

Global Status of African Swine Fever and China's Biosecurity Control Strategies

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PHD

WOAH Regional Capacity Training on Priority Animal
Disease Control and Prevention in Asia and the Pacific
14-18 September 2026
Qingdao, China



01

Differences in the understanding of African Swine Fever between Europe and Asia





ASF epidemiological situation differs between Europe and Asia

4



Global Consultation meeting on ASF, 2023 Rome



Regional technical consultation for ASF , 2024 Korea



The Eleventh Meeting of the Standing Group of Experts on ASF for Asia and the Pacific ,2026 Korea



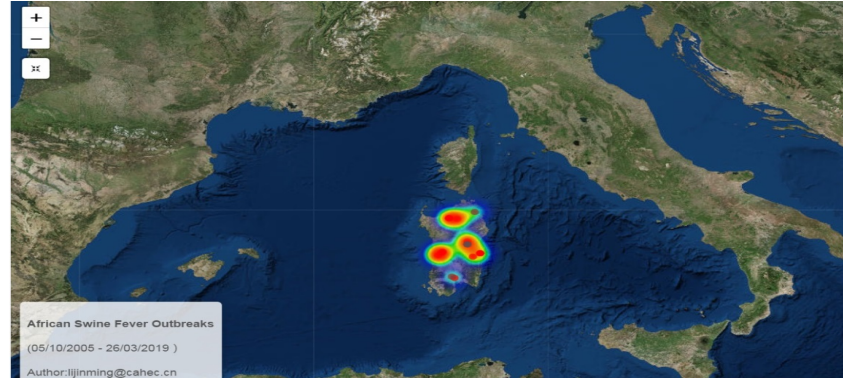
The Ninth Meeting of the Standing Group of Experts on ASF for Asia and the Pacific ,2024 Philippines



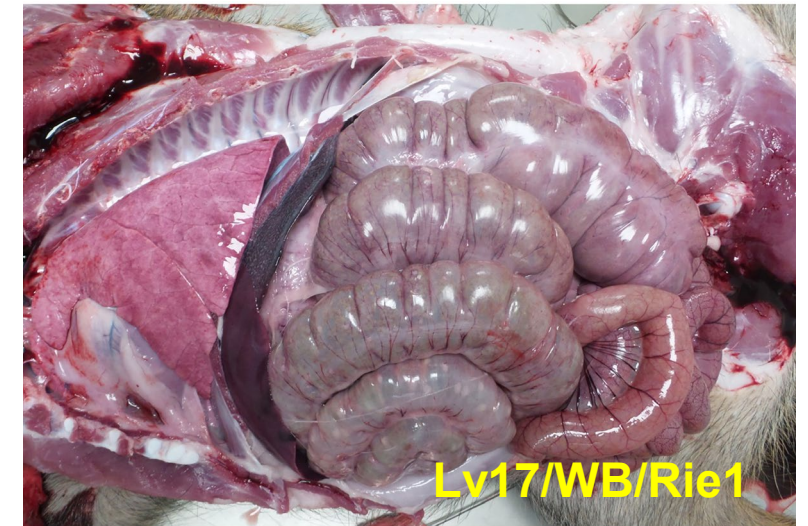
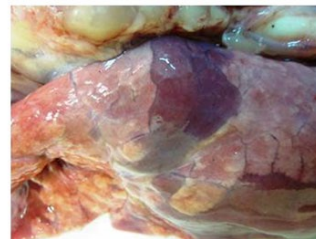
Difference 1: Virulent strains are predominant in European, while Asian-origin low-virulence strains cause substantial harm

5

The single
prevalent virulent
and low-virulence
Genotype II strain
in Europe



Sardinia achieved the "eradication"
of Genotype I African Swine Fever
virus in 2023.



Circulating strains in Asia are evolving rapidly and exhibit complex variation⁶

	China	Vietnam	Other Country
 OUTBREAK ALERTS 2018.8 Emergence of African Swine Fever in China, 2018	Genotype II high-pathogenicity strains	have been found	have been found
 2021.3 Emerg Microbes Infect. 2021; 10(1): 2183–2193. Published online 2021 Nov 22. doi: 10.1080/22221751.2021.1999779 PMCID: PMC8635679 PMID: 34709128 Genotype I African swine fever viruses emerged in domestic pigs in China and caused chronic infection	Genotype I low-pathogenicity strains	have not been reported	have not been reported
 2021.12 Nat Commun. 2023; 14: 3096. Published online 2023 May 29. doi: 10.1038/s41467-023-38868-w PMCID: PMC10226439 PMID: 37248233 Highly lethal genotype I and II recombinant African swine fever viruses detected in pigs	Genotype I/II Recombinant Virus	have been found	have not been reported
 2019.1-2020.12 Front Vet Sci. 2022; 9: 912224. Published online 2022 Jun 15. doi: 10.3389/fvets.2022.912224 Molecular Characterization of African Swine Fever Virus From 2019-2020 Outbreaks in Guangxi Province, Southern China	Genotype-deleted Strains-Low-Virulence Strains	have been found	have been found
 2019.7 Pathogens. 2022 Jan; 11(1): 97. Published online 2022 Jan 14. doi: 10.3390/pathogens11010097 Genetic Characterization and Variation of African Swine Fever Virus China/GD/2019 Strain in Domestic Pigs			
其他基因缺失株	have been found		have not been reported



Difference 2: Standard approaches for controlling African swine fever in wild boar have been established in Europe, while wild-boar-related ASF outbreaks have not yet received sufficient attention in Asia.⁷



African swine fever in wild boar Ecology and biosecurity

Second edition

FAO ANIMAL PRODUCTION AND HEALTH / MANUAL 28



EXTERNAL SCIENTIFIC REPORT



APPROVED: 3 July 2018

doi:10.2903/sp.efsa.2018.EN-1449

Guidance on estimation of wild boar population abundance and density: methods, challenges, possibilities



SCIENTIFIC OPINION

ADOPTED: 21 January 2021

doi: 10.2903/j.efsa.2021.6419

ASF Exit Strategy: Providing cumulative evidence of the absence of African swine fever virus circulation in wild boar populations using standard surveillance measures



SCIENTIFIC OPINION

ADOPTED: 12 June 2018

doi: 10.2903/j.efsa.2018.5344

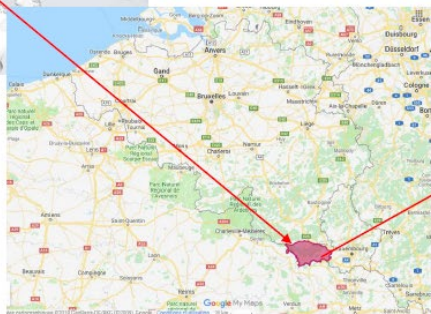
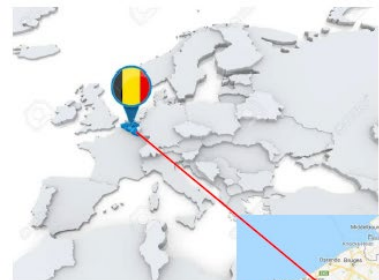
African swine fever in wild boar





In 2020, Belgium was granted ASF-eradication status.

8



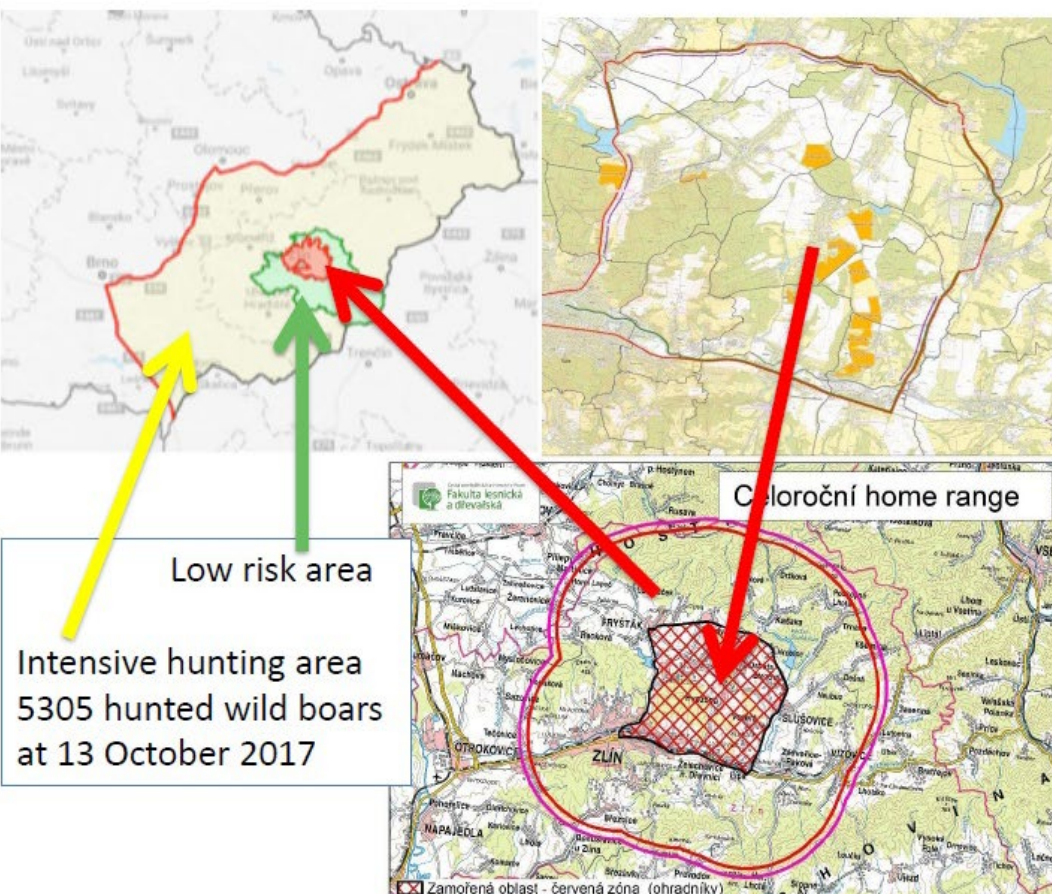
Introduced
in 2018





Scientific deployment of prevention and strict risk-containment measures

9





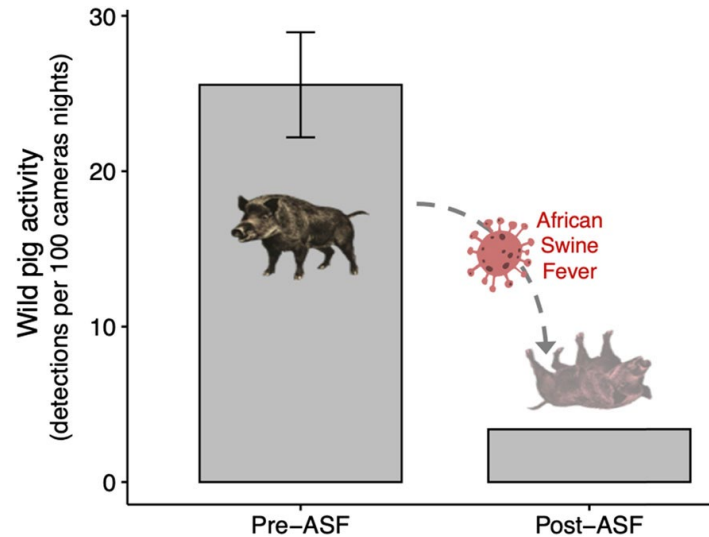
Key to African Swine Fever Control in Wild Boar – “Passive Surveillance” of Wild Boar Carcasses





ASF outbreaks in wild boar across Asia have not been sufficiently investigated and prioritized

11



- Large numbers of wild boar carcasses detected
- Wild-boar activity decreased



High mortality in free-ranging wild boars associated with African swine fever virus in India

Original Article | Published: 07 June 2024
Volume 169, article number 137, (2024) [Cite this article](#)

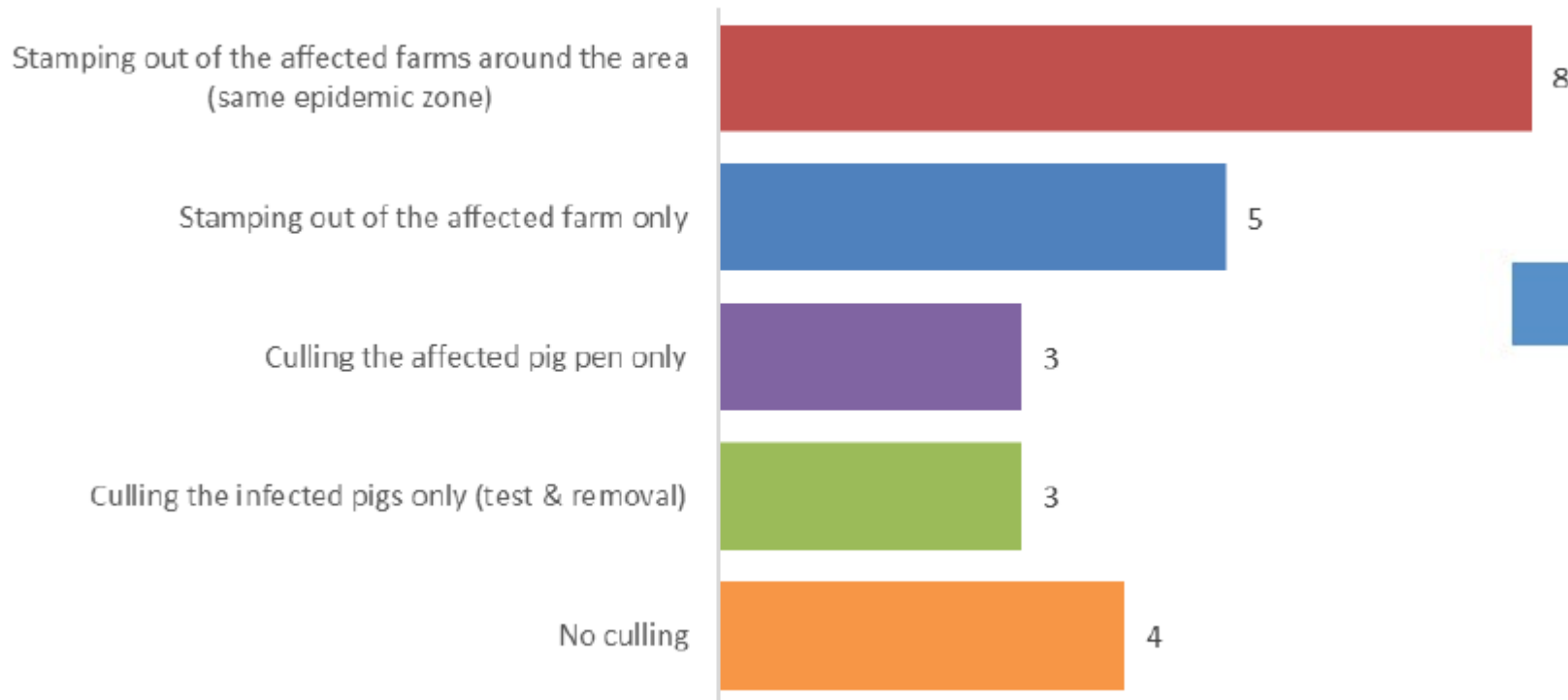
Significant mortality was observed among free-ranging wild boars at Bandipur **National Park**, Karnataka, and Mudumalai **National Park**.



Difference 3: Europe advocates comprehensive culling, while Asia implements "targeted" culling

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• Culling policy for ASF



Reporting rate

25%	Africa (low)
56%	Americas
40%	Asia
75%	Europe (high)



Examples of "Targeted" Culling Strategies in Asian Countries

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Philippines: Within a 500-metre radius of affected pig farms, positive pigs shall be immediately culled and disposed-of safely, while negative pigs shall be immediately culled for consumption.

Thailand: Separate healthy pigs and sick pigs at affected pig farms or epidemiologically linked farms; only sick pigs are culled. Clinical surveillance is carried out within a 1-kilometre zone, and any sick pigs detected are immediately culled and disposed-of.

FAO is coordinating with Viet Nam, the International Atomic Energy Agency (IAEA) and Germany's FLI laboratory to draft a handbook on the “**partial**” culling strategy.

<https://www.fao.org/animal-health/situation-updates/asf-in-asia-pacific/en>



02

Biosecurity for Prevention of ASF in China

It is critical to interrupt the circulation of the virus within the pig supply chain and effectively reduce the viral load to

- [illegible]

National Level

For breeding or



Sealed environment, Safe ventilation

Biosecurity System

For slaughter



Natural ventilation, Rapid transport

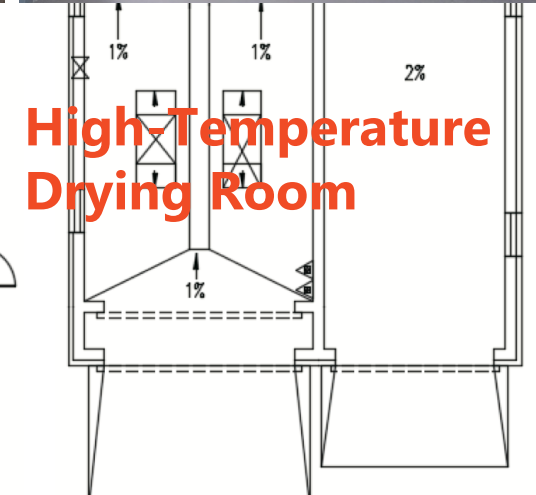
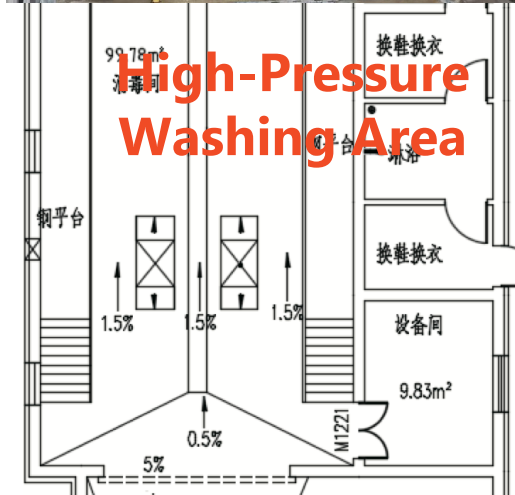
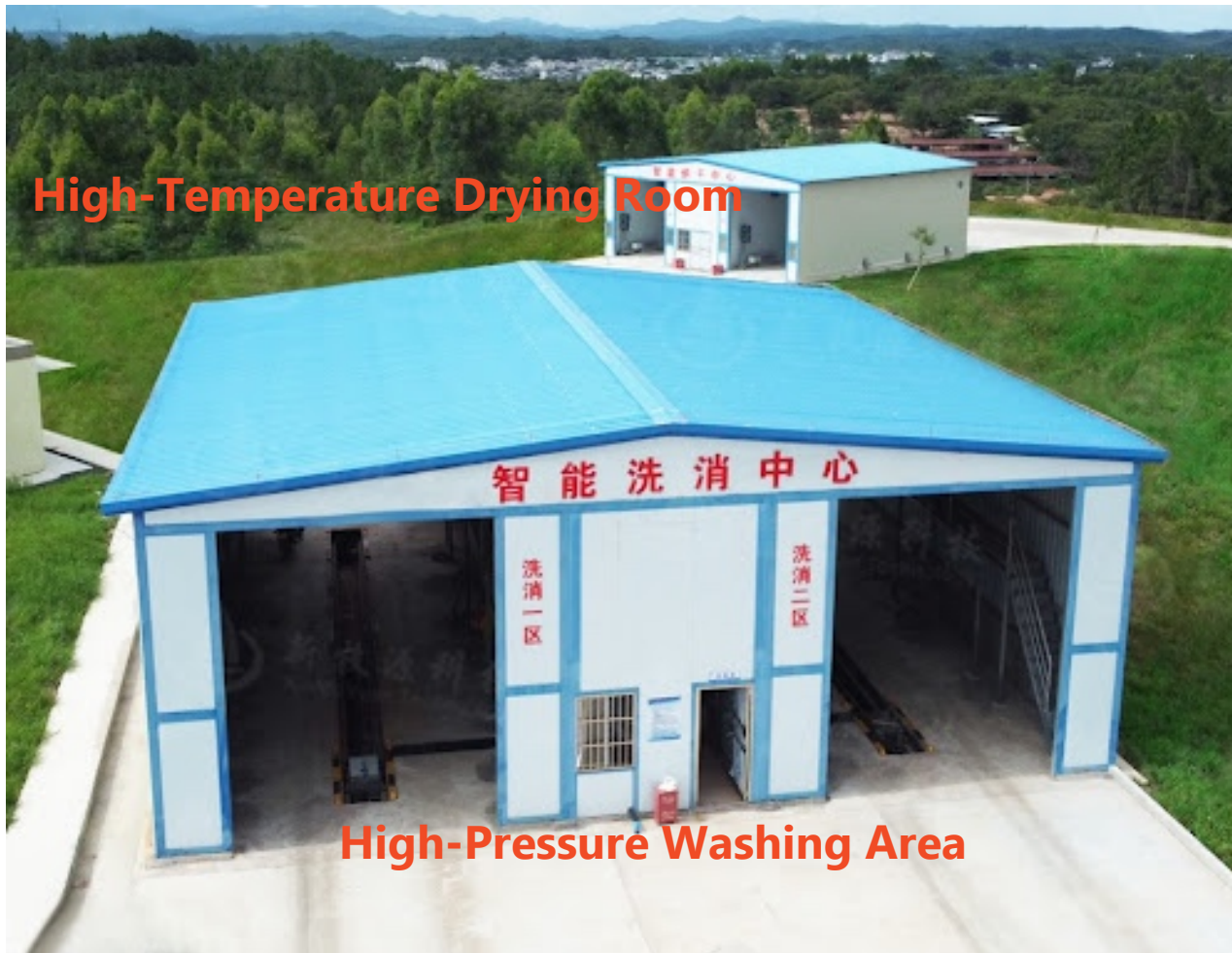
Dead and Diseased



Leak-proof, Sealed, Refrigerated

National Level

Biosecurity System



National Level

Animal Movement Control



当前位置: 首页 > 2019 > 第1期

农业农村部关于印发《生猪产地检疫规程》《生猪屠宰检疫规程》和《跨省调运乳用种用动物产地检疫规程》的通知

日期: 2019-01-20 11:45 作者: 来源: 农业农村部 【字号: 大 中 小】 打印本页

各省、自治区、直辖市畜牧兽医（农业农村、农牧）厅（局、委），新疆生产建设兵团畜牧兽医局：

为进一步强化非洲猪瘟防控工作，切实落实国务院关于禁止用餐厨剩余物饲喂生猪等有关要求，规范实施生猪及生猪产品检疫工作，我部对《生猪产地检疫规程》《生猪屠宰检疫规程》和《跨省调运乳用种用动物产地检疫规程》进行了修订。非洲猪瘟应急响应期间，农业农村部对检疫工作另有规定的，从其规定执行。各地要高度重视生猪及生猪产品检疫工作，探索并逐步建立检测出证制度，不断提升检疫工作水平。要确保动物及动物产品检疫队伍稳定，人员充足，专人专岗，切实有效履行检疫职责。

现将上述检疫规程印发你们，请严格遵照执行。《农业农村部关于印发〈生猪产地检疫规程〉和〈生猪屠宰检疫规程〉的通知》（农牧发〔2018〕9号）中附件《生猪产地检疫规程》《生猪屠宰检疫规程》和《农业部关于印发〈跨省调运种禽产地检疫规程〉及〈跨省调运乳用种用动物产地检疫规程〉的通知》（农医发〔2010〕33号）中附件2《跨省调运乳用种用动物产地检疫规程》同时废止。

- 附件：1. 生猪产地检疫规程
2. 生猪屠宰检疫规程
3. 跨省调运乳用种用动物产地检疫规程

农业农村部

2019年1月2日



动物检疫合格证明（动物A）	
检疫信息查询码：46092322211901090021 检疫信息查询网址：http://jizm.gxwhi.com/	
货主	重庆市联鑫食品有限公司
联系电话	15888888888
动物种类	生猪
数量及单位	壹佰贰拾头
启运地点	广西省玉林市(州)博白县(市、区)文地乡(镇)江坡英村(养殖场、交易市场)
到达地点	重庆市(市、区)沙坪坝区(市、区)井口乡(镇)双碑村联鑫食品公司村(养殖场、屠宰场、交易市场)
用途	屠宰 承运人
联系电话	15888888888
运载方式	公路 铁路 水路 航空
运载工具牌号	桂AV1551
运载工具消毒情况	2%菌毒灭喷洒 消毒
本批动物经检疫合格，应于 叁 日内到达有效。	
本方兽医签字：(02) 签发日期：二〇一九年 一 月 九 日 十八时	
(动物卫生监督所检疫专用章)	
牲畜耳标号	14550923/40167345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460
动物卫生监督所检查站签章	20190119
备注	检疫申报单号：桂(博)申1060070，是否属于分检：否。原检疫证明号码：

注：1. 本证书一式两联，第一联动物卫生监督所留存，第二联随货同行。
2. 跨省调运运输动物到达目的地后，货主或承运人应在 24 小时内向输入地动物卫生监督所报告。
3. 动物卫生监督所联系电话：5-8643999 075-8723816

National Level

Animal Movement Control





National Level

Disease Surveillance

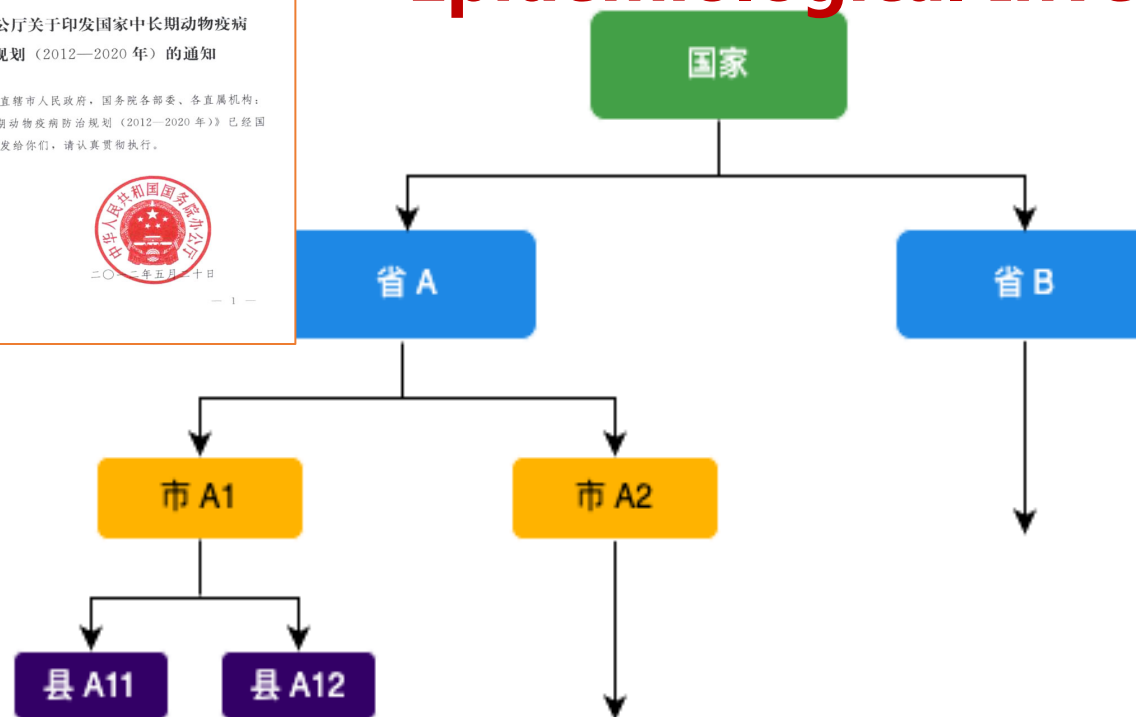
National Animal Disease Surveillance and Epidemiological Investigation Plan

National Level

Provincial Level

Prefectural Level

County Level



国务院办公厅文件

国办发〔2012〕31号

国务院办公厅关于印发国家中长期动物疫病防治规划（2012—2020年）的通知

各省、自治区、直辖市人民政府，国务院各部委，各直属机构：
《国家中长期动物疫病防治规划（2012—2020年）》已经国务院同意，现印发给你们，请认真贯彻执行。



二〇一二年五月二十日

— 1 —

农业农村部文件

农牧发〔2021〕11号

农业农村部关于印发《国家动物疫病监测与流行病学调查计划（2021—2025年）》的通知

各省、自治区、直辖市及计划单列市农业农村（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，各有关单位：

为做好非洲猪瘟等动物疫病防控，持续加强监测和流行病学调查工作，我部组织制定了《国家动物疫病监测与流行病学调查计划（2021—2025年）》，现印发你们，请遵照执行。

农业农村部
2021年4月13日

— 1 —

National Level

Disease Surveillance



Key Principles

- Balancing Active and Passive Surveillance**
 Use both proactive and reactive approaches to ensure full coverage.
- Linking Surveillance with Epidemiology**
 Field investigations help understand how diseases spread in real-world settings.
- Aligning Monitoring with Risk**



National Level

Emergency Response

Key Points	Recommendations
When	Triggered immediately after the first confirmed case or when there is evidence of rapid spread.
Where	Identify the source of the outbreak and establish the infected zone, buffer zone, and surveillance area.
Who	Clarify responsible parties, executing units, and coordination mechanisms.
How	Includes culling, quarantine, disinfection, field investigation, and biosecurity protocols.
With what	transport vehicles, protective equipment, culling equipment, expert teams, diagnostic kits, and emergency funds.
To what extent	Measured by reduced infection rates, number of days without new cases, and successful containment zones.

National Level

农业部文件

农医发〔2017〕28号

农业部关于印发《非洲猪瘟疫情应急预案》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，部机关有关司局，部属事业单位，各有关单位：

为贯彻落实《国家中长期动物疫病防治规划（2012-2020年）》，切实做好非洲猪瘟疫情应急处置工作，根据《中华人民共和国动物防疫法》等法律法规，我部组织制定了《非洲猪瘟疫情应急预案》。现印发给你们，请遵照执行。

农业部
2017年9月20日

— 1 —

部文件

农医发〔2017〕28号

《非洲猪瘟疫情应急预案》的通知

农业农村部（农牧、畜牧兽医厅）村局，部属有关事业单位：疫情，强化常态化防控，根据近，部组织制定了《非洲猪瘟疫情》，请遵照执行。《非洲猪瘟疫

农业农村部
2024年12月20日

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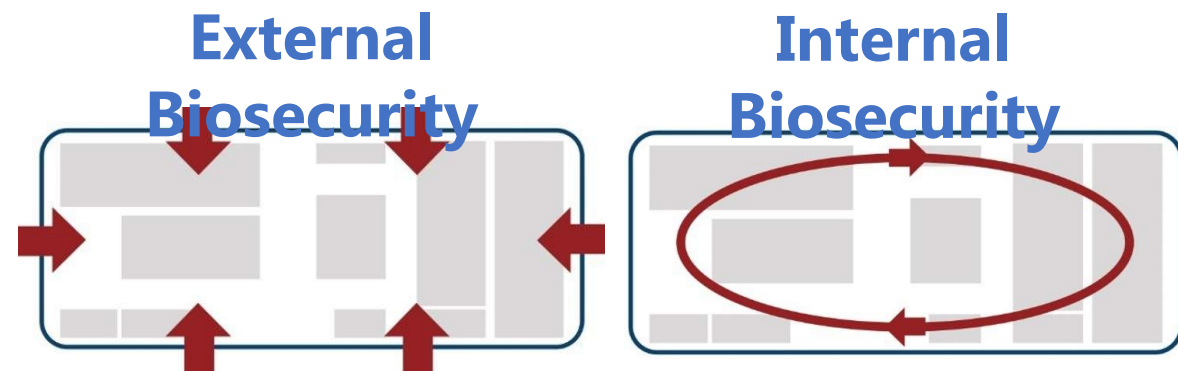
Emergency Response



Farm Level



Biosecurity



Biosecurity is the foundation of all disease control programmes. If biosecurity is well established, additional preventive measures will have a greater impact and the need for curative treatment can be kept to



Critical Control Points (CCPs)	Detailed Measures
• Farm Location & Layout	Choose a site away from high-risk areas; install fences and controlled access points.
• Animal Introduction	Only source pigs from certified disease-free farms; enforce minimum 30-day quarantine .
• Vehicle Control	Set up an external washing and disinfection center ; restrict vehicle access to farm.
• Personnel Entry	Implement strict entry protocols: change clothes, shower-in, footbath, hand sanitization.
• Feed & Water Safety	Ensure feed is sourced safely; regularly test water quality and store feed in sealed containers.
• Vector Control	Install bird nets, rodent traps, and insecticides to control pests.

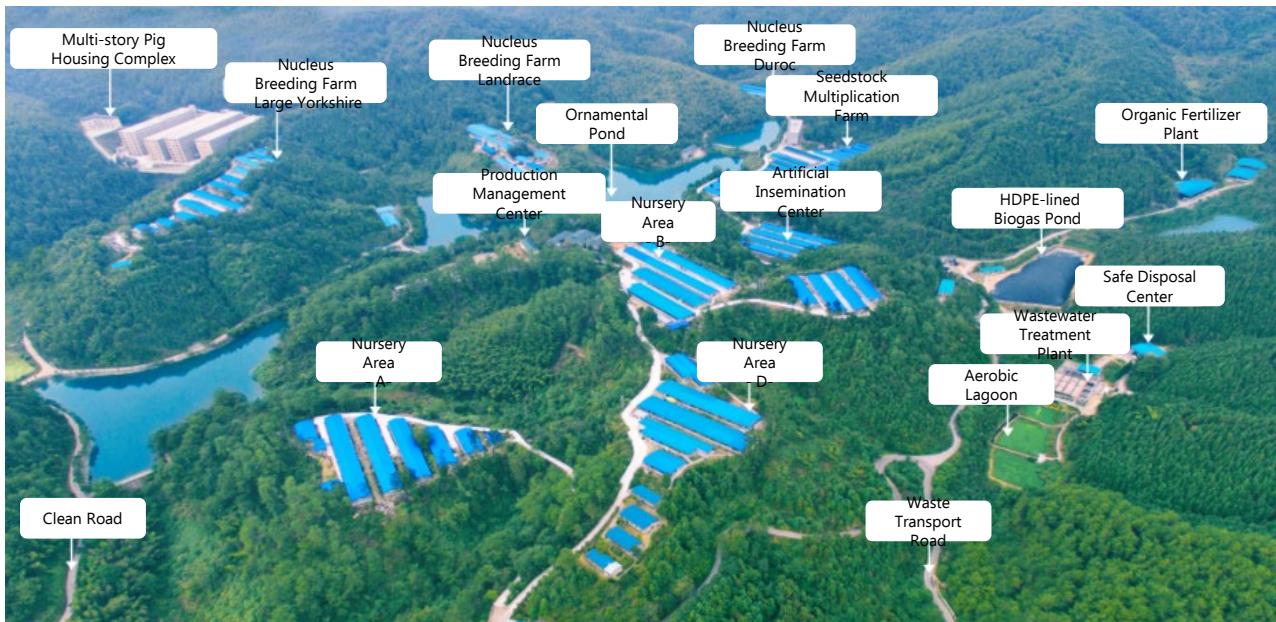


Critical Control Points (CCPs)

- Farm Location & Layout**

Detailed Measures

Choose a site away from high-risk areas; install fences and controlled access points.



Hunan Xianghu Agriculture Co., Ltd. Xiangxiang,

Guang'an Xinhao Agriculture & Animal Husbandry Co., Ltd.

Wusheng, Sichuan province





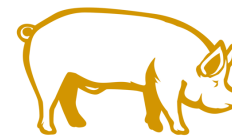
Critical Control Points (CCPs)

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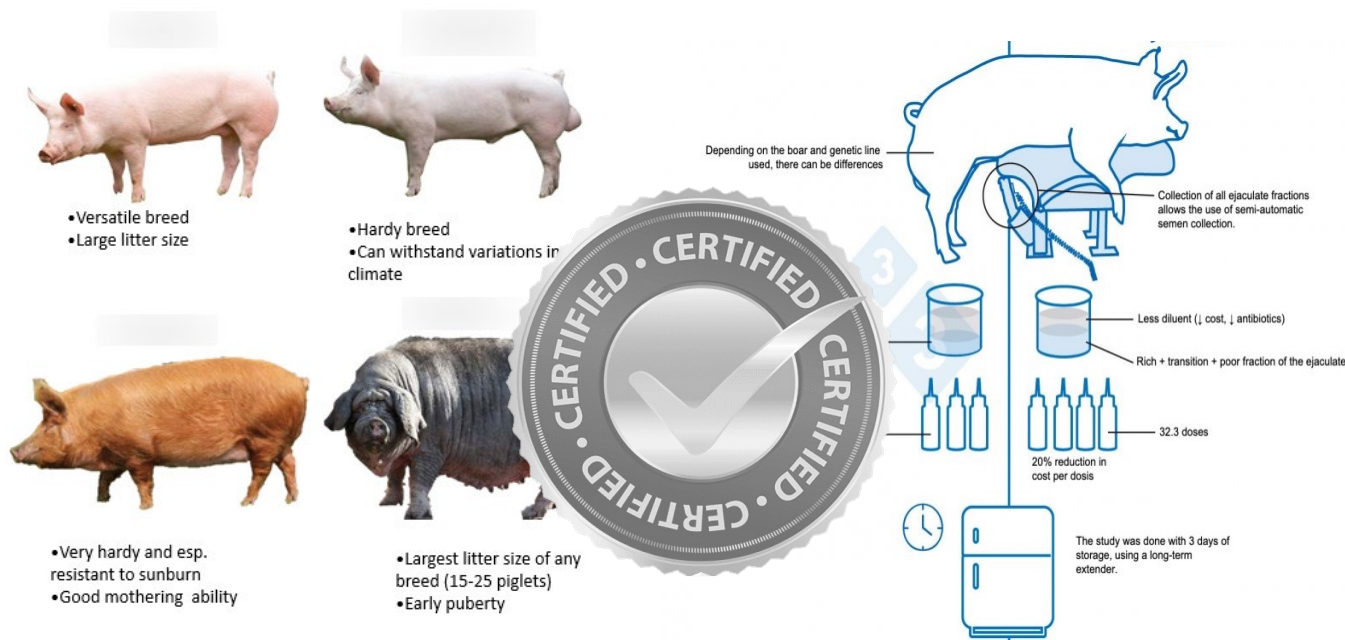


Critical Control Points (CCPs)

• Animal / Semen Introduction

Detailed Measures

Only source pigs from certified disease-free farms; enforce **minimum 30-day quarantine** for live pigs.



Isolate new pigs for at least 30 days and look out for clinical signs.



External Biosecurity



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Critical Control Points (CCPs)

- Vehicle Control (fomites)**

Detailed Measures

Set up an **external washing and disinfection center**; restrict vehicle access to farm.



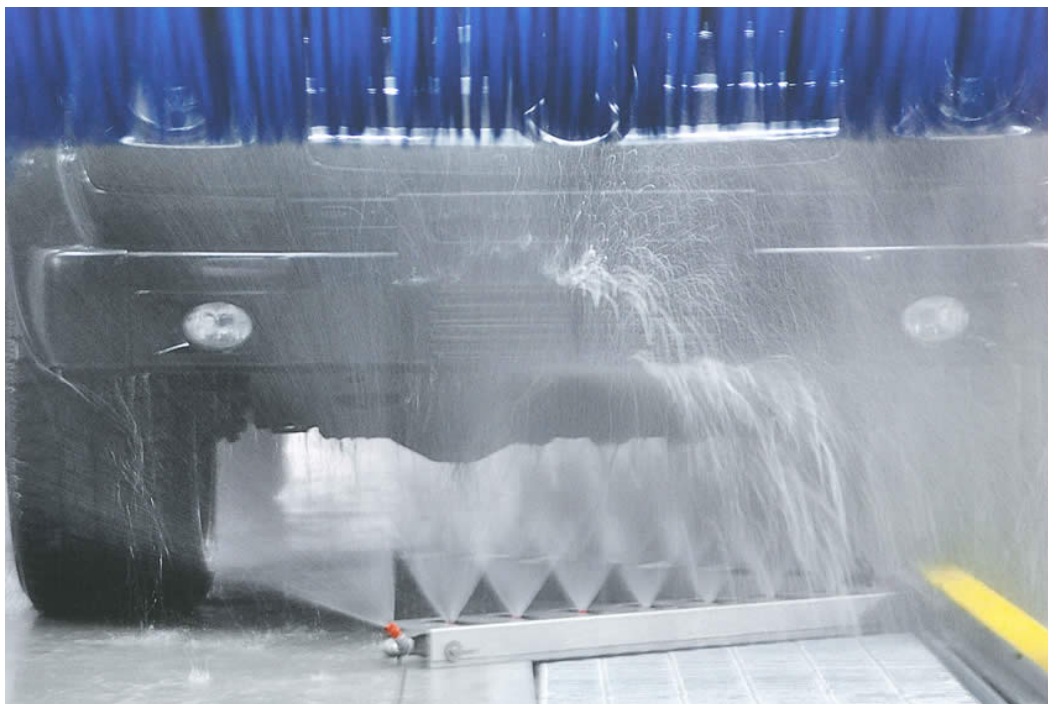


Critical Control Points (CCPs)

- Vehicle Control (fomites)**

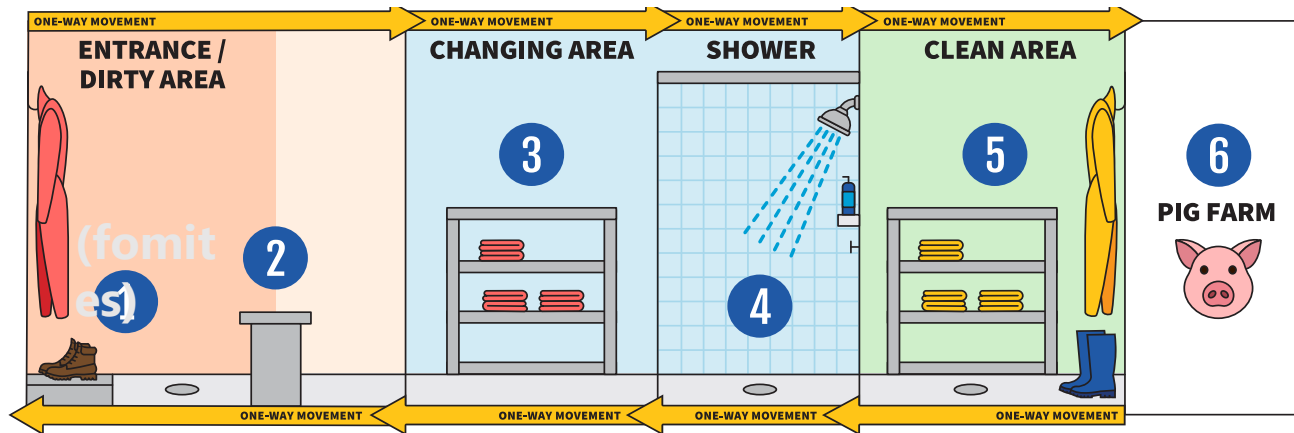
Detailed Measures

Set up an **external washing and disinfection center**; restrict vehicle access to farm.





Critical Control Points (CCPs)	Detailed Measures
Personnel Entry	Implement strict entry protocols: change clothes, shower-in, footbath, hand sanitization.

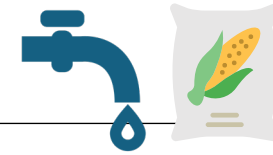


- 1 Remove your shoes (along with disposable booties, if any) and coat and place them on the designated shoe and coat rack at the entrance.
- 2 Cross the bench without touching your feet on the dirty side of the entrance floor.
- 3 Enter the changing area, remove all your clothes, place them on the clothing rack, and step into the shower.*
- 4 Take a shower and wash your hair using soap and shampoo.
- 5 Step into the designated clean area of the pathway and put on the farm-specific boots and coveralls.**
- 6 Enter the pig farm.



Do not allow visitors to enter into production areas.

All the movement should be one-way with no turning back in between.

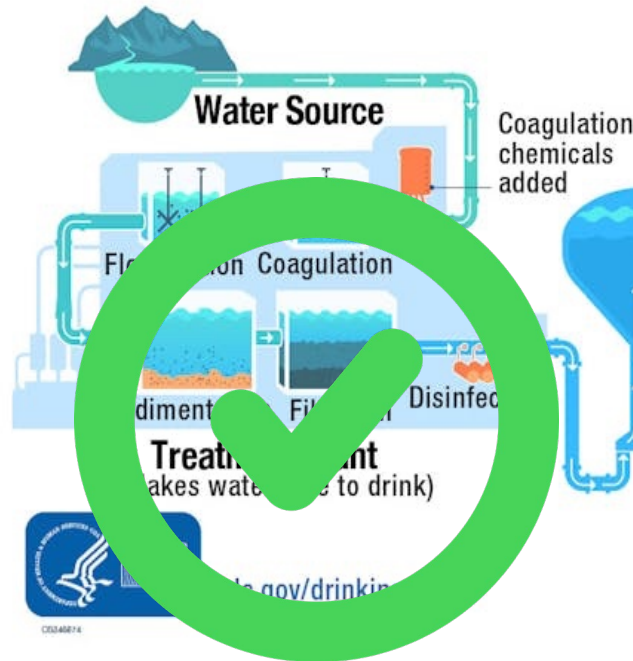


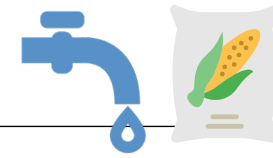
Critical Control Points (CCPs)

- **Water & Feed & Material Safety**

Detailed Measures

Ensure feed is sourced safely; regularly test water quality and store feed in sealed containers; Disinfect all incoming materials, especially medications and tools.



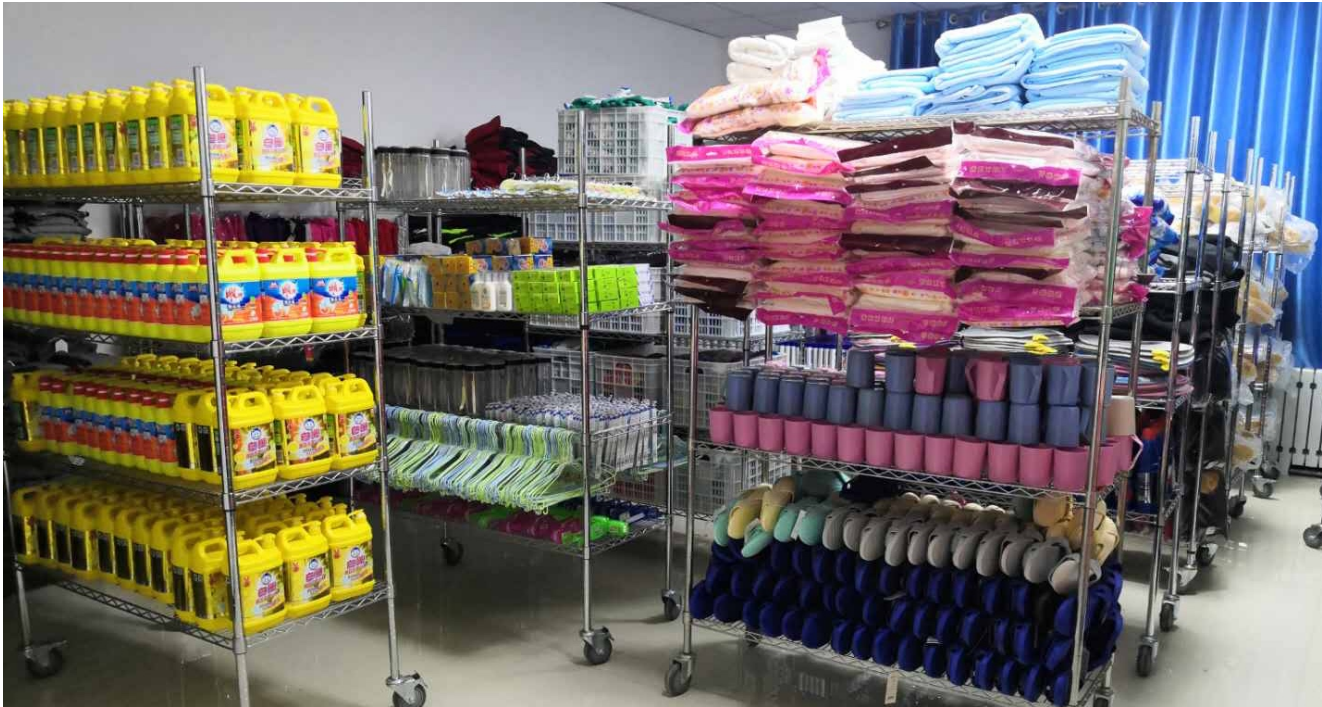


Critical Control Points (CCPs)

- Water & Feed & Material Safety**

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External Biosecurity



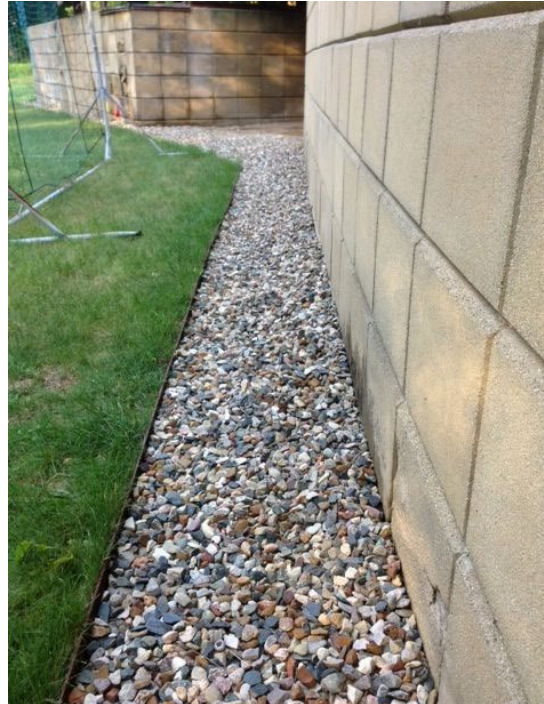
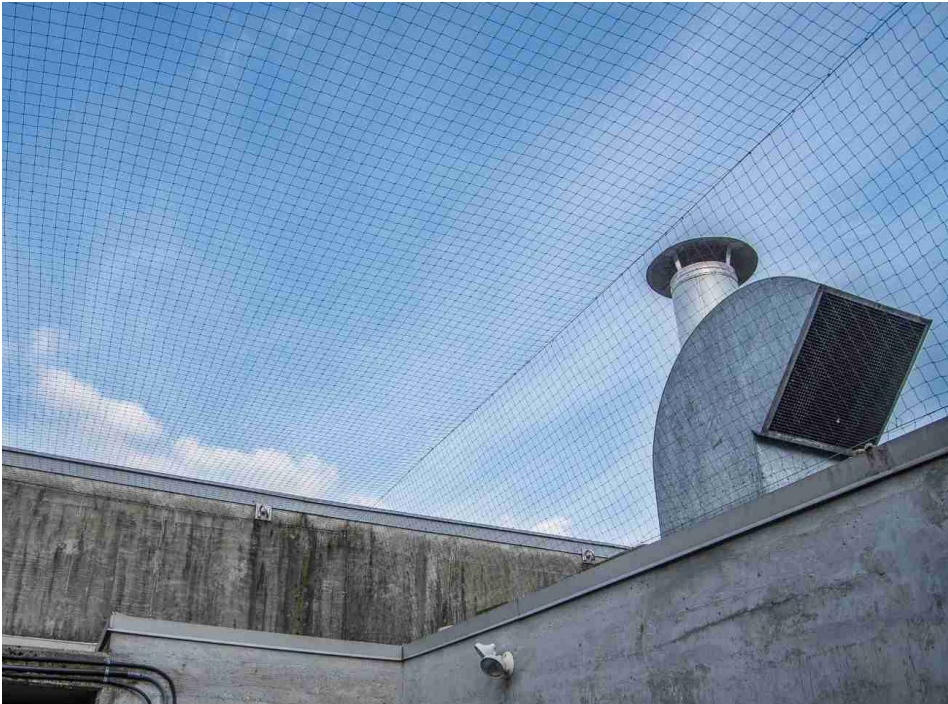
34

Critical Control Points (CCPs)

- Vector Control**

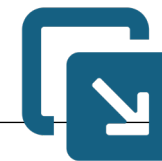
Detailed Measures

Install bird nets, rodent traps, and insecticides to control pests.





External Biosecurity



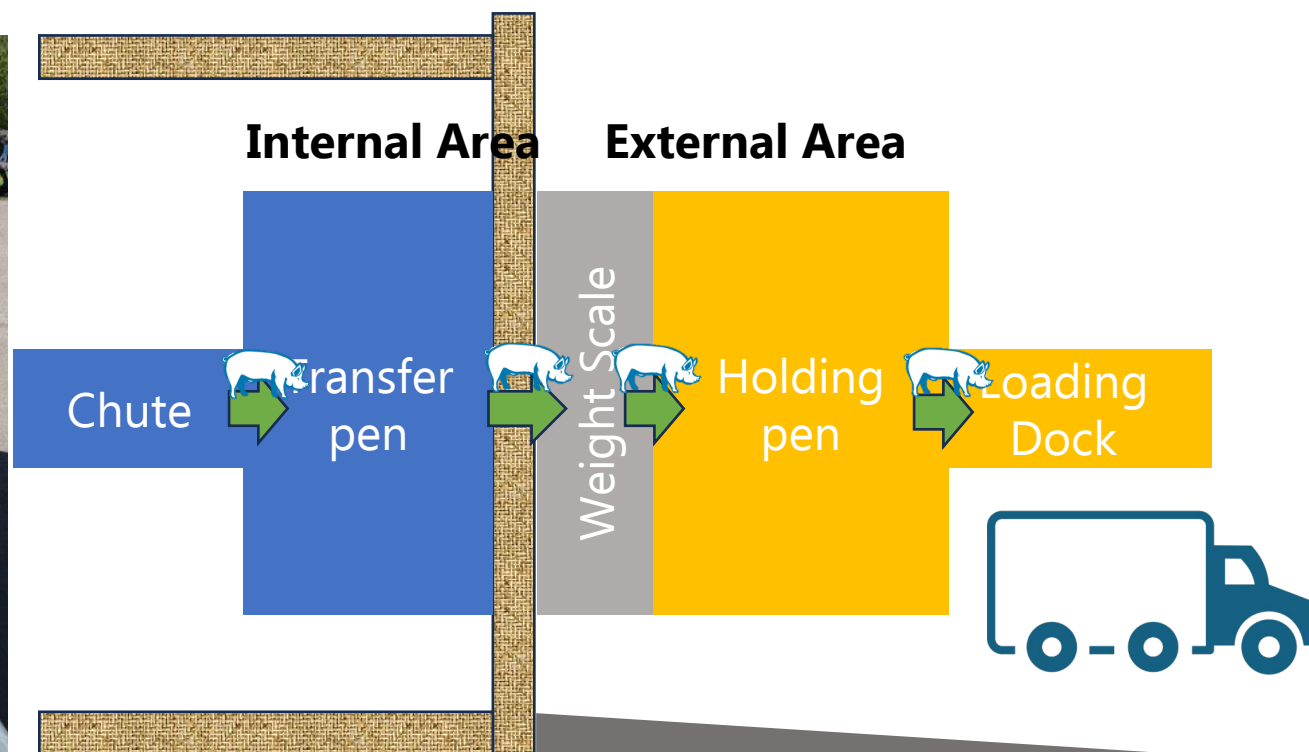
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Critical Control Points (CCPs)

• Animal Loading Dock

Detailed Measures

Establish clean/dirty zones and enforce strict washing and disinfection protocols after each use.





Critical Control Points (CCPs)	Detailed Measures
• Zoning & Compartmentalization	Divide farm into zones (breeding, farrowing, nursery, finishing); use physical barriers.
• All-in All-out System	Apply batch management; clean, disinfect, and rest facilities between batches.
• Tool & Equipment Management	Assign tools per zone; do not share needles, brushes, or boots across pens.
• Hygiene & Sanitation	Enforce regular cleaning, disinfection, and hygiene routines (e.g., hand washing, boot baths).
• Health Monitoring	Conduct daily health checks; isolate sick animals immediately for diagnosis and treatment.
• Waste Disposal	Use approved methods for dead animal disposal (e.g., composting, incineration); manage manure hygienically.

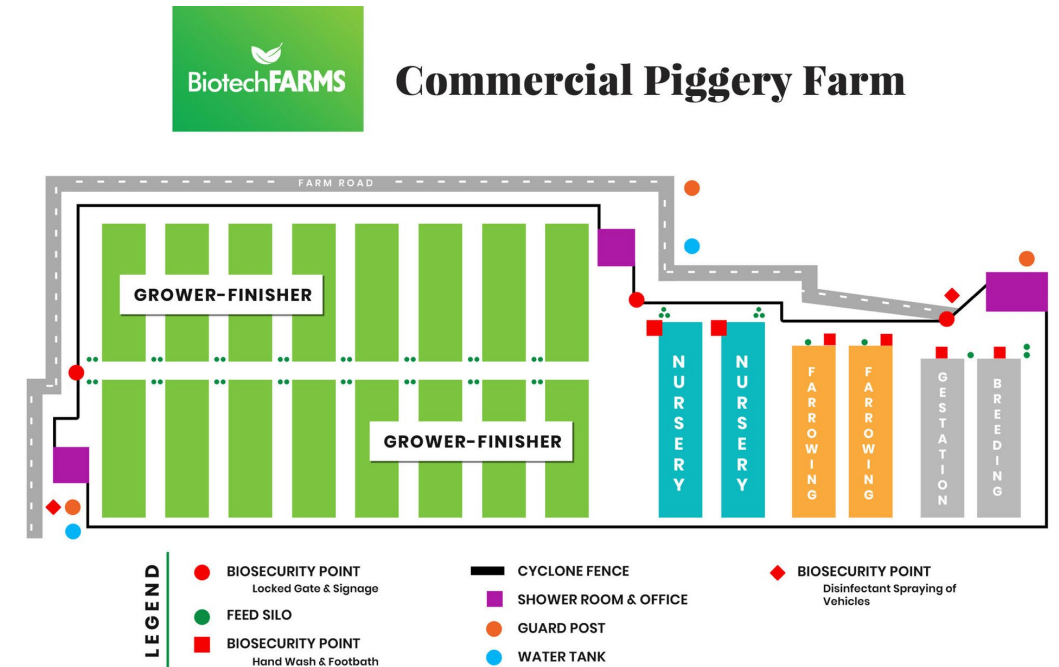
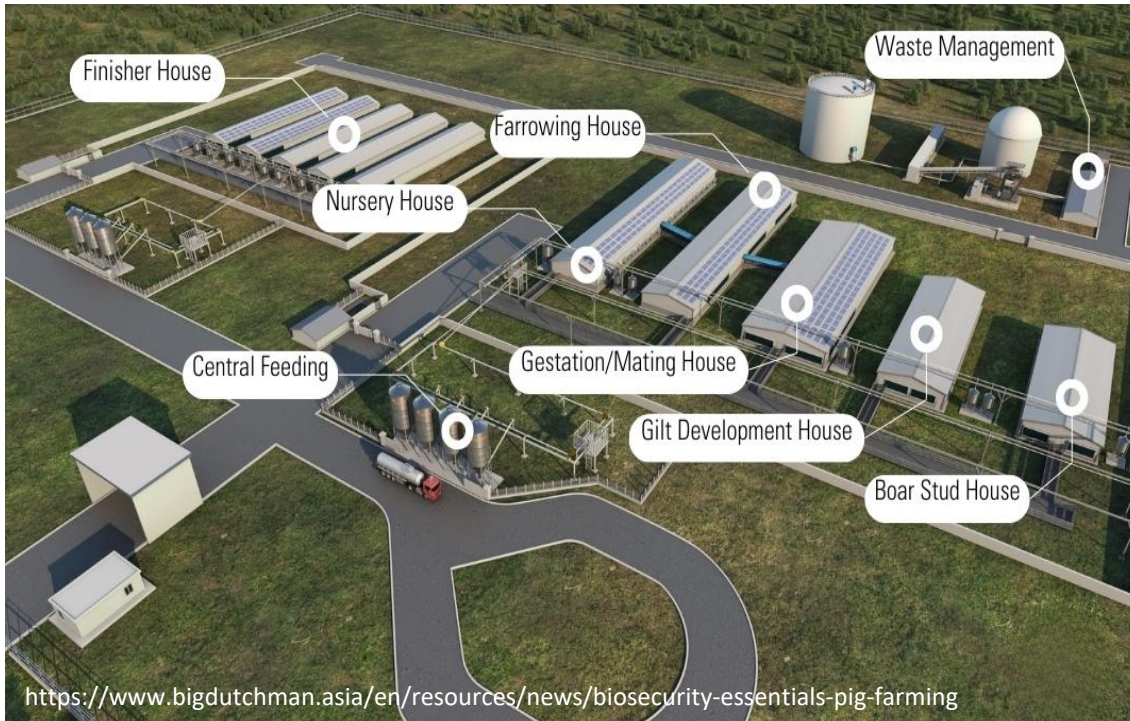


Critical Control Points (CCPs)

- Zoning & Compartmentalization**

Detailed Measures

Divide farm into zones (breeding, farrowing, nursery, finishing); use physical barriers.



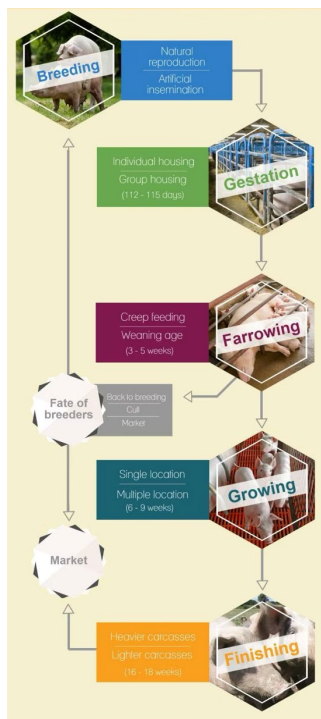


Critical Control Points (CCPs)

- **All-in All-out System**

Detailed Measures

Apply batch management; clean, disinfect, and rest facilities between batches.



HOME

ANIMALS

GROUPS

FEED & FINANCIAL

IMPORT & EXPORT

REPORT BROWSER

CONTROL PANEL

Database

Breeding Female File

East Event Entry

Options

Refresh Dashboard

Inventory		Losses		Parity		Service		Farrowing												Farrow Rate		Adj Farrow Rate		Not to Farrow		% Due		Totalborn		Liveborn		Stillborn		Mummies		Wean1	
Period	Group	Services	0-10	11-17	18-24	25-31	32-38	39-45	46-52	53-59	60-66	67-73	74-80	81-87	88-94	95-101	102-108	109+	Farrowing	Farrow Rate	Adj Farrow Rate	Not to Farrow	% Due	Totalborn	Liveborn	Stillborn	Mummies	Wean1									
01/21-01/27	4	65	65	65	62	60	60	59	59	59	59	59	59	59	59	57	57	55	55	84.6%	90.2%	10	84.6%	14.8 (814)	13.6 (748)	1.1 (60)	0.1 (6)	12.9 (708)									
01/28-02/03	5	65	65	65	61	57	57	57	57	57	57	57	57	56	56	55	55	55	55	84.6%	85.9%	10	84.6%	15.0 (825)	14.0 (769)	0.8 (46)	0.2 (10)	12.6 (695)									
02/04-02/10	6	54	54	54	53	51	51	51	51	51	51	51	51	51	51	51	51	51	51	94.4%	94.4%	3	94.4%	13.8 (702)	12.9 (659)	0.7 (34)	0.2 (9)	12.8 (651)									
02/11-02/17	7	61	61	61	57	55	53	53	53	53	52	52	52	52	52	52	51	51	51	83.6%	83.6%	10	83.6%	15.7 (803)	14.6 (746)	1.0 (49)	0.2 (8)	12.6 (642)									
02/18-02/24	8	56	56	56	54	52	52	52	52	52	52	52	52	52	51	51	51	51	51	91.1%	94.4%	5	91.1%	15.3 (781)	14.0 (715)	1.0 (52)	0.3 (14)	12.3 (627)									
02/25-03/03	9	63	63	63	61	57	57	57	57	57	57	57	57	57	56	56	56	55	55	87.3%	90.2%	8	87.3%	15.6 (857)	14.4 (794)	1.0 (56)	0.1 (7)	12.4 (683)									
03/04-03/10	10	53	53	52	51	49	49	49	49	49	49	49	48	48	48	47	47	46	46	86.8%	88.5%	7	86.8%	14.6 (672)	13.6 (626)	0.8 (39)	0.2 (7)	12.1 (557)									
03/11-03/17	11	57	57	57	53	53	53	53	53	53	53	53	53	53	53	53	53	51	51	89.5%	92.7%	6	89.5%	14.7 (749)	13.8 (702)	0.8 (41)	0.1 (6)	11.6 (591)									
03/18-03/24	12	68	68	68	65	64	64	64	64	64	64	64	64	64	64	63	63	63	63	92.6%	94.0%	2	92.6%	13.9 (874)	12.5 (786)	1.3 (80)	0.1 (8)	5.3 (332)									
03/25-03/31	13	66	66	66	66	64	63	63	63	63	63	63	63	63	63	63	63	63	63	95.5%	96.9%	3	95.5%	14.1 (891)	13.1 (823)	1.0 (66)	0.0 (2)	0.0 (0)									
04/01-04/07	14	63	63	63	63	60	60	60	60	60	60	60	60	60	60	59	59	59	59	93.7%	93.7%	4	93.7%	14.4 (848)	12.8 (756)	1.4 (83)	0.2 (9)	0.0 (0)									
04/08-04/14	15	59	59	58	57	54	54	54	54	54	54	54	54	54	54	54	54	52	42	71.2%	72.4%	7	88.1%	15.7 (861)	14.3 (802)	1.2 (49)	0.2 (10)	0.0 (0)									
04/15-04/21	16	45	45	45	43	42	42	41	41	41	41	41	41	41	41	41	41	41	0	0.0%	0.0%	4	91.1%														
04/22-04/28	17	54	54	54	52	52	52	52	52	52	52	52	52	52	52	52	52	52	0	0.0%	0.0%	2	96.3%														
04/29-05/05	18	51	51	51	47	46	46	46	46	46	46	46	46	45	45	45	45	45	0	0.0%	0.0%	6	88.2%														
05/06-05/12	19	67	67	67	67	65	65	65	65	65	65	64	64	64	64	64	64	64	0	0.0%	0.0%	3	95.5%														
05/13-05/19	20	58	58	58	57	56	56	56	56	56	56	56	56	56	56	56	56	56	0	0.0%	0.0%	2	96.6%														
05/20-05/26	21	61	61	61	57	56	55	55	55	55	55	55	55	55	55	55	55	55	0	0.0%	0.0%	6	90.2%														
05/27-06/02	22	50	50	50	49	48	48	48	48	48	48	48	48	48	48	48	48	48	0	0.0%	0.0%	2	96.0%														
06/03-06/09	23	65	65	65	61	60	60	60	60	60	60	60	60	60	60	60	60	60	0	0.0%	0.0%	2	92.3%														
06/10-06/16	24	49	49	49	47	47	47	47	47	47	47	47	47	47	47	47	47	47	0	0.0%	0.0%	2	95.9%														
06/17-06/23	25	56	56	56	56	54	54	53	53	53	53	53	53	53	53	53	53	53	0	0.0%	0.0%	3	94.6%														
06/24-06/30	26	55	55	55	52	52	52	52	52	52	52	52	52	52	52	52	52	52	0	0.0%	0.0%	3	94.5%														
07/01-07/07	27	50	50	50	48	45	45	45	45	45	45	45	45	45	45	45	45	45	0	0.0%	0.0%	2	90.0%														
07/08-07/14	28	55	55	54	53	52	52	52	52	52	52	52	52	52	52	52	52	52	0	0.0%	0.0%	3	94.5%														
07/15-07/21	29	56	56	56	54	54	54	54	54	54	54	54	54	54	54	54	54	54	0	0.0%	0.0%	2	96.4%														
07/22-07/28	30	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	0	0.0%	0.0%	0	100.0%														
07/29-08/04	31	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	0	0.0%	0.0%	0	100.0%														
08/05-08/11	32	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	0	0.0%	0.0%	0	100.0%														
08/12-08/18	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0	100.0%														



Critical Control Points (CCPs)

- Tool & Equipment Management**

Detailed Measures

Assign tools per zone; do not share needles, brushes, or boots across pens.



Critical Control Points (CCPs)	Detailed Measures
Hygiene & Sanitation	Enforce regular cleaning, disinfection, and hygiene routines (e.g., hand washing, boot baths).

Routine C&D	Periodic C&D
Personnel entering and exiting: hands, shoe soles, protective clothing	Empty house: thorough cleaning followed by comprehensive disinfection using high-efficacy agents
Environment: floors, walls, equipment surfaces	Water line: regular flushing with specialized disinfectants
Air: use of fogging or UV light	Feed system: regular cleaning of feed lines and troughs



Internal Biosecurity



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	Application Area	Recommended Disinfectants
Roads & Vehicles	Production lines, epidemic area and quarantine point routes	Sodium hypochlorite (bleach), Calcium hypochlorite (lime)
	Vehicles and transportation tools	Alcohols, Aldehydes, Quaternary ammonium compounds, Complex compounds (boric, phosphoric, and sulfuric acid compounds)
	Entrances, changing room disinfection pools, footpads	Sodium hypochlorite
Animal housing Areas	Livestock buildings, enclosures, wooden structures, cement surfaces, ground surfaces	Sodium hypochlorite, Alcohols, Aldehydes, Chlorine dioxide
	Production and processing equipment and tools	Quaternary ammonium compounds, Complex compounds (boric, phosphoric, and sulfuric acid compounds), Peracetic acid compounds
	Environmental and air disinfection	Peracetic acid compounds, Chlorine dioxide
	Drinking water disinfection	Quaternary ammonium compounds, Peracetic acid compounds, Chlorine dioxide, Chlorine-containing compounds
	Personnel skin disinfection	Iodine-containing compounds
	Potentially contaminated items (clothing, hats, shoes, etc.)	Peracetic acid compounds
Living Areas	Offices, dormitories, canteens, etc. within epidemic zones	Chlorine dioxide, Peracetic acid compounds, Chlorine-containing compounds
	Isolation clothing, rubber shoes, etc. for entry and exit	Peracetic acid compounds

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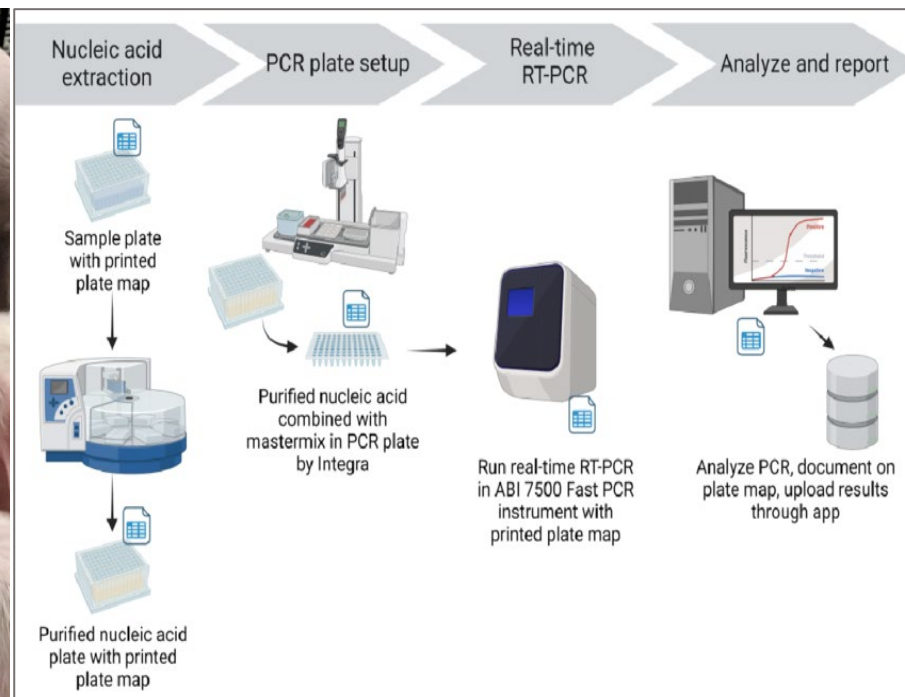


Critical Control Points (CCPs)

- Health Monitoring**

Detailed Measures

Conduct daily health checks; isolate sick animals immediately for diagnosis and treatment.





Critical Control Points (CCPs)

• Waste Disposal

Detailed Measures

Use approved methods for dead animal disposal (e.g., composting, incineration); manage manure hygienically.



Temporarily store in cold



Critical Control Points (CCPs)

• Waste Disposal

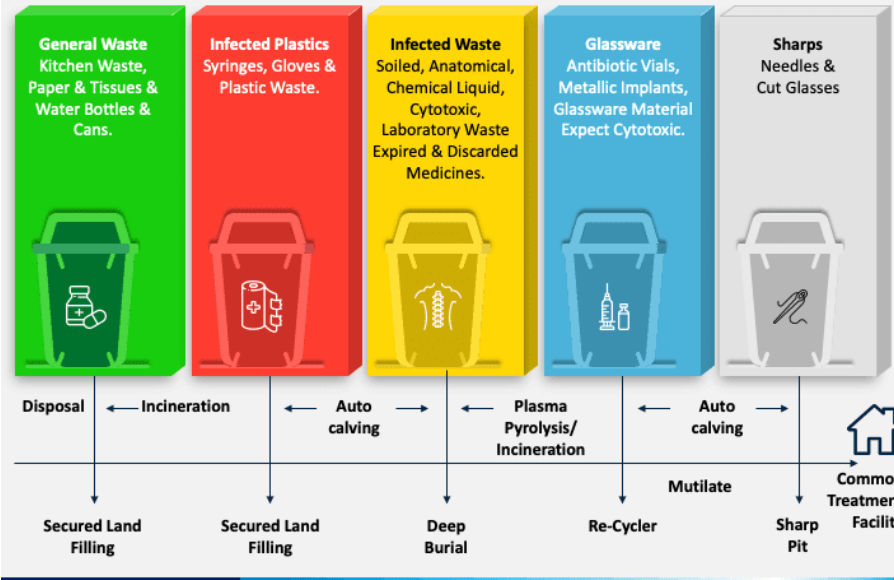
Detailed Measures

Use approved methods for dead animal disposal (e.g., composting, incineration); manage manure hygienically.



BIO MEDICAL WASTE MANAGEMENT

Segregation of Hospital Bio-Medical Waste





Wrap up

It's not just about physical facilities or document systems,⁴⁵
— it's about the people who make them work.

Principle	Explanation
Layout: Dirty-Buffer-Clean Zone Separation	Clearly defined functional zones should be established and managed under strict controls to minimize the risk of cross-contamination .
Pathway: Segregation	Separate pathways and facilities should be maintained for people, equipment, vehicles, and pigs to prevent mixing and reduce disease transmission risk.
Movement: One-Way Flow	All movements of people, vehicles, materials, and pigs should follow a one-way direction to avoid backflow and cross-contamination .
Introduction: Isolation	Newly introduced animals or personnel must undergo isolation and monitoring before entering the main population or facility.
Contamination: No-Spread	Handle healthy animals and clean areas first, then sick animals and high-risk zones. Contain any suspected contamination immediately to prevent spread.
Management: Systematic Approach	Biosecurity requires a comprehensive system including infrastructure, SOPs, training, and consistent enforcement of protocols.

Thank you!

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