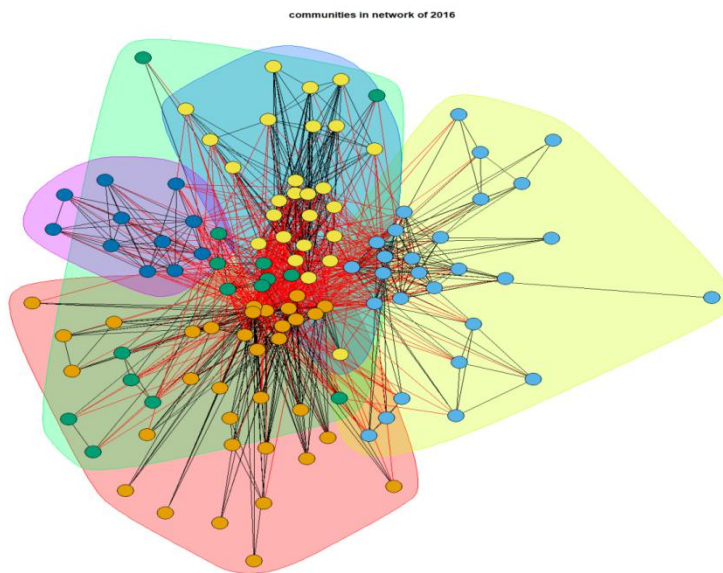
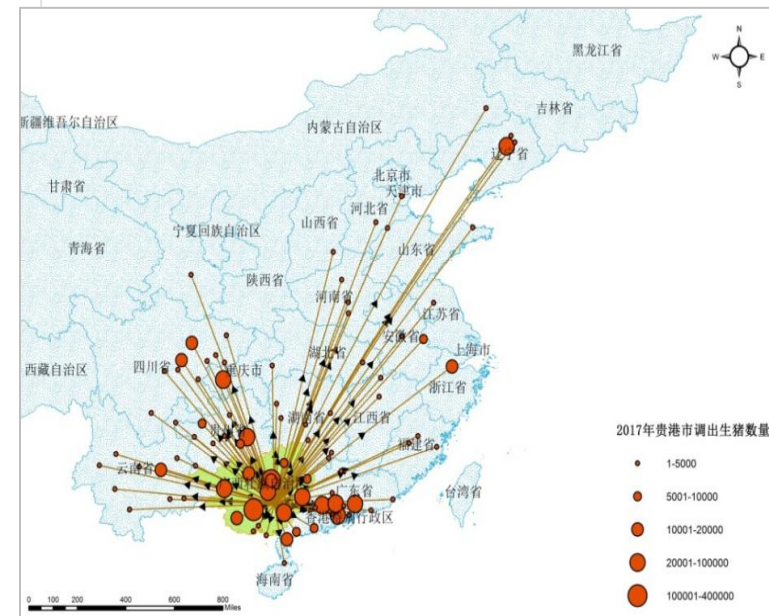
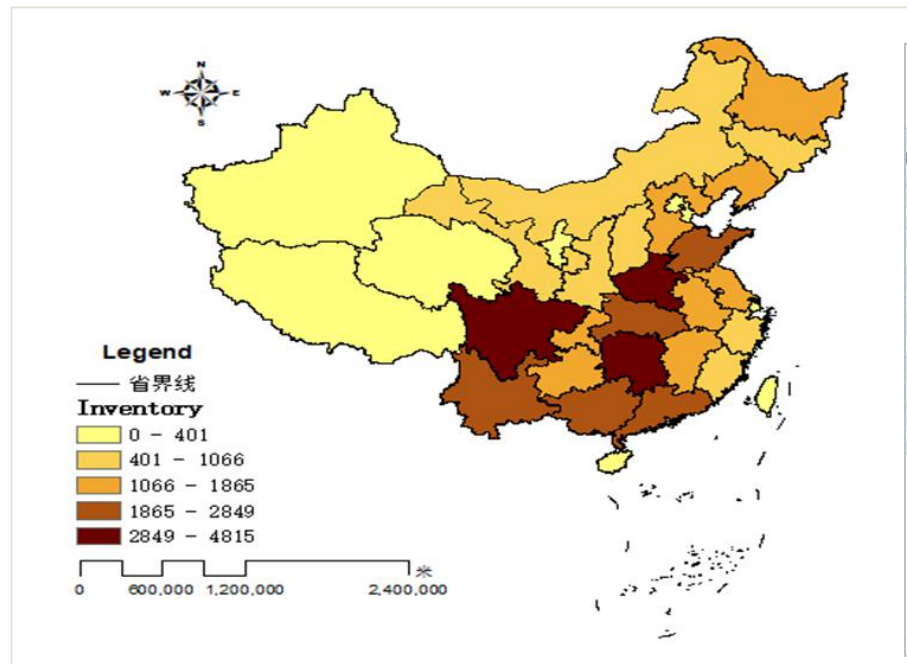
	Live pig and pig product movement	Swill feeding	Vehicle and personnel contact
Number of outbreaks	16	49	46
Proportion	14.4%	44.1%	41.5%



# Part I

## Complex live pig trade and movement networks

复杂的生猪调运网络



# Illegal trade 违规调运

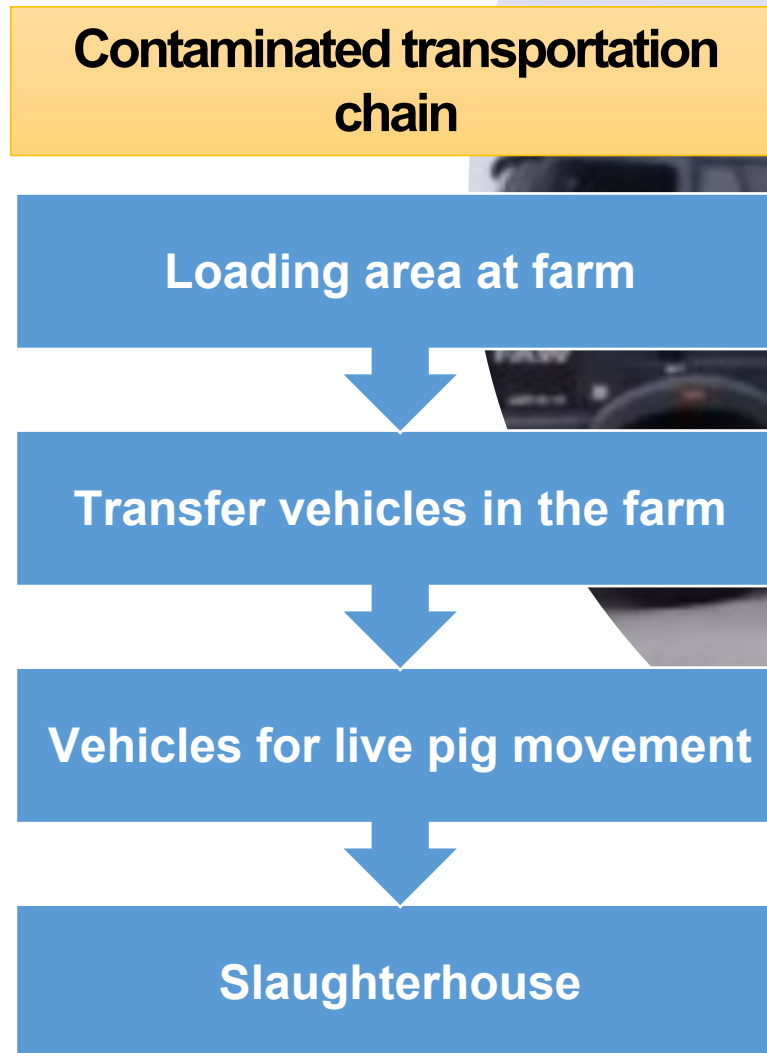
- Illegal trade of suspected infected pigs
- Ministry of Public Security: investigated 32 criminal cases ( > 15,000 pigs, 140 tons of pork and pork products)



# Contaminated vehicles

## 运输车辆污染

- Tested transport vehicles: 32 outbreaks
- Test Positive: 13 outbreaks (41%)





# Risk Management Actions: Movement control

## 风险管理措施：移动控制

- **8 Aug**— Restrict movement of live pigs and risk products for the province having ASF outbreaks
- **11 Sep**— Restrict movement of live pigs for the province having ASF outbreaks
- Closing live pig markets of province with ASF outbreaks
- **18 Oct**— Suspend the policy of free toll fee for transport of live pigs
- **27 Dec**— Direct trade and transport between qualified farms and slaughterhouse

35.3%



15%



# Risk Management Actions: Management of vehicles

## 风险管理措施：车辆管理

### No. 79 Notice MARA (31 Oct. 2018)

- Proper condition during the transportation (e.g. anti-leakage, adequate space, enough drinking water)
- GPS in the vehicle for cross-province movement tracing
- Strict cleaning and disinfection before and after loading



# Risk Management Actions: In-depth reform in animal health management

## 风险管理措施：其他措施

- Animal health inspection  
certificates based on lab test
- zoning approach (in the works)
- Strengthening the broker management



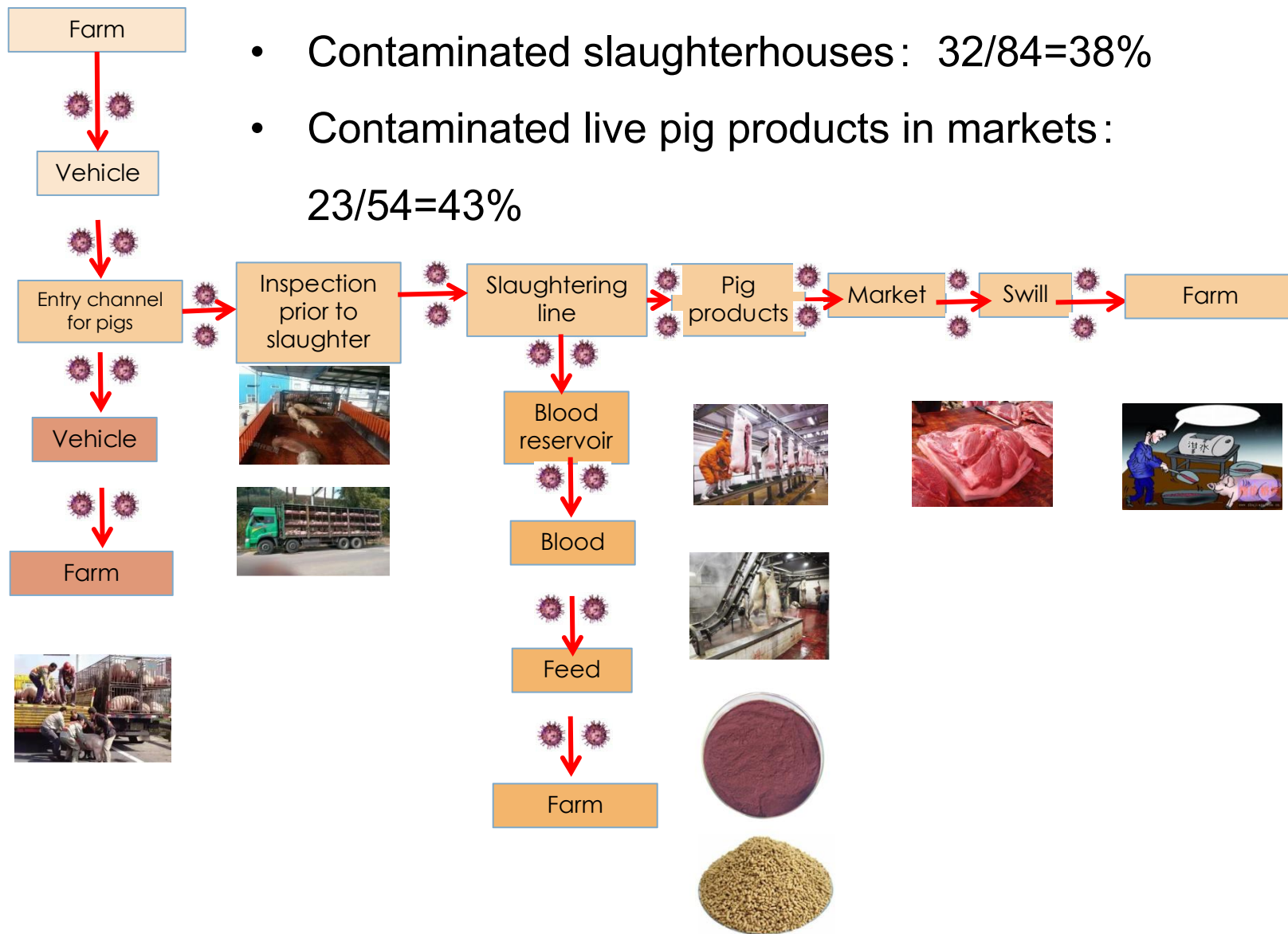
Zoning approach for ASF prevention and control in China (draft)



## Part II

### Virus circulation along the value chain

病毒沿价值链传播



# Risk of swill feeding

## 饲喂餐厨剩余物的风险

Field investigation:

Swill feeding **OR = 7.653 (95% CI: 2.24, 26.14)**

**30 Aug. 2018** – Stop swill feeding in provinces  
having outbreaks and their neighboring provinces

**18 Oct. 2018** – Ban swill feeding at national wide



50%



43.6%





# Challenging to stop swill feeding

## 禁止饲喂餐厨剩余物的挑战

Food leftover collection and transportation



Food leftover disposal and utilization



Multi-sectoral collaboration



Public awareness & Enforcement



# Risk Management Actions: Strengthening inspection in slaughtering

## 风险管理措施：强化屠宰监管

### 1st Feb.2019: Test of ASF in slaughterhouse required

- Test **every batch** of live pigs
- Issue animal health certificates for products based on lab test
- Thoroughly cleansing and disinfection required

# Risk Management Action: Reducing illegal slaughtering

## 风险管理措施：打击私屠乱宰

**18 Dec, 2018**

- Notice joint issued by MARA and Ministry of Public Security and Ministry of Market Regulation
- Enforcement on stopping illegal slaughtering



# Part III

## Biosecurity

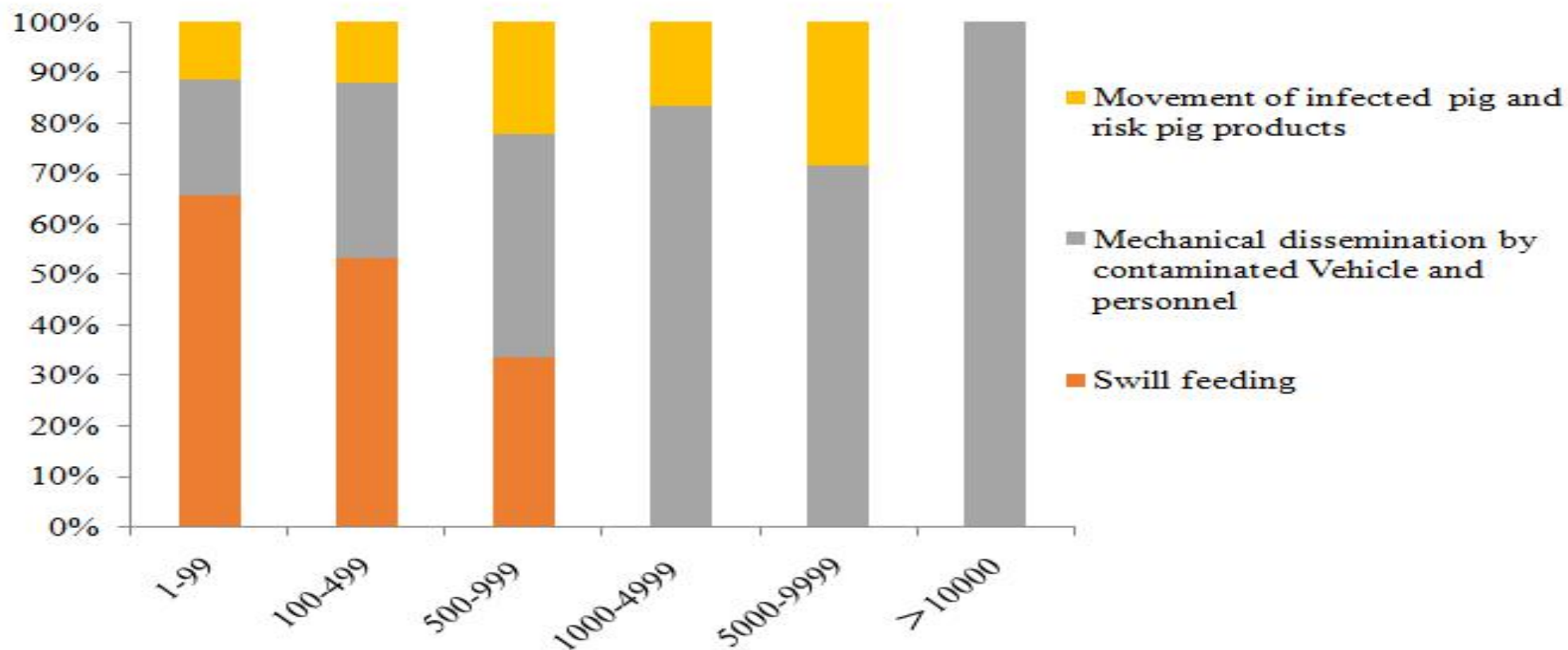
loopholes in large  
intensive farms

规模养殖场生物安  
全缺陷

Scale	Output of each scale	Proportion of farms in each scales	Outbreak proportion of each scale	OR
1-99	37.0%	97.3113%	30.1%	0.81
100-499	18.1%	1.6865%	40.7%	24.1
500-999	12.3%	0.3925%	8%	20.4
1000-4999	16.8%	0.1824%	10.6%	58.1
5000-9999	5.1%	0.0166%	6.2%	373.5
≥10000	10.7%	0.0107%	4.4%	411.2

# Human and vehicle is main transmission route for large scale farms

人员和车辆是疫情传入规模场的主要途径





# Similar transmission process for all outbreaks in large intensive farms

## 大规模场发病原因基本相同

- No construction or operation of exit channel for culling sows is the cause
- Lack of strict cleansing and disinfection system for vehicles
- Culling pigs
- Confusion of diseases with similar symptoms.
- Internal transfer vehicles
- Growers and veterinarians

ASF  
Introduction

Took 2-3  
months  
to identify  
ASF

Spread  
within farm

Stricter the management and the better facilities, the slower spread



# Risk Management Action: Improving biosecurity management

风险管理措施：提升生物安全水平

## MARA notification (22 Oct. 2018)

### Improving biosecurity management in breeding farms and large intensive farms

➤ Personnel : Truck drivers, Insurance agents, Para Vet

➤ Transportation: Loading area in farm, vehicles

➤ Flies/ Mouse:



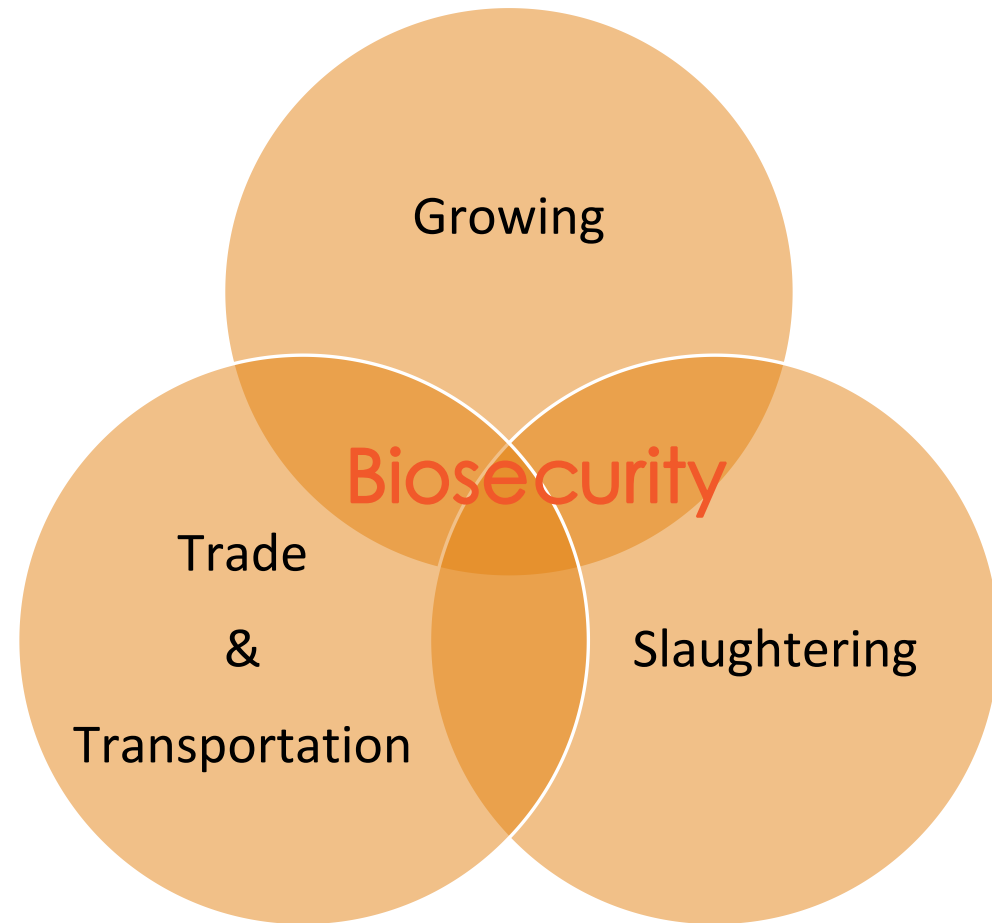
Long-term and  
sustainable solutions

with joint-efforts

群防群控

久久为功

## Upgrading the industry and value chain



Zoning & Compartmentilizaion approaches

# Promoting Multi-sector collaboration & Public awareness 联防联控&宣传

## ***Interest-based stakeholders coordination mechanism***

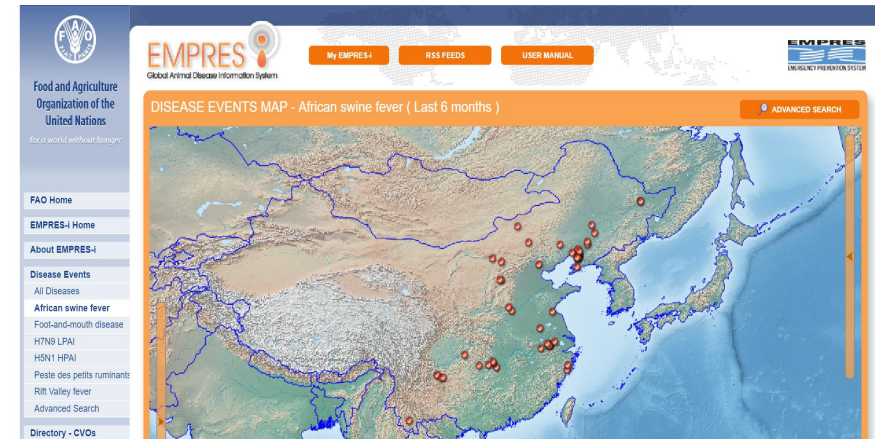
- Strengthen multi-sector collaboration
- Unify same objectives among stakeholders
- Minimize obstacles

## ***Public awareness:***

- Raise the awareness of pig growers and other stakeholders
- Mobilize the support from the public

# Enhancing international collaboration 加强国际合作

- With FAO, OIE and other countries
  - Sharing experience in ASF prevention and control
  - Providing technical assistance for neighboring countries
- Collaboration on ASF research





**THANK YOU**

