



African Swine Fever Prevention and Control in China: Experiences and Policy Implications

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Seoul, August 12

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01

Evolution and Impacts of African Swine Fever Epidemic in China

African Swine Fever: Evolution and Analysis of Transmission Risk Points

Evolution of ASF in China

Stage 1: Sporadic Outbreak Phase (Aug. 2018 – Sep. 2018)

- **Features:** cases with limited geographical spread
- **Key event:** The first domestic ASF case confirmed in Shenyang, Liaoning in August 2018

Stage 2: Nationwide Spread Phase (Oct. 2018 – Apr. 2019)

- **Features:** Rapid inter-provincial transmission via multiple routes; epidemic reached all provincial-level regions
- **Key event:** Hainan reported ASF cases in April 2019, marking ASF in all 31 provincial-level regions in Chinese mainland

Stage 3: Production Capacity Recovery Phase (May 2019 – End of 2021)

- **Features:** Comprehensive prevention and control; pig farms upgraded biosecurity; hog production capacity recovered steadily
- **Key events:** production capacity restored to pre-epidemic level by the end of 2021

Stage 4: Regular Prevention and Control Phase (2022 – Present)

- **Features:** under control of ASF; long-term routine implementation of disease prevention and biosecurity measures
- **Key event:** Zonal prevention and control fully implemented, establishing a long-term risk prevention system for the industry

African Swine Fever: Evolution and Analysis of Transmission Risk Points

Transmission Risk

1.Movement of Personnel and Materials (Primary Diffusion Route)

Reason: Accounting for 46% of traced epidemic cases (According to the data of MARA in early stage). Cross-farm movement of vehicles and personnel; incomplete disinfection.

Feeding pigs with kitchen waste constituted a major source of early outbreaks and continuously triggered new infections on pig farms.

2.Inter-regional Live Pig Transportation (Core Carrier for Long-distance Inter-provincial Spread)

Reason: Infected pigs illegal transportation and long-distance trafficking opened up inter-provincial transmission channels, facilitating the spread of the epidemic nationwide.

3.Slaughtering and Circulation (Virus Amplification and Transit Node)

Reason: Pig consignments from multiple regions converge at slaughterhouses, which tends to contaminate premises and pork products. It enables virus spread along the meat supply chain and serves as an intermediate amplification link.

4.Improper Disposal of Diseased Pigs (Regional Local Risk Source)

Reason: contaminate the surrounding environment and trigger short-distance transmission.

Risk difference between different stages of ASF control

Sporadic Outbreak / Nationwide Spread Phase:

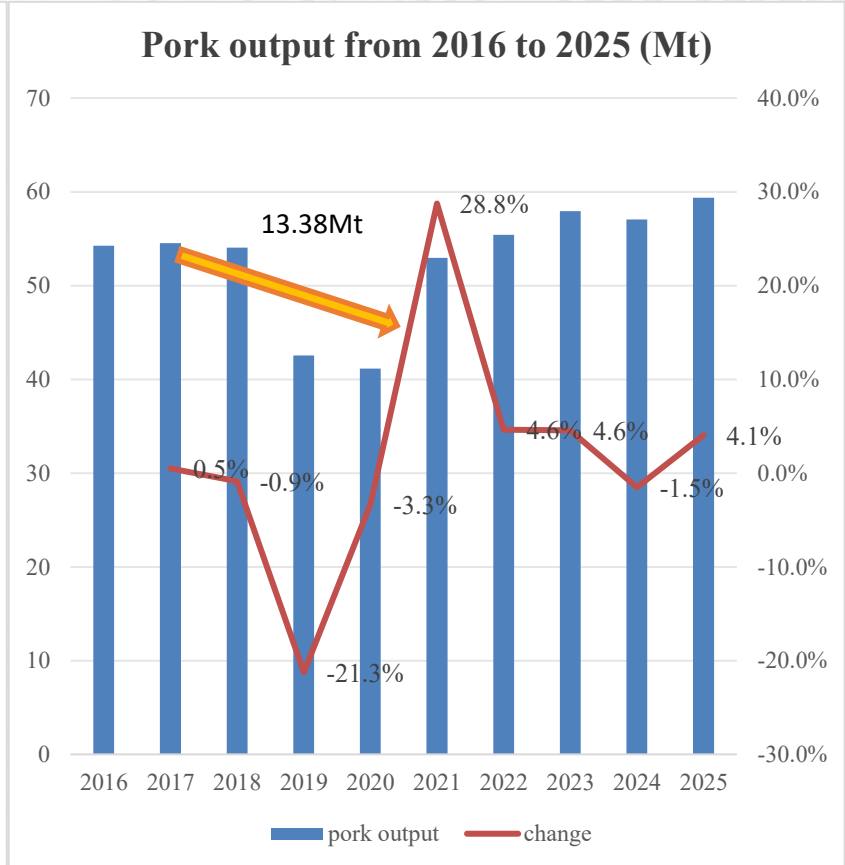
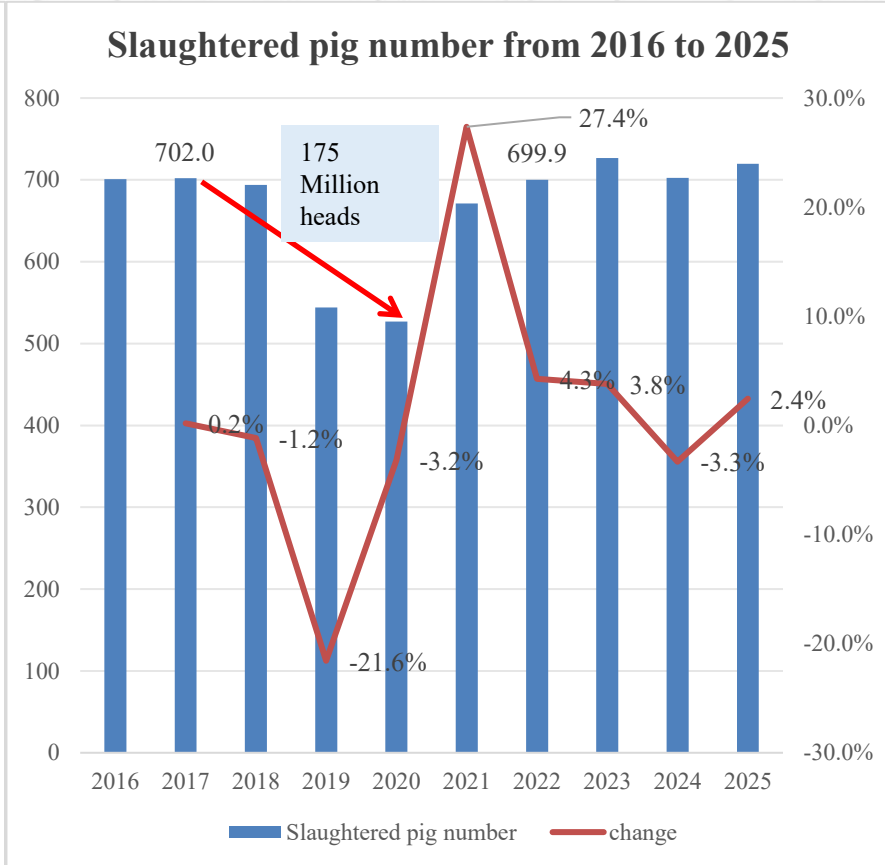
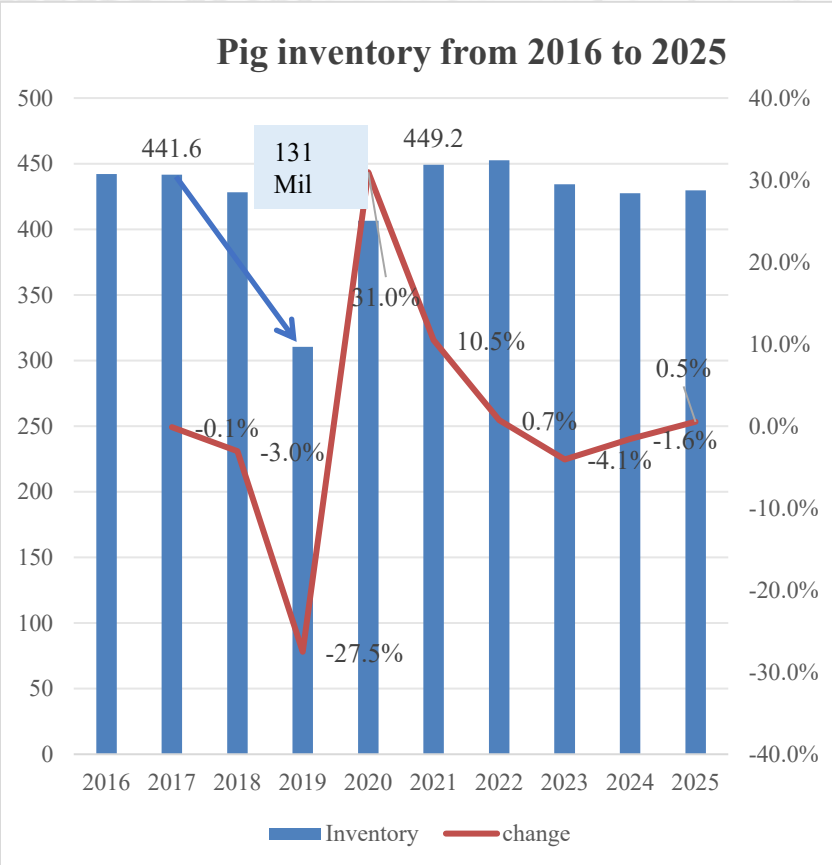
Swill feeding, live pig transportation, and virus carriage via vehicles and personnel constituted three major transmission pathways.

Production Recovery & Regular Prevention and Control Phase:

Risk of virus transmission through vehicles, personnel and machinery, as well as illegal live pig transportation



ASF's Impacts on China's Hog Sector



Production Capacity Shock Phase (2018–2020)

Rapid drop in hog production capacity, with pork output decreased by more than 13 Mt

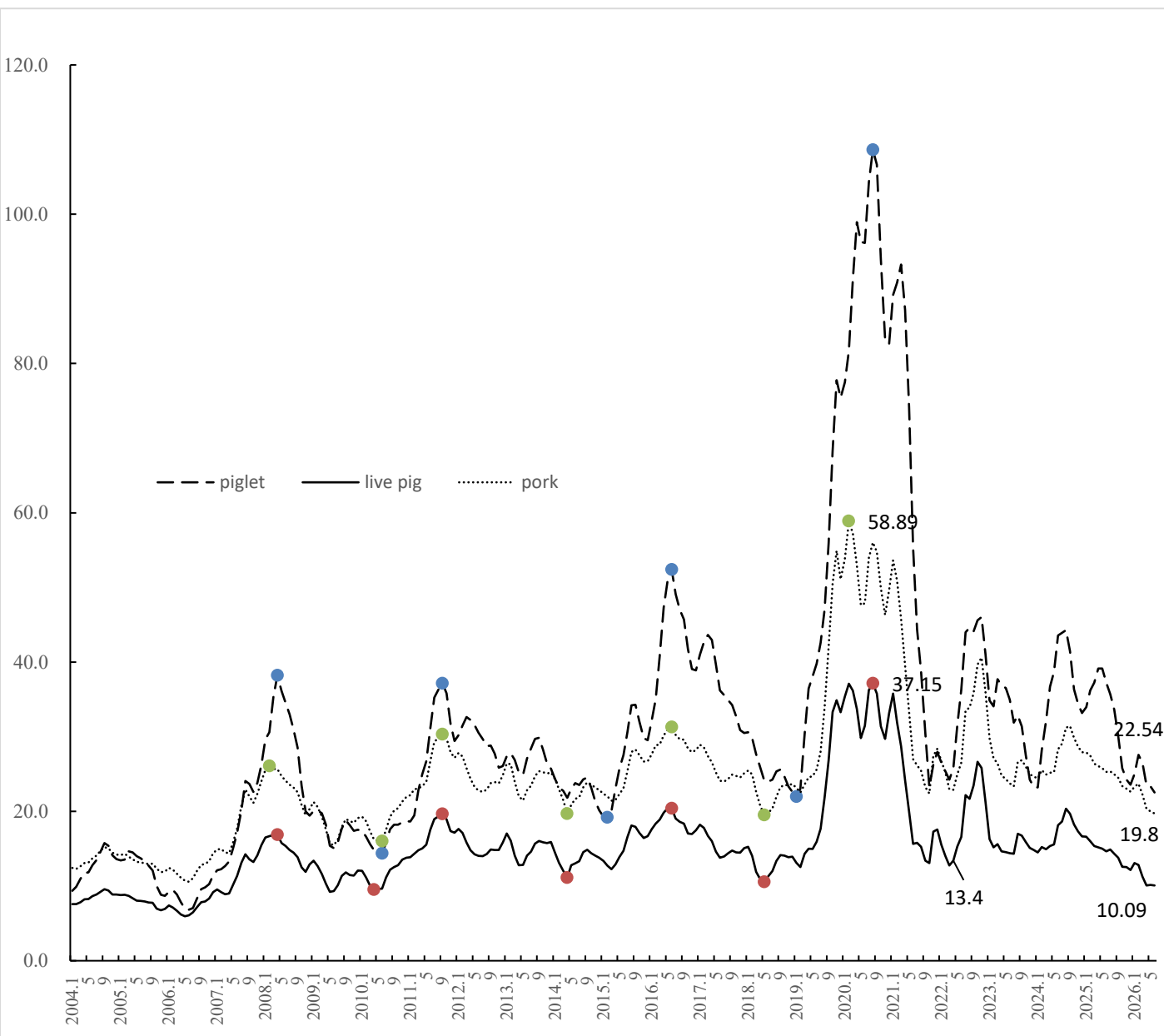
Capacity Stabilization Phase (2021–2024)

With prevention and control policies implemented, hog production capacity rebounded quickly. Sharp plunge of pig price introduced the policy of capacity regulation in Sep of 2021, followed by 2024 and 2026 edition.

Industrial Transformation Phase (2025 – Present)

Pork output has hit an all-time high, and the industry is shifting from scale expansion toward high-quality development, from supply guarantee to the balance of demand and supply.

ASF's Impacts on China's Hog Market



Hit by ASF, hog production capacity contracted substantially, triggering a "super hog cycle" during 2019–2020, when hog prices once exceeded 37 yuan per kilogram.

As hog production capacity recovered, hog prices plunged starting from the second quarter of 2021 till the first quarter of 2022.

Since 2023, the direct impacts of ASF have gradually faded, and hog prices have generally returned to regular cyclical fluctuations.

02

China's Policies on ASF Prevention, Control and Pig Industry Recovery

ASF Prevention Policy Focus Trend

1. Emergency Prevention and Control Stage (Aug 2018 – Apr 2019)

The main goal was to cut off virus transmission and stop nationwide spread.

Fully banned feeding pigs; tightened supervision on pig transportation, vehicle disinfection, and safe disposal of dead pigs, and strictly punished illegal pig trading. A set of emergency response rules: epidemic reporting, area lockdown, culling, virus tracing and harmless disposal.

Key measures: transportation filing, pig testing in slaughterhouses, stricter cross-provincial quarantine, and clear local epidemic prevention responsibilities.



2. Epidemic Prevention & Capacity Recovery Stage (May 2019 – End 2021)

Continuing epidemic prevention and restoring hog production capacity with a full set of supportive policies.

building a full-industry prevention system (farms, slaughterhouses and circulation companies along the chain) and upgrade on-farm biosecurity.

Policy for recovery: **land, loan, insurance; Support for** farm upgrading; Regulation mechanism for pig production.



3. Regular Prevention & Industrial Transformation Stage (2022 – Present)

Epidemic prevention has become standardized and routine: on-farm biosecurity management, disease-free zone construction, regular slaughterhouse testing.

The policy focus has changed to long-term source risk control.

Capacity regulation policies have been updated continuously in 2024 and 2026.

National Framework of ASF Prevention, Control and Industrial Recovery Policies

ASF control and biosafety

Block virus transmission and eradicate the epidemic

Funding Item	Amount (million yuan)	Remarks
Subsidies for compulsory culling of African Swine Fever affected pigs	630	By April 2019, the central finance had issued culling subsidies.
Animal epidemic prevention subsidies (released in advance)	5496	Funds for 2019 animal epidemic prevention issued ahead of schedule in October 2018.
Subsidies for compulsory culling of African Swine Fever affected pigs	499	Special central finance funds for compulsory culling allocated in 2019.
Animal epidemic prevention and related subsidies	6828	Annual central finance funds in 2018 for compulsory immunization, culling and ASF prevention and control.
Infrastructure construction for animal epidemic prevention	285	Central budget investment during 2017–2018 for projects such as regional pathogen monitoring centers.
Project for capacity improvement of animal and plant protection	1000	Central budget investment during 2017–2018 to support capacity building including animal epidemic prevention.

Production recovery

Promote the rebounding speed of production

Funding Item	Main content	Remarks
Temporary Loan Interest Subsidies for Breeding Pig Farms and Large-scale Hog Farms	Ease capital pressure on enterprises, :for newly-built, renovated and expanded pig farms	Eligible farms lowered from annual slaughter of over 5,000 hogs to over 500 hogs.
Rewards for Major Hog Exporting Counties	Central finance increased reward funding(hog production, epidemic prevention and infrastructure construction.	Infrastrure and capability improvement
Raising Insurance Coverage for Hogs	Reduce breeding risks and encourage farms to resume production.	Breeding sows: 1,500 yuan per head; finishing hogs: 800 yuan per head.
Agricultural Machinery Purchase Subsidies	Include modern breeding equipment :automatic feeding, environmental control and epidemic prevention facilities	Lower the cost of facility investment.
Support for Infrastructure Construction	improved hog breeding,livestock manure resource utilization, and hog transport vehicle disinfection centers.	Biosafety and environment pollution control
Temporary Price Subsidies	Mitigate the impact of rising pork prices on low-income groups	By 2019, 29 provincial regions activated this mechanism, with total subsidies exceeding 2 billion yuan.

Policy benefits

01

Economic Benefits

Lower Costs & Accelerate Recovery

Combined policiess including fiscal subsidies, loan interest discounts, and eased land & environmental rules effectively reduce mandatory spending for farms. These expenses cover biosecurity upgrades, standardized facility renovation and manure treatment equipment.

The policies can offset 30%–40% of epidemic prevention upgrade costs for small and medium pig farms, and 20%–25% of fixed-asset renovation costs for large-scale farms.

02

Social Benefits

Secure Supply & Stabilize Livelihoods

The hog production capacity rebounded rapidly. From 2021 to 2024, national hog inventory and pork output rose and remain stable.

The recovery boosted supporting industries including feed, slaughtering and cold chain, and cut economic losses across the whole industrial chain.

03

Long-term Benefits

Drive Industrial Transformation

The policies feature relatively low public investment yet strong industrial returns.

Besides stabilizing pork supply in the short run, they pushed the whole sector to upgrade facilities and build standardized biosecurity systems. This creates long-term, sustainable epidemic prevention capacity for the industry.

03

Biosecurity Upgrade of Pig Producers and Changes in Cost-Benefit Performance

Comprehensive Upgrade of Biosecurity Measures

Zoning and Physical Isolation within Farms

Farms generally set strict boundaries for production zones, living zones and isolation zones.

Control of Personnel, Vehicles and Materials

Strict rules for staff : washing, disinfection, changing clothes and isolation. All vehicles under cleaning, disinfection and drying.

All-in All-out Management, specialized Farming & Targeted Risk Response

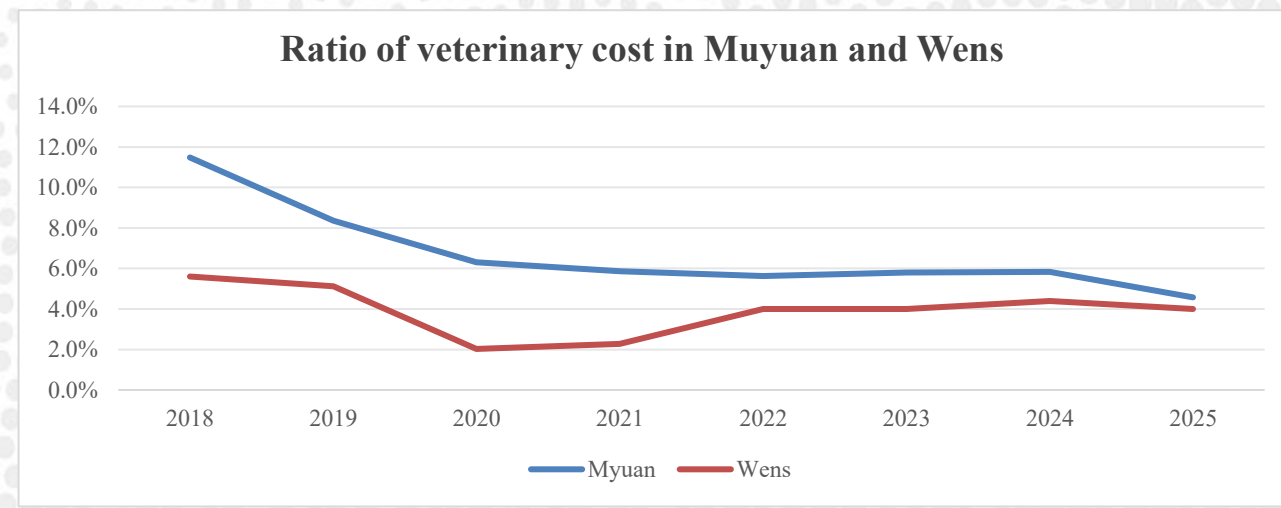
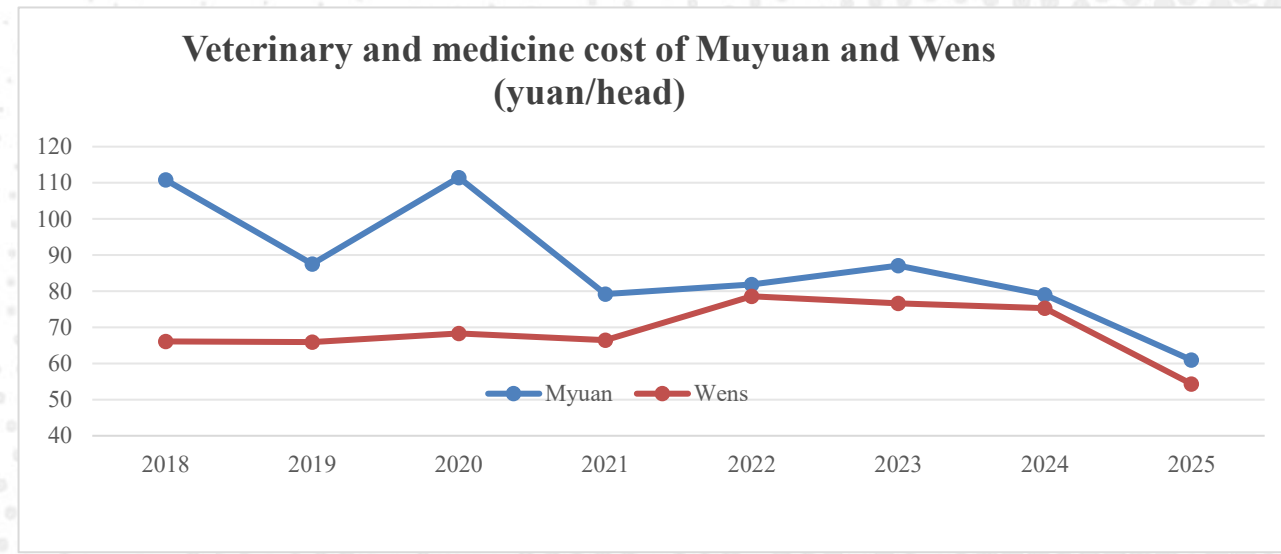
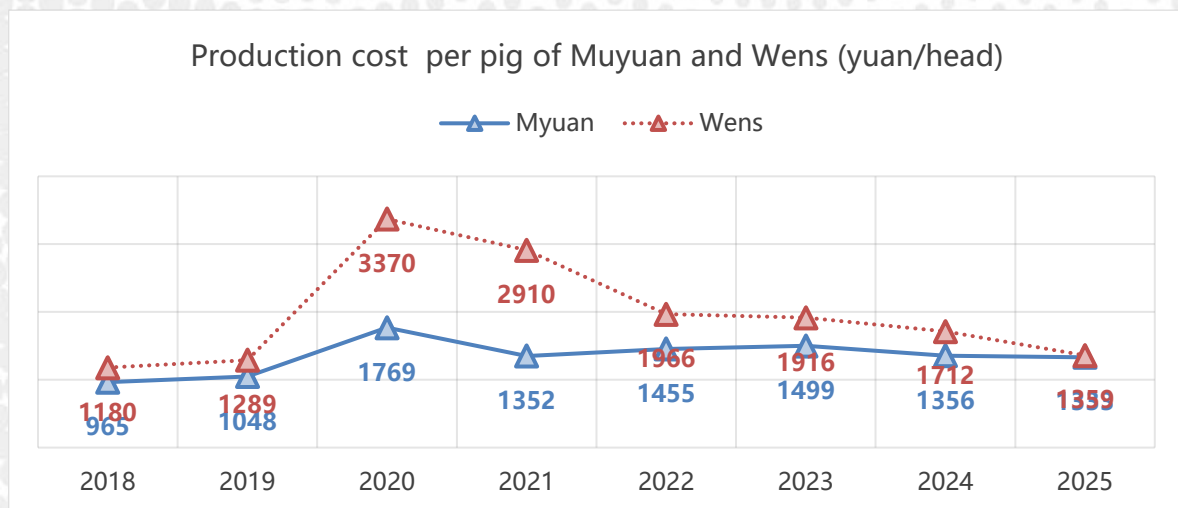
The "all-in, all-out" production system is widely adopted.

Adoption of Automation and Intelligent Equipment

Automated feeding, intelligent environmental control and other devices reduce direct contact between humans and pigs, improving management efficiency and precision.

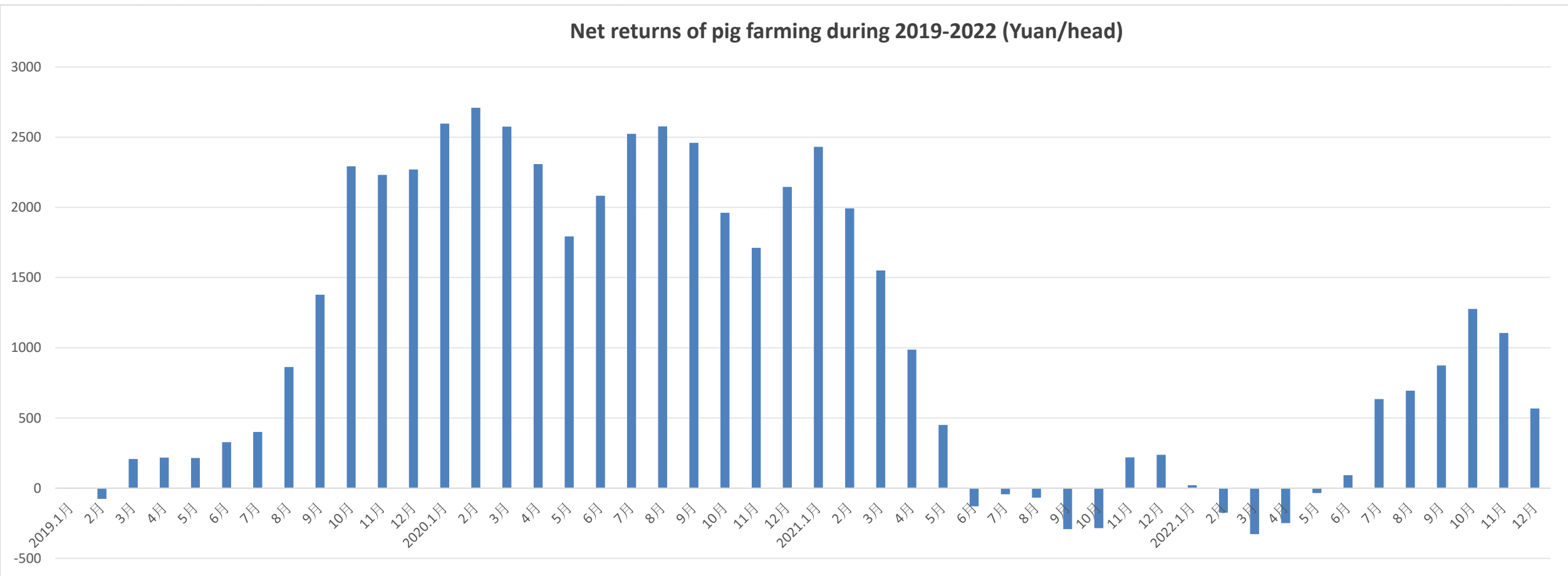


Production cost



Overall, the ASF outbreak pushed up production costs for pig farms significantly at the beginning. But as biosecurity systems became standardized and scaled up, and management improved, those heavy overhead costs were gradually spread out. The industry has entered a regular prevention stage with relatively lower costs.

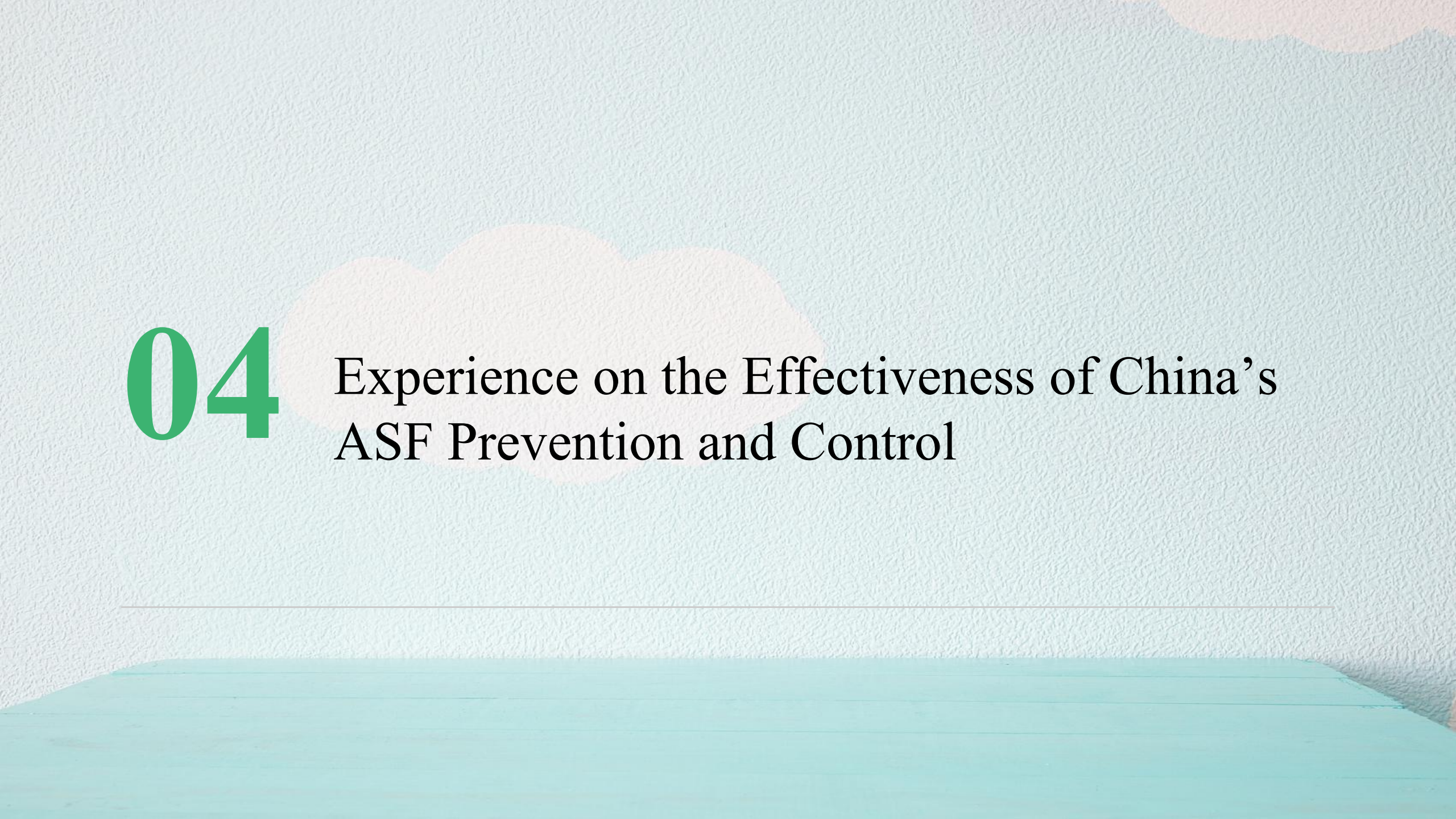
Returns of pig production



From an economic perspective, excess profit acts as the key driving force.

On biosecurity: High pig prices brought considerable earnings. Pig producers had strong incentives to invest in better epidemic prevention equipment and improve on-farm isolation systems. As a result, the overall biosecurity standard of the whole industry rose markedly.

On industrial investment: Attracted by generous returns, capital flowed into hog farming. Standardized large-scale breeding kept expanding. Rising spending on biosecurity lifted the entry threshold. Small farmers who could not afford upgrades gradually exited the market, and the industry steadily shifted toward modern development led by major enterprises.



04

Experience on the Effectiveness of China's ASF Prevention and Control

Market Incentive Mechanism

High profits drive investment in biosecurity and farm restocking. Surging hog prices created strong market incentives, which became the fundamental reason for farms to voluntarily boost epidemic prevention spending.

Industrial Scaling-up, Improved Organizational Management

Large-scale farming cuts the marginal cost of disease control and improves prevention efficiency. Big pig farms can afford to build higher-standard biosecurity facilities. Models such as “Company + Farmers” build steady, low-cost long-term prevention capacity. Enterprises deliver unified standards and professional services to farmers, lowering risks.

Inforced Institutional Change

Traceability notification, cross-regional movement restrictions, joint prevention mechanisms and disease-free zone certification define biosecurity property rights and accountability boundaries. Policies covering land, credit and subsidies directly cut the sunk costs for new investors entering the sector.

market profits provide the initial motivation, scaling reduces implementation costs, and better organization ensures effective execution. Working together, they transformed biosecurity from emergency response into a sustainable internal growth mechanism, pushing the industry toward modern, efficient and resilient development.

Market Incentives + Policy Support — High Profits Drive Biosecurity Investment and Production Restocking

Market returns create intrinsic motivation for biosecurity investment, while government policies ease external constraints on farm restocking and capacity expansion.

After the ASF outbreak, hog supply shrank rapidly. Pork prices went up, widening profit margins across the industry.



Higher profits improved farmers' financial capacity. Biosecurity spending shifted from a financial burden to a necessary investment to secure stable earnings.

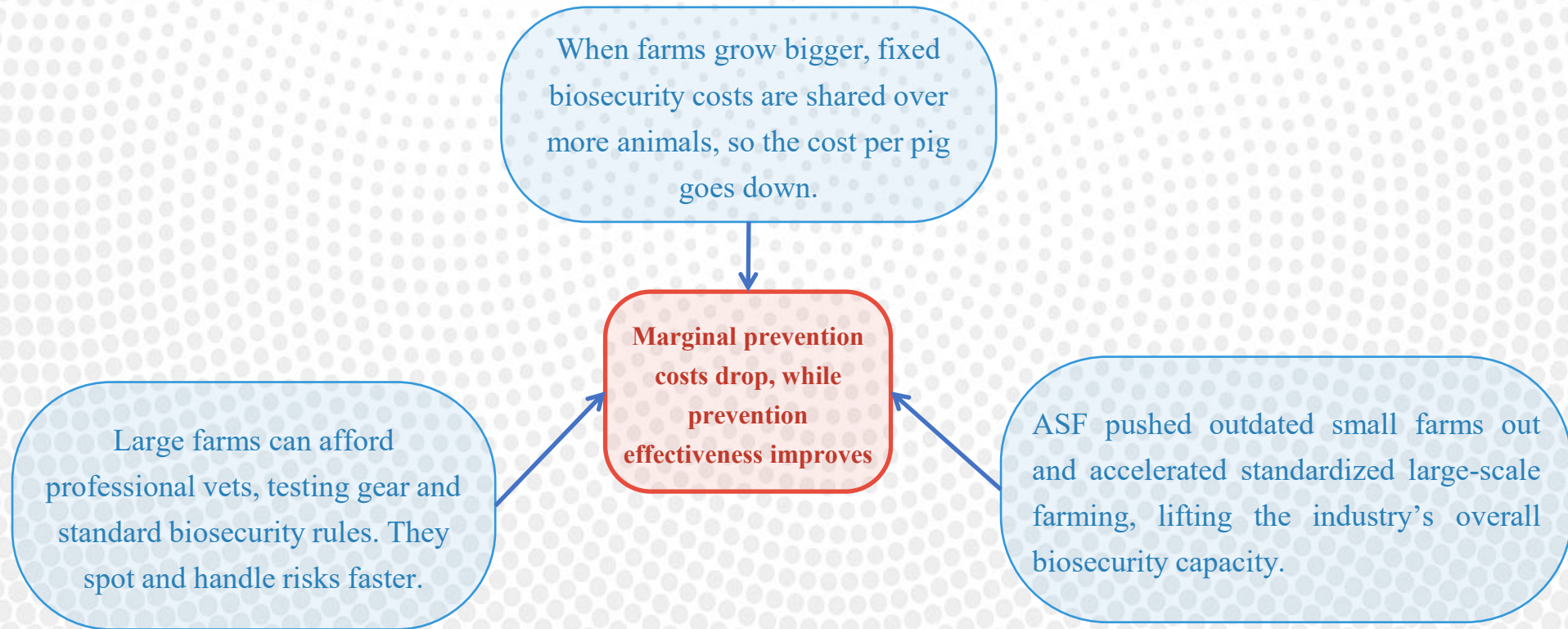


Driven by market gains and government policies, producers accelerated restocking and expansion, speeding up the recovery of national hog production capacity



Industrial Scaling-up — Bring Down Marginal Prevention Costs and Boost Biosecurity Performance

Large-scale farms spread fixed costs, use professional management and standard workflows. This lowers biosecurity spending per pig and makes disease control more effective.

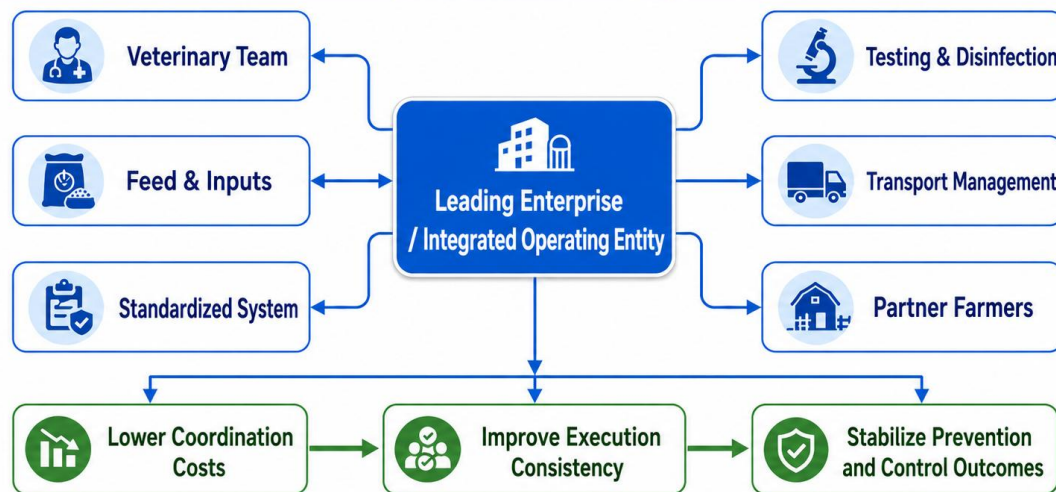


Scaling up does not just mean having more pigs. With economies of scale and specialized work split, farms get better value out of every dollar spent on biosecurity.

Upgraded Organizational Management (Company + Farmers) — Build Sustainable Low-Cost Biosecurity Capacity

Better organization incorporates scattered small farmers into one unified system for technology, veterinary support, farm inputs and biosecurity. As a result, costs for information communication, supervision and enforcement are reduced.

Organizational Management Upgrade: Strengthening Routine, Low-Cost Prevention and Control Capacity



Unify technical standards, inputs, supervision, and execution systems to bring dispersed farming into an institutionalized prevention and control framework.

1. Large-scale farming companies use integrated operations and the “Company plus Farmers” model to manage scattered pig raising in a coordinated system.
2. The firm uniformly provides breeding pigs, feed, epidemic prevention guidance, veterinary support and operational standards, so biosecurity requirements are applied consistently.
3. With professional vets and standard procedures, farmers no longer lack information or make mistakes when carrying out prevention work on their own.
4. Unified management of workers, vehicles, materials and pig transport effectively reduces cross-infection risks across production links.

Scaling up of pig farming

Ratio of sold pigs from farms at >500 head annual output

2017

46.9%



2024

70.7%

Large-scale development forms the fundamental industrial basis to boost the cost-efficiency of prevention work and lift the industry-wide biosecurity level.

05

Regional Variations in ASF Impacts, Control Practices, Biosecurity Experiences and Challenges

Country	Pork Share in Total Meat Consumption	Core Prevention & Recovery Strategy	Unique Advantages of Policy Framework and Technical Path	Key Outcomes after Industrial Upgrade
China	Around 60%	Capital-driven development + government investment & biosecurity + R&D	Supported by strong national coordination and financial subsidies. China widely adopted the "biosecurity zone" and targeted stamping-out "search-and-destroy" strategy.	build numerous high-standard industrial pig farms, with advanced air filtration systems and intelligence systems.
Vietnam	Around 63% - 64%	technical innovation + vaccination	Vietnam is a front-runner for commercial ASF live attenuated vaccines. It follows a proactive defense model: farm biosecurity plus routine vaccination.	Hog production capacity and output have recovered, exceeding pre-outbreak levels. Large 3F vertical integration groups (feed-farm-food) achieved rapid, leapfrog growth.
Philippines	Around 35%	Island geographic isolation + cooperative restructuring	Authorities introduced regionalisation and the INSPIRE program to encourage small farmers to unite.	grassroots biosecurity standards greatly lifted .
Malaysia	Around 12% - 15%	Legal access control + full closed-system upgrading	The Department of Veterinary Services (DVS) enforces legal and environmental standards, making the modern Closed House System (CHUS) certification mandatory.	Surviving commercial farms reached high standards in zero-pollution environmental management
Thailand	Around 48% - 60%	Grid-based epidemic control + precise production management	The Department of Livestock Development (DLD) set up a strict e-movement electronic permit tracking system for live pigs, carrying out targeted	Small independent farmers shifted to contract farming. outstanding performance, setting a benchmark for

The Philippines: Transparent Reporting, Grassroots Education and Multi-level Disease Control

Lifting biosecurity standards for small-scale backyard farmers.

Experience as reference

Open disease reporting

Enables quick response and smooth communication with the public

Great focus on Information, Education and Communication, help on backyard farm

Ongoing efforts to help small farmers understand biosecurity, to establish low cost and practical prevention systems

Major ongoing challenges

Numerous scattered backyard producers

Difficult to supervise and implement consistent prevention rules.

Costly grassroots service coverage

Heavy spending on labor and resources strains government budgets.

Uneven biosecurity capabilities

Prevention standards differ widely across farms

Difficulties accessing biosecurity supplies and technical support

Better control needed for dead pig disposal

Vietnam: Vaccine Innovation and Upgrading Corporate Biosecurity

Experience

Innovation in commercial vaccine development

biosecurity system improvement

Commercial enterprises are skilled at putting technologies into practice

Challenge

1.Big gaps in investment capacity

Large companies better resourced than small and medium farms.

2.Simplified prevention on small farms

Small producers mainly use low-cost methods like lime and regular disinfection.

3.Hazards within transport and slaughter links

Cross-provincial shipment and small slaughter facilities still carry disease risks.

4.Environmental transmission threats

Floods, wastewater and environmental contamination require ongoing vigilance

Malaysia: High Standard Disease Prevention & Strict Restocking Regulation

Advantages in Disease Prevention & Control

Strict requirements for infected sites disposal

High standards for pig restocking

Compartmentalization and Heavy investment in biosecurity

Effective veterinary supervision system

Challenge

Financial pressure

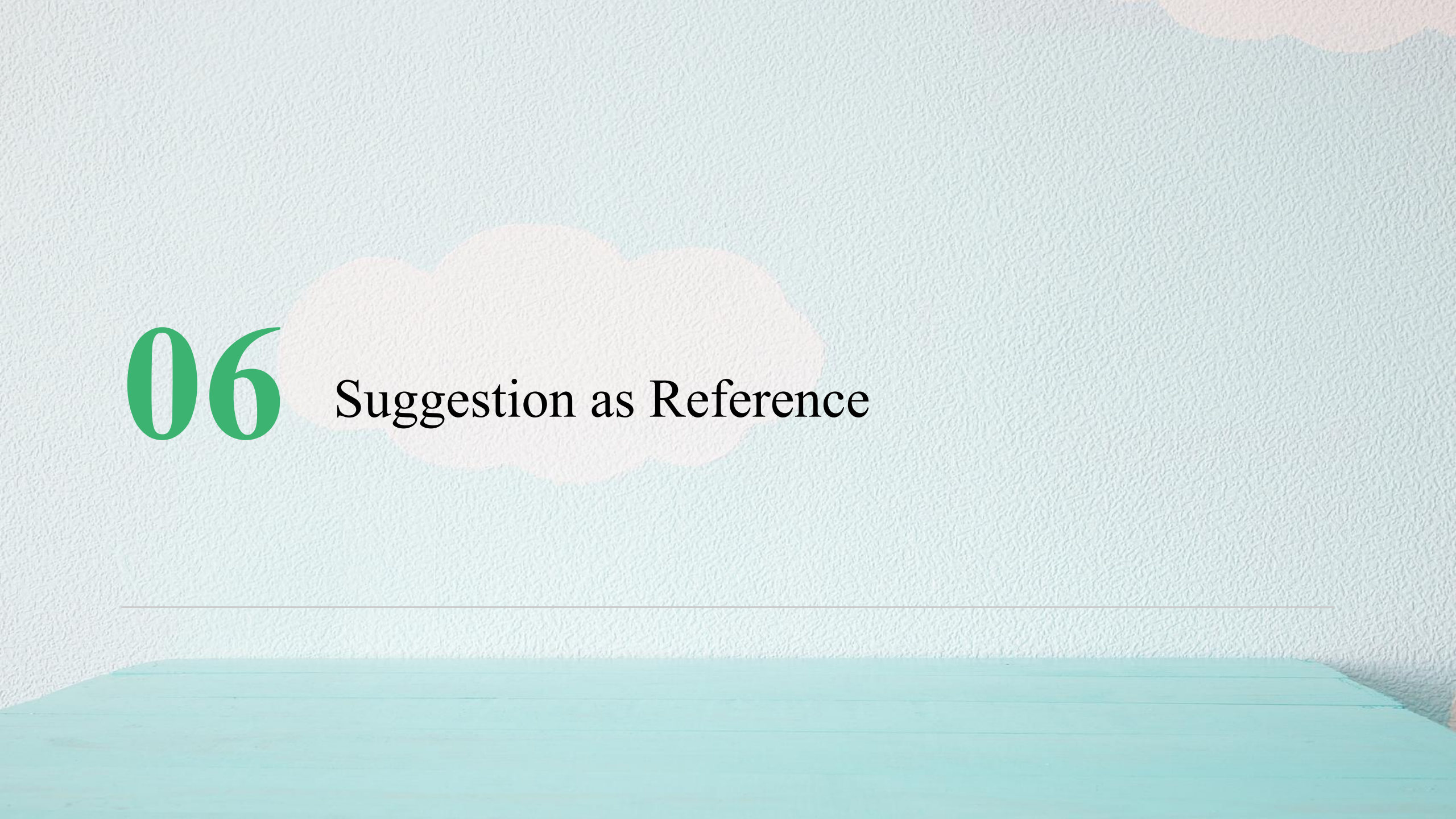
Pig farms that have depopulated face high capital costs to resume production.

Prolonged recovery cycle

Strict restocking rules may extend the recovery timeline for many operators

Persistent Off-Farm Risks

Risks continue to persist via wild boars, livestock transportation and slaughter links



06

Suggestion as Reference

Recommendations on Disease Prevention & Biosecurity

01

Establish robust mechanisms for outbreak reporting and compensation for culling

Setting up a transparent, efficient reporting system together with fair compensation forms the foundation of effective disease control.

02

Organize and standardize small and medium-scale producers

Models such as "Company + Farmers", association, community can unite scattered smallholders and roll out standardized biosecurity practices.

03

Coordinate the development of shared public infrastructure

Construct regional disinfection and decontamination centers, harmless treatment centers and other facilities to share the industry's epidemic prevention and control costs.

04

Strengthen supervision over vulnerable off-farm links

Tighten oversight of key nodes including livestock transport, slaughterhouses and livestock markets to close regulatory loopholes.

05

Implement tiered, differentiated biosecurity standards

Adopt tailored biosecurity requirements instead of one-size-fits-all rules, to maximize the overall efficiency of disease prevention.

06

Joint efforts build a full-chain biosecurity system

Governments provide policy support and oversee external links, while producers implement on-farm prevention.

Thanks

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