



**4<sup>th</sup> ASF coordination meeting for South-East Asia**  
**26-28 Nov. 2024, Hanoi, Vietnam**



# Implementation of biosecurity measures as main tool for ASF control in China

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**State Key Laboratory for Animal Disease control and Prevention**

**Harbin Veterinary Research Institute of Chinese Academy of Agricultural Sciences**

# Spread of ASF in China

**First case: Aug 3, 2018**

**Until Apr 19, 2019**

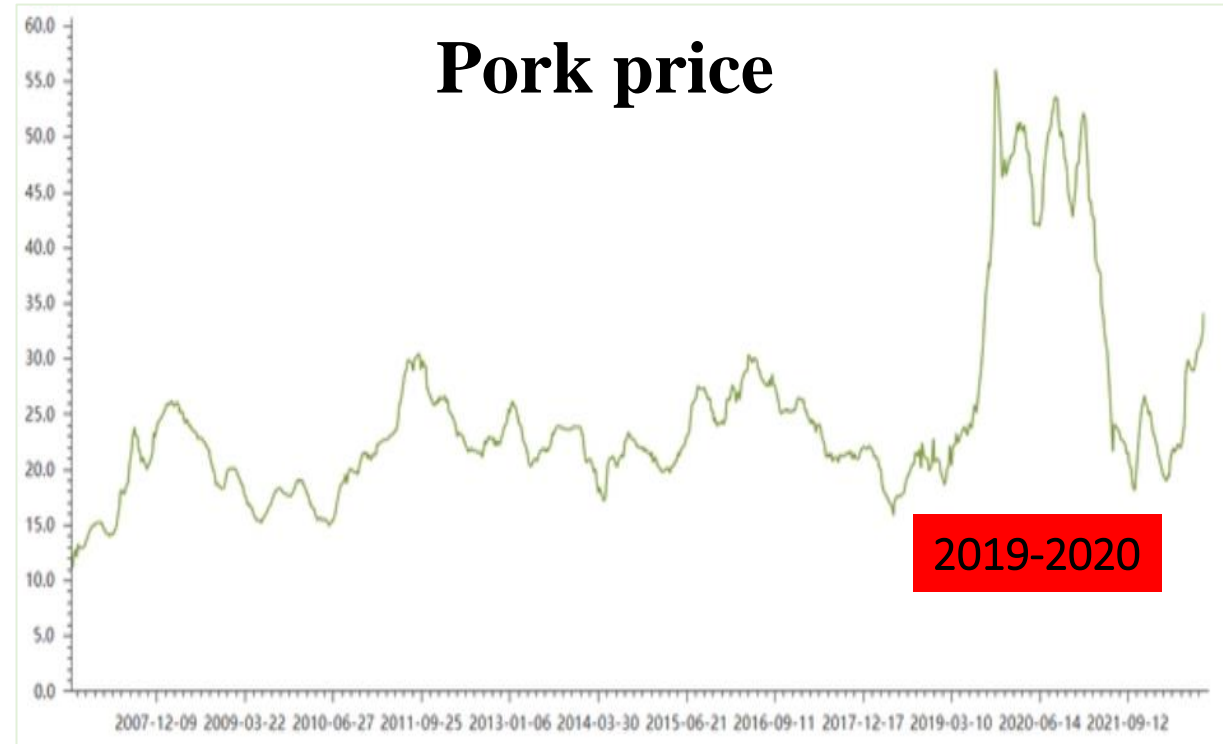
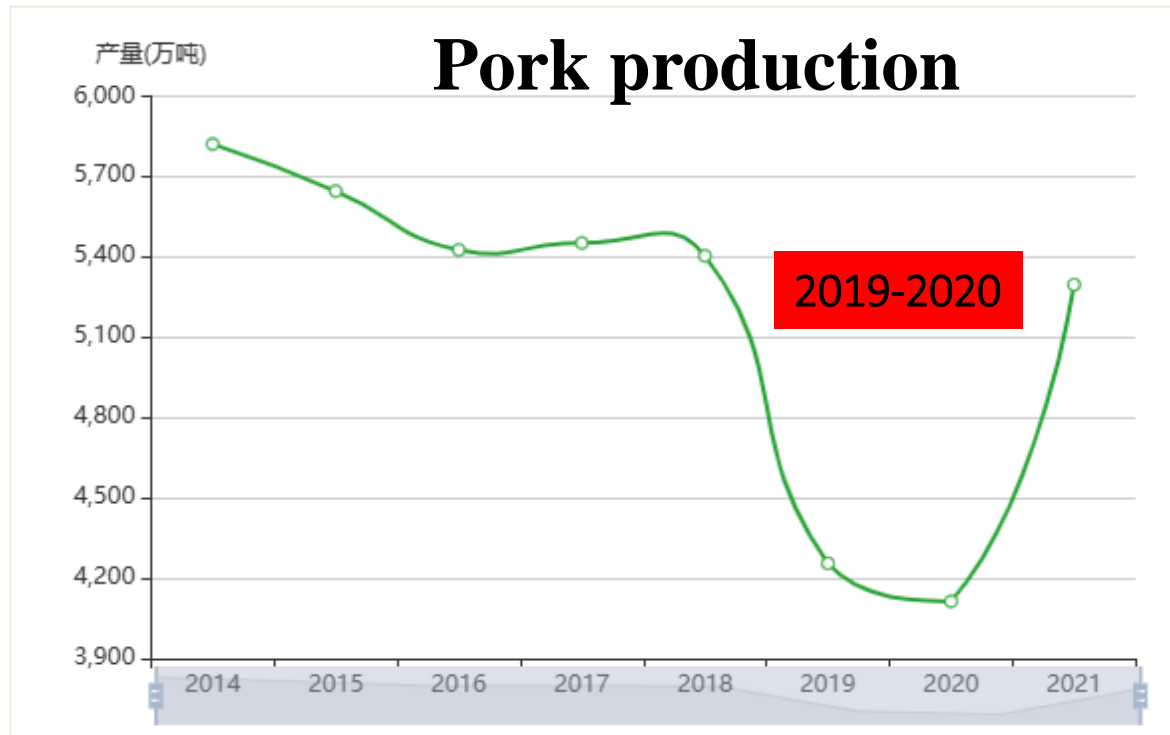


**8 months**



*Data from CAHEC and WOAH*

# ASFV caused huge losses in China since 2018



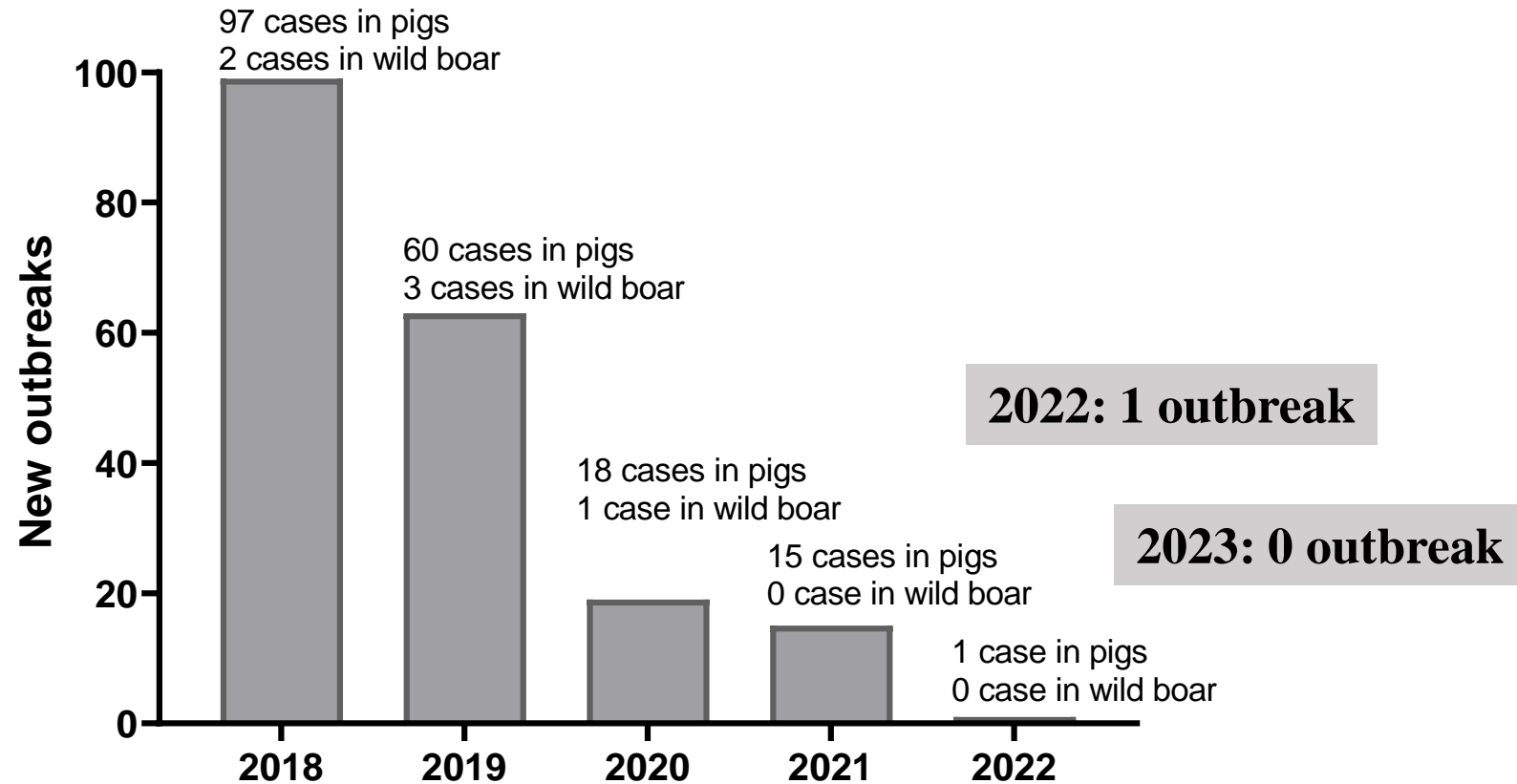
# ASF in China since 2018

Phase 1. Pandemic

Phase 2. Endemic

Phase 3. Controlled

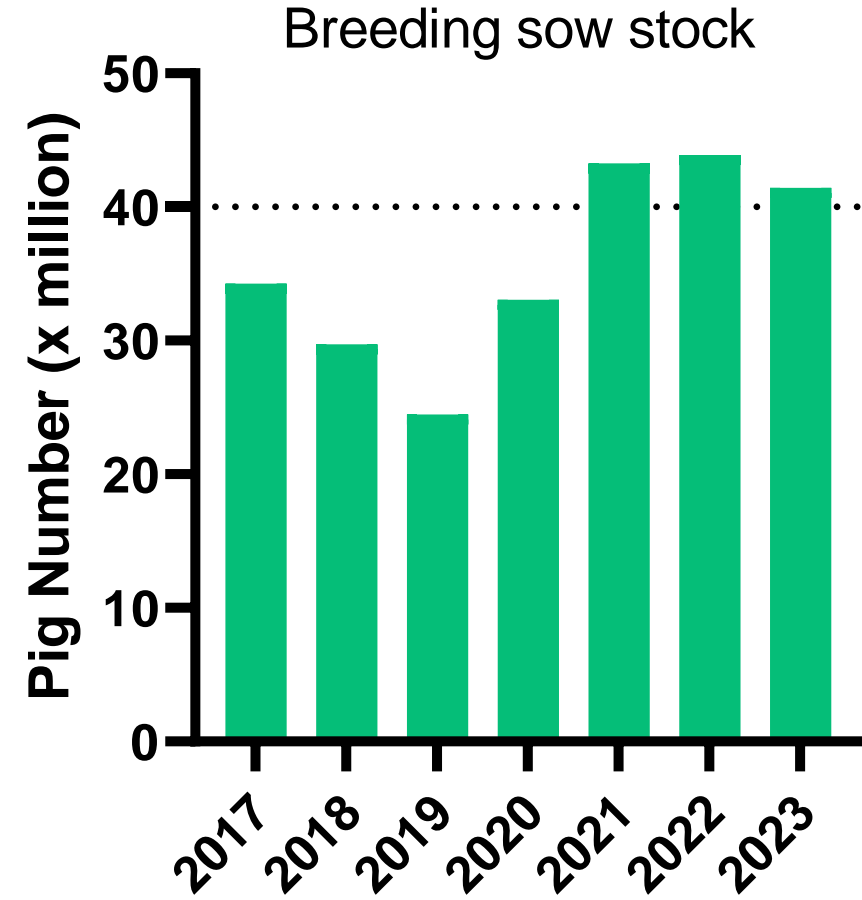
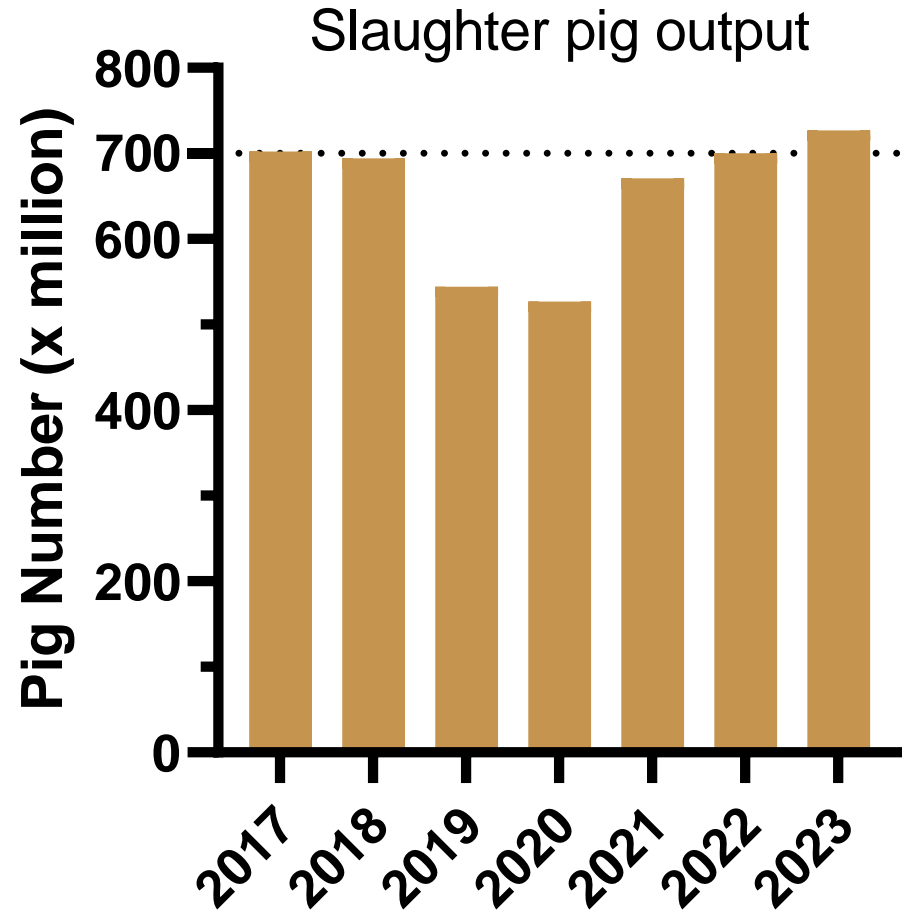
Phase 4. Eradicated



From MARA, China

*Data from CAHEC and WOA*

# Pig industry recovers to normal level in China



*Data from CAHEC*

# Effective measures for ASF control in China

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- 1. Laws and regulations promulgated by MARA**
- 2. Large pig companies take proactive actions**
- 3. Strict biosecurity measures**

# ASF warning (Level II) was issued by MARA

	African swine fever, China (People's Rep. of)
Information received on 03/08/2018 from Dr Zhang Zhongqi, Director General , China Animal Disease Control Centre, Veterinary Bureau, Ministry of Agriculture, Beijing, China (People's Rep. of)	
<b>Summary</b>	
Report type	Immediate notification
Date of start of the event	01/08/2018
Date of confirmation of the event	03/08/2018
Report date	03/08/2018
Date submitted to OIE	03/08/2018
Date event resolved	04/12/2018
Reason for notification	First occurrence of a listed disease in the country
Causal agent	African swine fever virus
Nature of diagnosis	Clinical, Laboratory (basic), Laboratory (advanced)

## 农业农村部发布非洲猪瘟Ⅱ级疫情预警

日期：2018-08-03 16:28

作者：

来源：农业农村部新闻办公室

【字体：大 中 小】

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本网讯 农业农村部新闻办公室8月3日发布，辽宁省沈阳市沈北新区发生一起生猪非洲猪瘟疫情，这是我国首次发生非洲猪瘟疫情。

8月1日，辽宁省沈阳市沈北新区某养殖户的生猪发生疑似非洲猪瘟疫情，存栏383头，发病47头，死亡47头。我部接到报告后立即紧急指导当地做好各项防治措施并采样检测。8月3日，经中国动物卫生与流行病学中心（国家外来动物疫病研究中心）确诊，该起疫情为非洲猪瘟疫情。



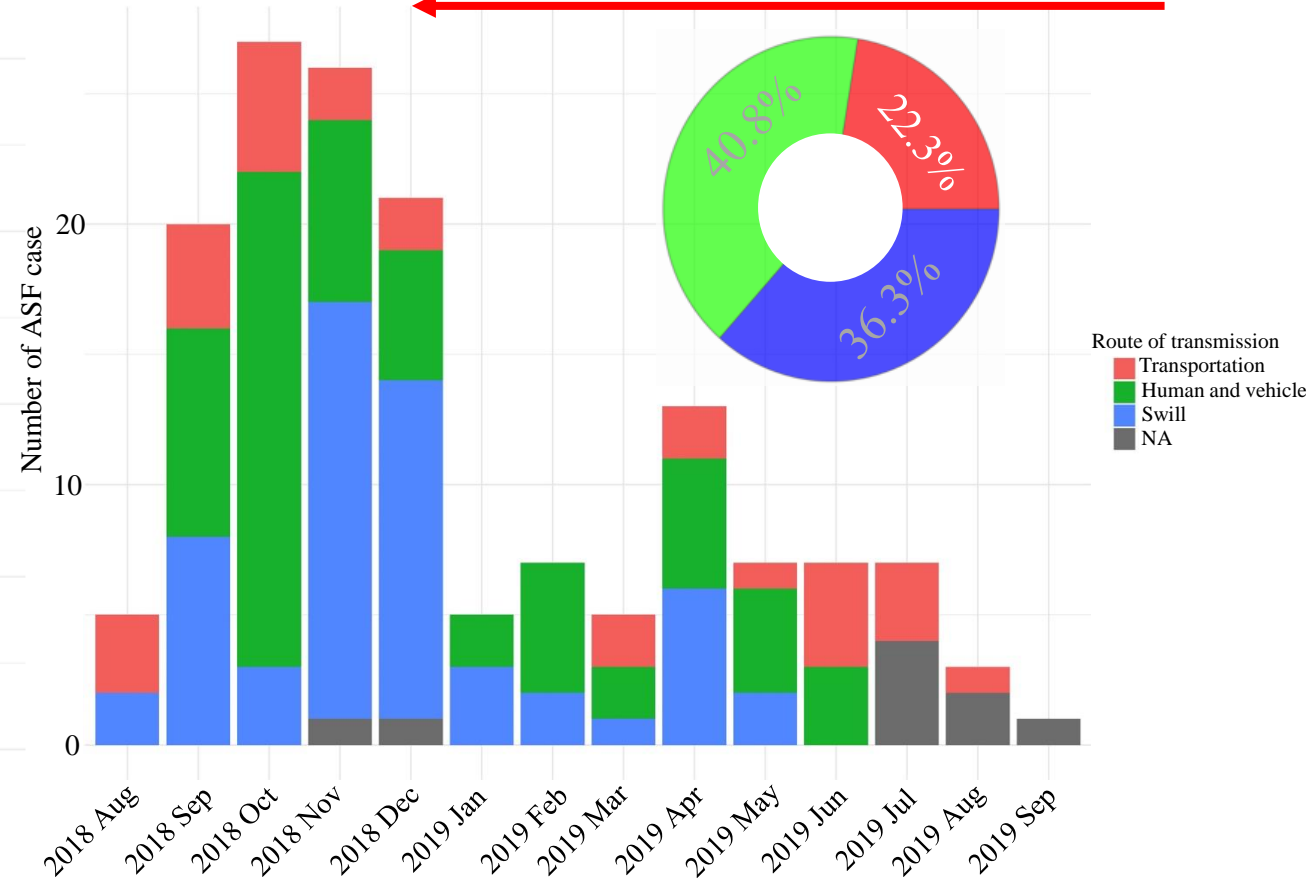
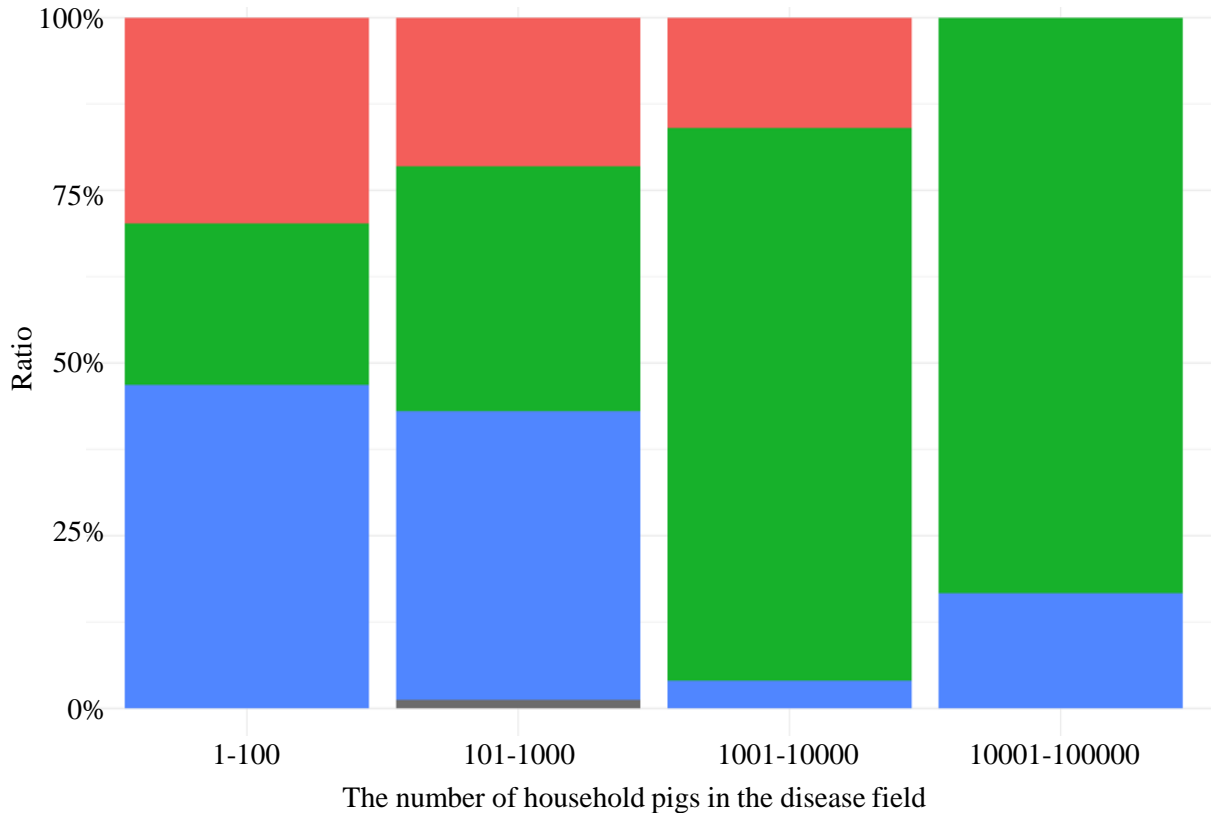
# ASF contingency plan





# Main factors for ASF invasion

Human, Cars, Pigs, Meat, Feed (swill)



Data from CAHEC

# Prevention and Control for National Level

General Office of the State Council of the China published the notification for the further strengthening control of ASF in China



首页 > 信息公开 > 国务院文件 > 农业、林业、水利 > 农业、畜牧业、渔业

索引号: 000014349/2019-00069  
 主题分类: 农业、林业、水利\农业、畜牧业、渔业  
 发文机关: 国务院办公厅  
 成文日期: 2019年06月22日  
 标题: 国务院办公厅关于加强非洲猪瘟防控工作的意见  
 发文字号: 国办发〔2019〕31号  
 发布日期: 2019年07月03日  
 关键词:

## 国务院办公厅关于加强非洲猪瘟防控工作的意见 国办发〔2019〕31号

各省、自治区、直辖市人民政府，国务院各部委、各直属机构：

党中央、国务院高度重视非洲猪瘟防控工作。2018年8月非洲猪瘟疫情发生后，各地区各有关部门持续强化防控措施，防止疫情扩散蔓延，取得了阶段性成效。但也要看到，生猪产业链监管中还存在不少薄弱环节，有的地区使用餐厨废弃物喂猪现象仍然比较普遍，生猪调运管理不够严格，屠宰加工流通环节非洲猪瘟检测能力不足，基层动物防疫体系不健全，防疫能力仍存在短板，防控形势依然复杂严峻。为加强非洲猪瘟防控工作，全面提升动物疫病防控能力，经国务院同意，现提出以下意见。

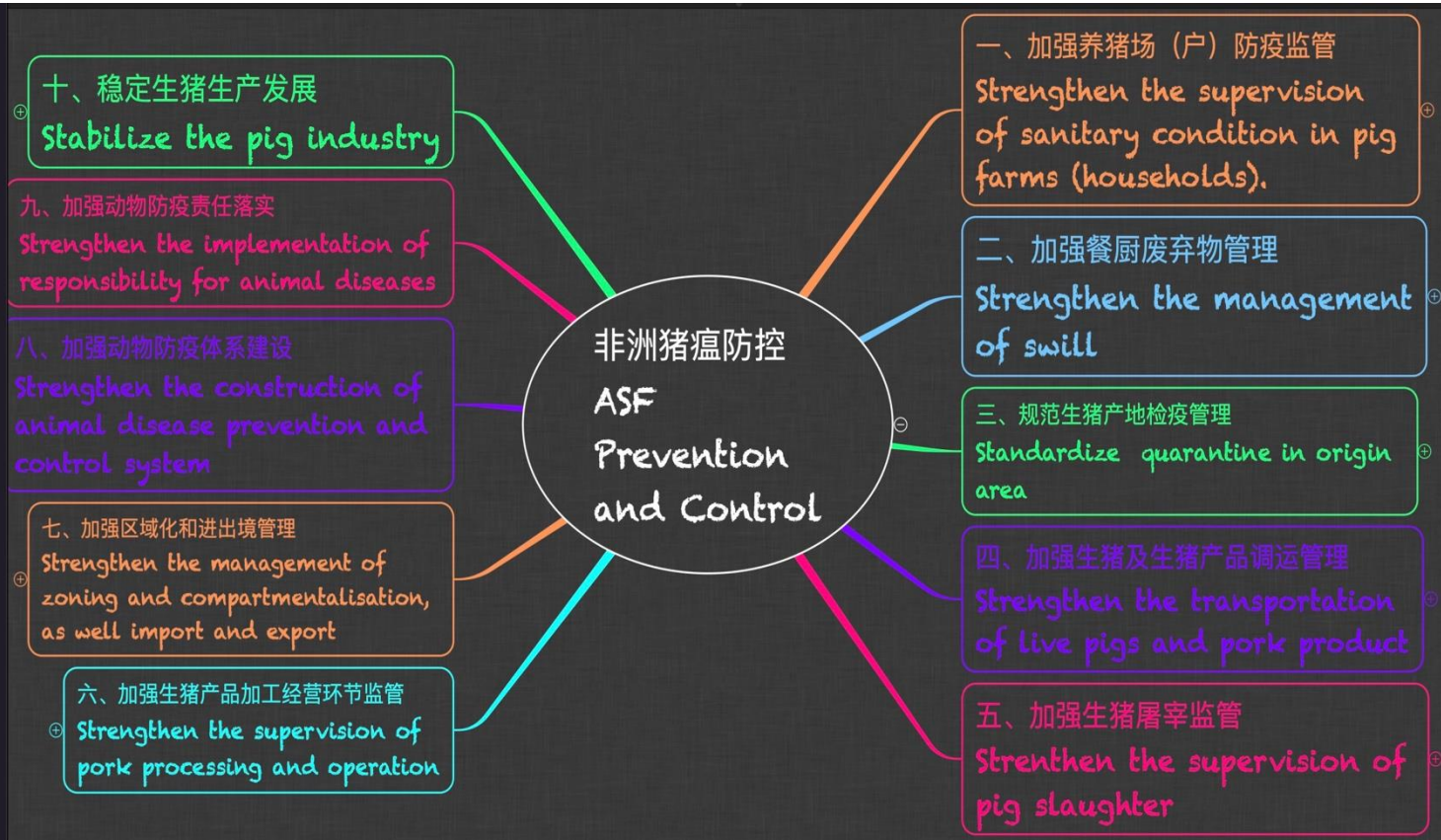
### 一、加强养猪场（户）防疫监管

（一）提升生物安全防护水平。严格动物防疫条件审查，着力抓好养猪场（户）特别是种猪场和规模猪场防疫监管。深入推进生猪标准化规模养殖，逐步降低散养比例，督促落实封闭饲养、全进全出等饲养管理制度，提高养猪场（户）生物安全防护水平。综合运用信贷保险等手段，引导养猪场（户）改善动物防疫条件，完善清洗消毒、出猪间（台）等防疫设施设备，不断提升防疫能力和水平。督促养猪场（户）建立完善养殖档案，严格按照规定施性畜标识，提高生猪可追溯性。（农业农村部、国家发展改革委、银保监会等负责，地方人民政府负责落实。以下均需地方人民政府落实，不再列出）

（二）落实关键防控措施。指导养猪场（户）有效落实清洗消毒、无害化处理等措施，严格出入场区的车辆和人员管理。鼓励养猪场（户）自行开展非洲猪瘟检测，及早发现和处置隐患。督促养猪场（户）严格规范地报告疫情，做好疫情处置，严防疫情扩散。开展专项整治行动，严厉打击收购、贩运、销售、随意丢弃病死猪的违法违规行，依法实行顶格处罚。加强病死猪无害化处理监管，指导自行处理病死猪的规模养猪场（户）配备处理设施，确保清洁安全、不污染环境。（农业农村部、公安部、生态环境部等负责）

### 二、加强餐厨废弃物管理

- 非洲猪瘟防控  
ASF Prevention and Control
- 一、加强养猪场（户）防疫监管  
Strengthen the supervision of sanitary condition in pig farms (households).
- 二、加强餐厨废弃物管理  
Strengthen the management of swill
- 三、规范生猪产地检疫管理  
Standardize quarantine in origin area
- 四、加强生猪及生猪产品调运管理  
Strengthen the transportation of live pigs and pork product
- 五、加强生猪屠宰监管  
Strengthen the supervision of pig slaughter
- 六、加强生猪产品加工经营环节监管  
Strengthen the supervision of pork processing and operation
- 七、加强区域化和进出境管理  
Strengthen the management of zoning and compartmentalisation, as well import and export
- 八、加强动物防疫体系建设  
Strengthen the construction of animal disease prevention and control system
- 九、加强动物防疫责任落实  
Strengthen the implementation of responsibility for animal diseases
- 十、稳定生猪生产发展  
Stabilize the pig industry



Data from CAHEC

# Prevention and Control for National Level

- **Early:** early detection, early reporting, early disposal
- **Fast:** Quick response and action
- **Strict:** Strict measures and strict law enforcement
- **Small:** Small loss and impact



*Data from CAHEC*

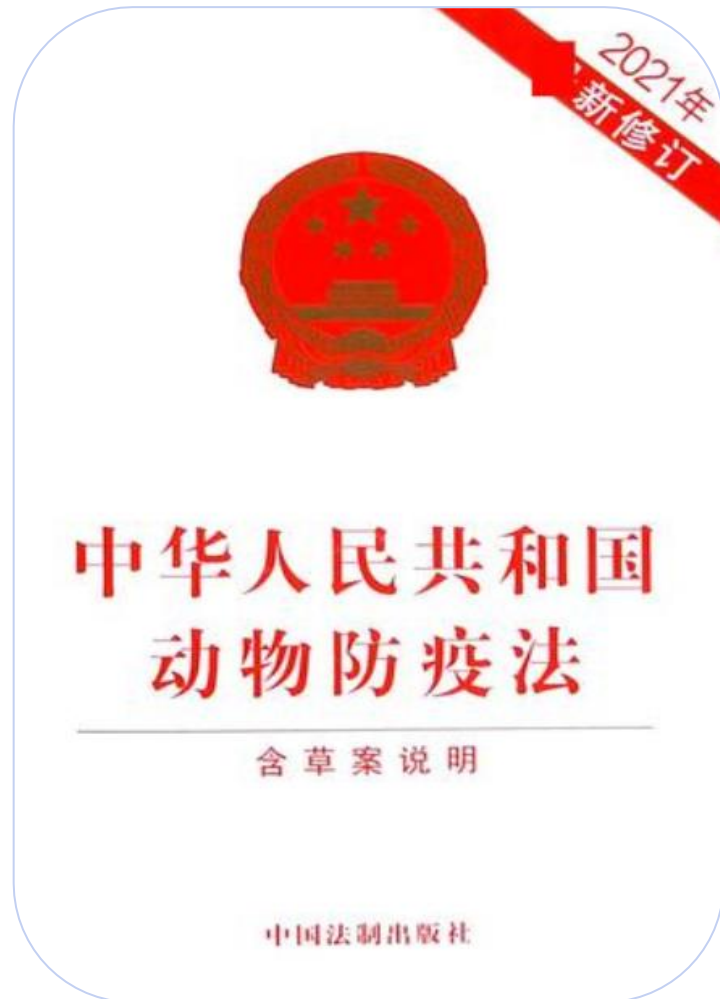
# Laws and regulations promulgated by MARA

- a) Emergency plan or implementation plans for the outbreak of African Swine Fever

① First version, 9-20-2017	④ Forth version, 5-29-2020
② Second version, 1-24-2019	⑤ Fifth version, 3-17-2021
③ Third version, 2-29-2020	⑥ Sixth version (exposure draft), 8-1-2024

- b) Technical Guidelines for the **Routine** Prevention and Control of ASF (Trial version)
- c) Technical guidelines for prevention and control of ASFV **variant** in farms
- d) Technical guidelines for prevention and control of ASF in **small and medium-sized** farms
- e) Technical guidelines for prevention and control of ASFV **attenuated strains** in farms

# Law-Animal Disease Prevention



## Article 21

- *The state supports local governments to establish specific animal disease free zones, and encourages farms to build **specific animal disease free compartments**.*
- *The free zones and compartments that comply with all standards required by the agricultural and rural authority under the State Council shall be **recognized, announced, supervised and inspected by the authority under the Council State**.*



# Starting the construction of ASF-free compartment since 2019



当前位置: 首页 > 2020 > 第2期

## 农业农村部办公厅关于印发《无非洲猪瘟区标准》和《无规定动物疫病小区管理技术规范》的通知

日期: 2020-04-14 21:32

作者:

来源: 农业农村部

【字号: 大 中 小】

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各省、自治区、直辖市农业农村（农牧、畜牧兽医）厅（局、委），新疆生产建设兵团农业农村局，部属有关事业单位：

为贯彻落实《国务院办公厅关于加强非洲猪瘟防控工作的意见》（国办发〔2019〕31号）和《国务院办公厅关于稳定生猪生产促进转型升级的意见》（国办发〔2019〕44号）精神，指导各地建设非洲猪瘟等动物疫病无疫区和无疫小区，我部结合当前动物疫病防控实际，组织制定了《无非洲猪瘟区标准》和《无规定动物疫病小区管理技术规范》，现印发给你们，请遵照执行。

《农业部关于印发〈肉禽无规定动物疫病生物安全隔离区建设通用规范（试行）〉和〈肉禽无禽流感生物安全隔离区标准（试行）〉的通知》（农医发〔2009〕13号）同时废止。

附件：1.无非洲猪瘟区标准

2.无规定动物疫病小区管理技术规范

农业农村部办公厅

2019年12月16日



It is a successful practice of advanced concepts and basic methods for regional management of animal diseases in China's pig farming industry.

*Data from CAHEC*



# Carrying out region-specific prevention and control plan for major animal diseases since 2021

Divide the country into **5 major regions** to carry out zoning prevention and control



中华人民共和国农业农村部

Ministry of Agriculture and Rural Affairs of the People's Republic of China

请输入关键字

搜索

首页 机构 新闻 公开 政务服务 专题 互动 数据 业务管理

当前位置: 首页 > 2021 > 第5期

## 农业农村部关于印发《非洲猪瘟等重大动物疫病分区防控工作方案（试行）》的通知

日期: 2021-10-21 15:33

作者:

来源: 农业农村部

【字号: 大 中 小】

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各省、自治区、直辖市人民政府，新疆生产建设兵团，应对非洲猪瘟疫情联防联控工作机制各成员单位：

为贯彻落实《中华人民共和国动物防疫法》和《国务院办公厅关于促进畜牧业高质量发展的意见》（国办发〔2020〕31号）有关要求，统筹做好非洲猪瘟等重大动物疫病防控和生猪等重要畜产品稳产保供，经国务院同意，自2021年5月1日起在全国范围开展非洲猪瘟等重大动物疫病分区防控工作。现将《非洲猪瘟等重大动物疫病分区防控工作方案（试行）》印发你们，请认真抓好落实，建立健全分区防控联席会议制度，完善分区防控政策措施，确保各项工作有序推进。

农业农村部

2021年4月16日



南海诸岛

# Regulations

## 中华人民共和国农业农村部公告

第 242 号

为贯彻落实《国务院办公厅关于加强非洲猪瘟防控工作的意见》(国办发〔2019〕31号)和《国务院办公厅关于稳定生猪生产促进转型升级的意见》(国办发〔2019〕44号)精神,指导各地建设无规定动物疫病小区,规范评估管理活动,我部结合当前动物疫病防控实际,组织制定了《无规定动物疫病小区评估管理办法》,现予发布,自发布之日起实施。

特此公告。



- 1 -

## 中华人民共和国农业部令

2017 年 第 2 号

《无规定动物疫病小区评估管理办法》已经农业部 2017 年第 4 次常务会议审议通过,现予公布,自 2017 年 7 月 1 日起施行。

部 长

2017 年 5 月 27 日

- 1 -

## 农业农村部办公厅文件

农办牧〔2019〕86 号

### 农业农村部办公厅关于印发《无非洲猪瘟区标准》和《无规定动物疫病小区管理技术规范》的通知

各省、自治区、直辖市农业农村(农牧、畜牧兽医)厅(局、委),新疆生产建设兵团农业农村(农牧、畜牧兽医)局,部属有关事业单位:

为贯彻落实《国务院办公厅关于加强非洲猪瘟防控工作的意见》(国办发〔2019〕31号)和《国务院办公厅关于稳定生猪生产促进转型升级的意见》(国办发〔2019〕44号)精神,指导各地建设非洲猪瘟等动物疫病无疫区和无疫小区,我部结合当前动物疫病防控实际,组织制定了《无非洲猪瘟区标准》和《无规定动物疫病小区管理技术规范》,现印发给你们,请遵照执行。

- 1 -

## 农业部文件

农医发〔2016〕45 号

### 农业部关于印发《无规定动物疫病病区管理技术规范》的通知

各省、自治区、直辖市及计划单列市畜牧兽医(农牧、农业)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:

为落实《国家中长期动物疫病防治规划(2012-2020年)》,进一步加强动物疫病区域化管理,根据《中华人民共和国动物防疫法》等法律法规规定,我部结合当前我国动物疫病防控实际情况,组织修订了《无规定动物疫病病区管理技术规范(试行)》,形成《无规定动物疫病病区管理技术规范》,现印发你们,请遵照执行。

《农业部关于印发《无规定动物疫病病区管理技术规范(试行)》的通知》(农医发〔2007〕3号)和《农业部关于印发《无马流感区标

- 1 -

## 全国动物卫生风险评估专家委员会办公室文件

全评委办〔2022〕5号

### 全国动物卫生风险评估专家委员会办公室关于印发《无规定动物疫病小区和无规定动物疫病病区评估工作实施方案(2022年版)》的通知

各省、自治区、直辖市及计划单列市畜牧兽医主管部门、动物疫病预防控制机构及有关企事业单位,新疆生产建设兵团农业农村局、畜牧兽医工作总站:

根据农业农村部重大动物疫病和人兽共患病防控工作部署,按照《农业农村部办公厅关于推进牛羊布病等动物疫病无疫小区和无疫区建设与评估工作的通知》要求,结合前期牛羊布病和非洲猪瘟等动物疫病无疫小区、无疫区建设与评估工作经验,以及建成无疫小区和无疫区维持工作需要,我办受农业农村部畜牧兽医局委托,组织修订了《无规定动物疫病小区和无规定动物疫病病区评估工作实施方案(2022年版)》,现印发给你们,请参照执行。

- Measures for Evaluation on Disease Free Compartments
- Measures for Evaluation on Disease Free Zones

- Specifications for Disease Free Compartments
- Specifications for Disease Free Zones
- Implementation Plan for Zoning and Compartmentalization

# Roles and Responsibilities

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## 1 | Ministry of Agriculture and Rural Affairs

- ❑ Criteria, procedures, approval, surveillance, assessment of certification, supervision

## 2 | Provincial, municipal and county veterinary authorities

- ❑ Training, audit, surveillance, supervision

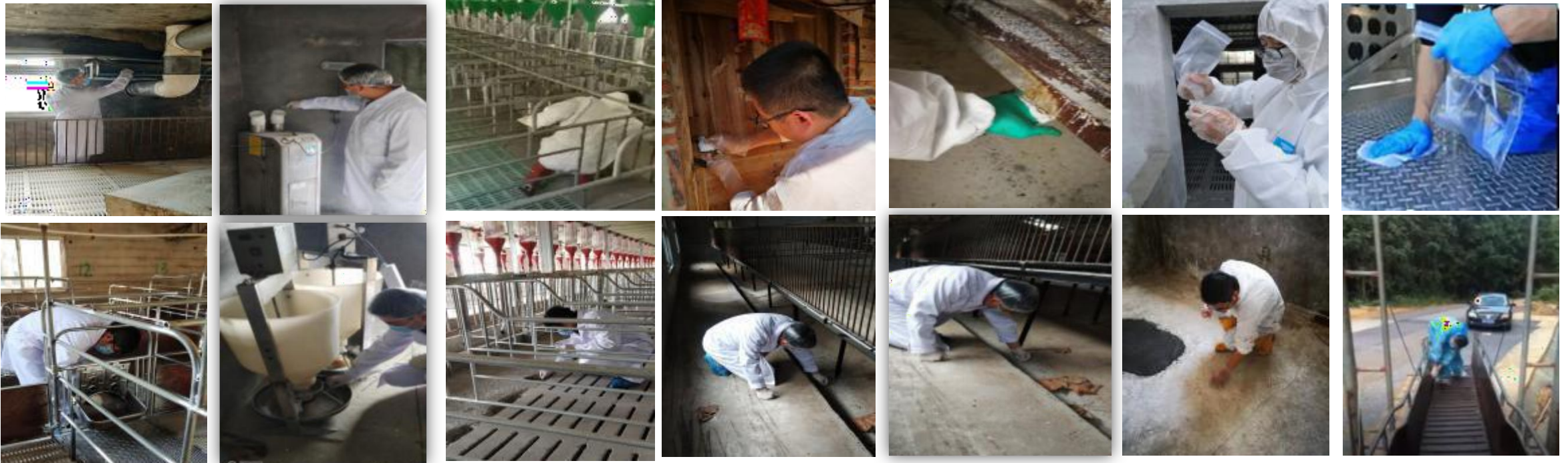
## 3 | Private sectors

- ❑ **Mostly responsible** for setting up and maintaining a compartment

# Prevention and Control for Farm Level

**Full coverage sampling:** Conduct full coverage sampling on all internal walls, floors, equipment, and other surfaces on a block by block basis;

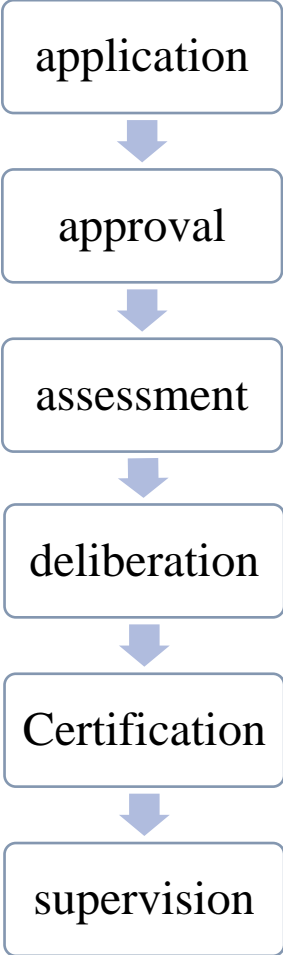
**Key point sampling:** As a supplement to the full coverage sampling method, it includes difficult to collect locations such as dead corners and the bottom of the material trough



*Data from CAHEC*



# Procedure



documentation

↓

field



Data from CAHEC

# Outcomes

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- ✓ 281 African swine fever free compartments (by Mar 2024)
- ✓ **Infrastructures** were upgraded, and multiple barrier systems were constructed.
- ✓ The ASF control measures have been strengthened, and a scientific and unified biosafety management system has been established.
- ✓ Based on the principle of "process supervision, risk control and traceability management", official supervision is standardized and implemented.



# Direct outcomes

More private sectors are building risk-based biosecurity systems, for the purpose of setting up ASF-free compartment.



*Data from CAHEC*

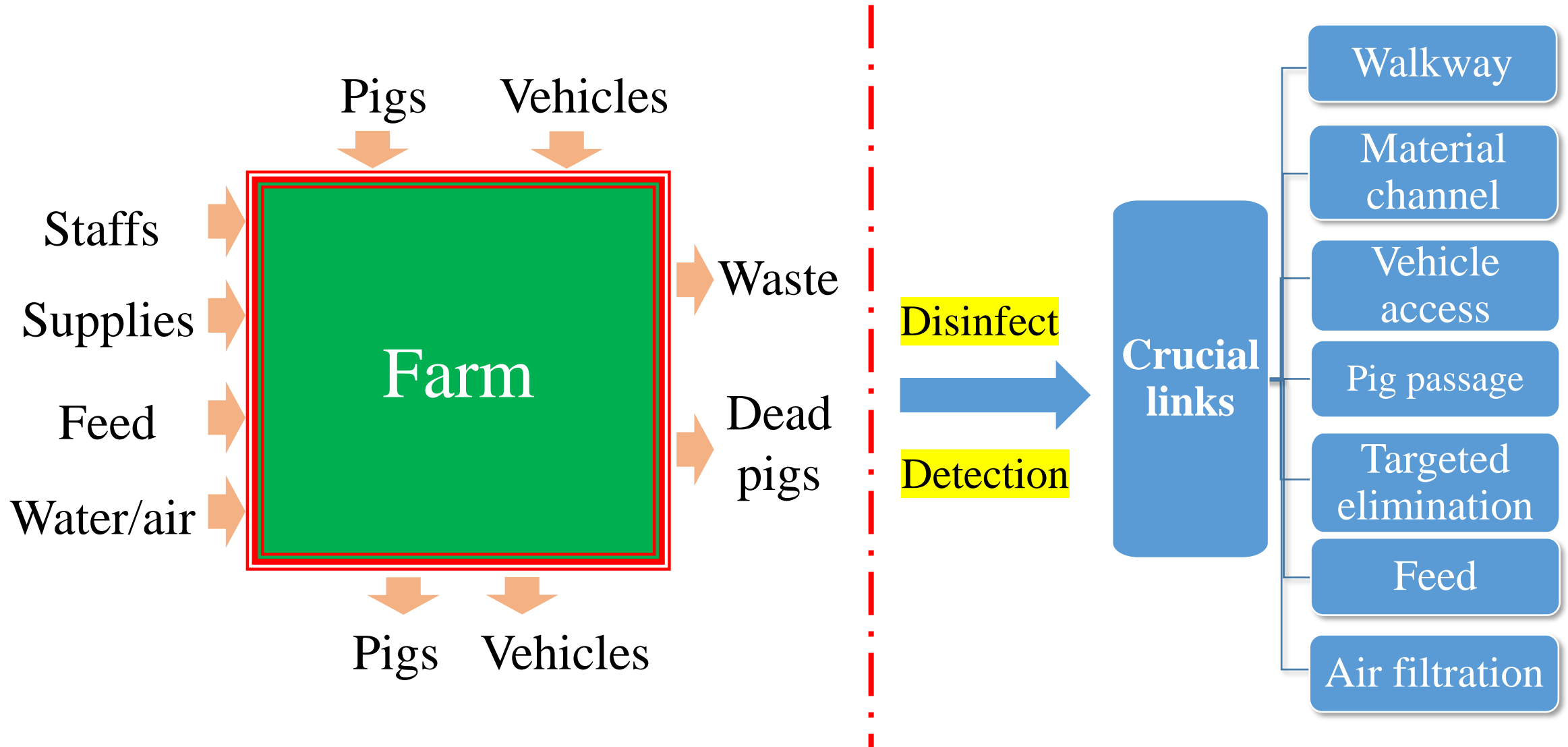
# Biosecurity measures for ASF prevention and control

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- **Source of infection:** Remove or eradicate
- **Route of transmission:** Block or cut
- **Susceptible animal:** Protect or isolate

**Early diagnosis for everything**  
(Personnel, feed, water, ground, vehicle, an so on)

# Biosecurity measures in big farms



# Different biosecurity systems: **Iron barrel model**

- ✓ Staffs
- ✓ Vehicles
- ✓ Materials
- ✓ Infected animals
- ✓ Healthy animals





# Different biosecurity systems: **Building model**

- ✓ 26 floors
- ✓ 0.4 million square meters
- ✓ 500 million dollars investment



# Different biosecurity systems: **Air filtration**

- ✓ Dust may carry and spread ASFV.
- ✓ Air filtration systems were used in some companies.





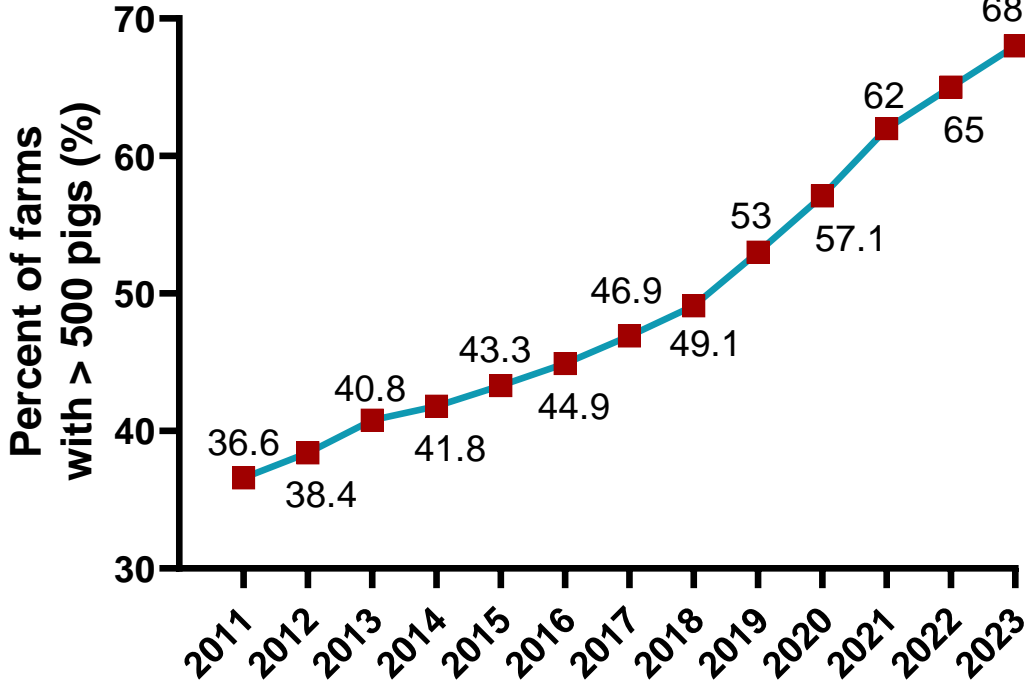
# Direct outcomes

- 1. Effective control of ASF outbreaks
- 2. Pork supply returning to normal
- 3. Greatly improving the modernization level of swine breeding companies

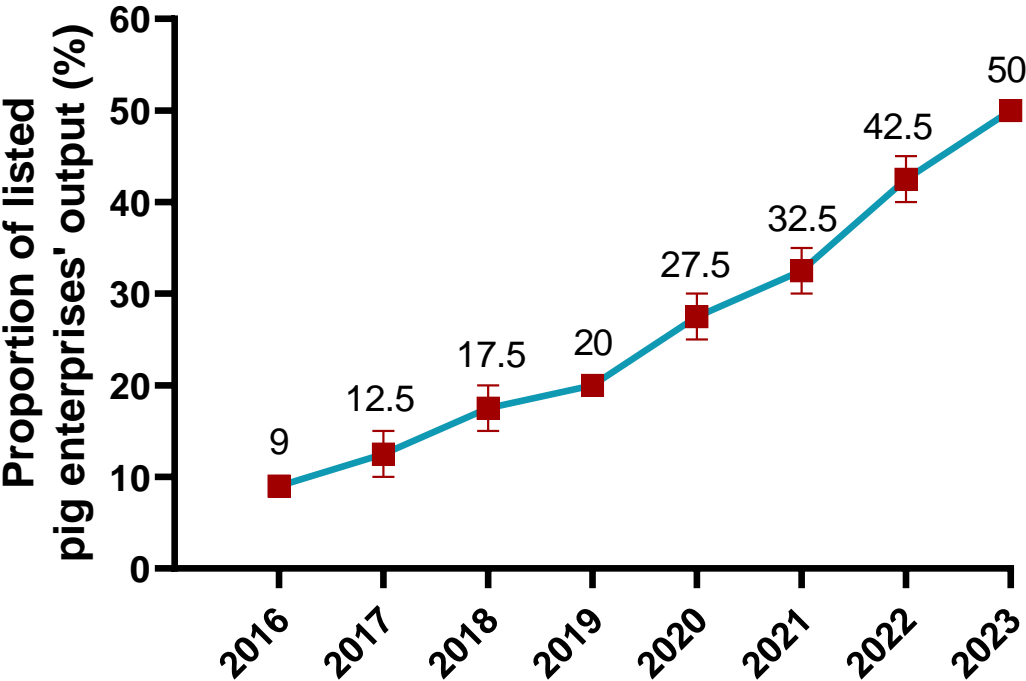


# Pig companies become bigger and bigger in China

**Proportion of companies with more than 500 pigs annually**



**Proportion of pig outputs from listed companies**



**It is more and more difficult for small farms to survive**

*Data from CAHEC*

# Questions

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- The highly intensive model of pig farming requires a large amount of **capital**.
- The proportion of small and medium-sized farmers is **decreasing, and so many farmers lose a job**.
- Can the **staffs** withstand the high level of physical and mental **stress** for strict biosecurity systems?
- Is this model **suitable** for all Southeast Asian countries?
- Is **ASF vaccine** urgently needed for ASF prevention and control?

# Challenges in the development of ASF vaccine

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- Genotype I/II recombinant ASFV gradually spreads, and threatens pig industry worldwide.
- Genotype II virus-based vaccines could not provide protection against the recombinant virus

**How to develop ASF vaccine with good cross-protection and safety?**

*Zhao, D., et al. (2023). Nat Commun 14(1): 3096.*

*Diep, N. V., et al. (2024). Vaccines (Basel) 12(10).*



**Thanks for your attention!  
Your comments and suggestions  
are highly appreciated!**

