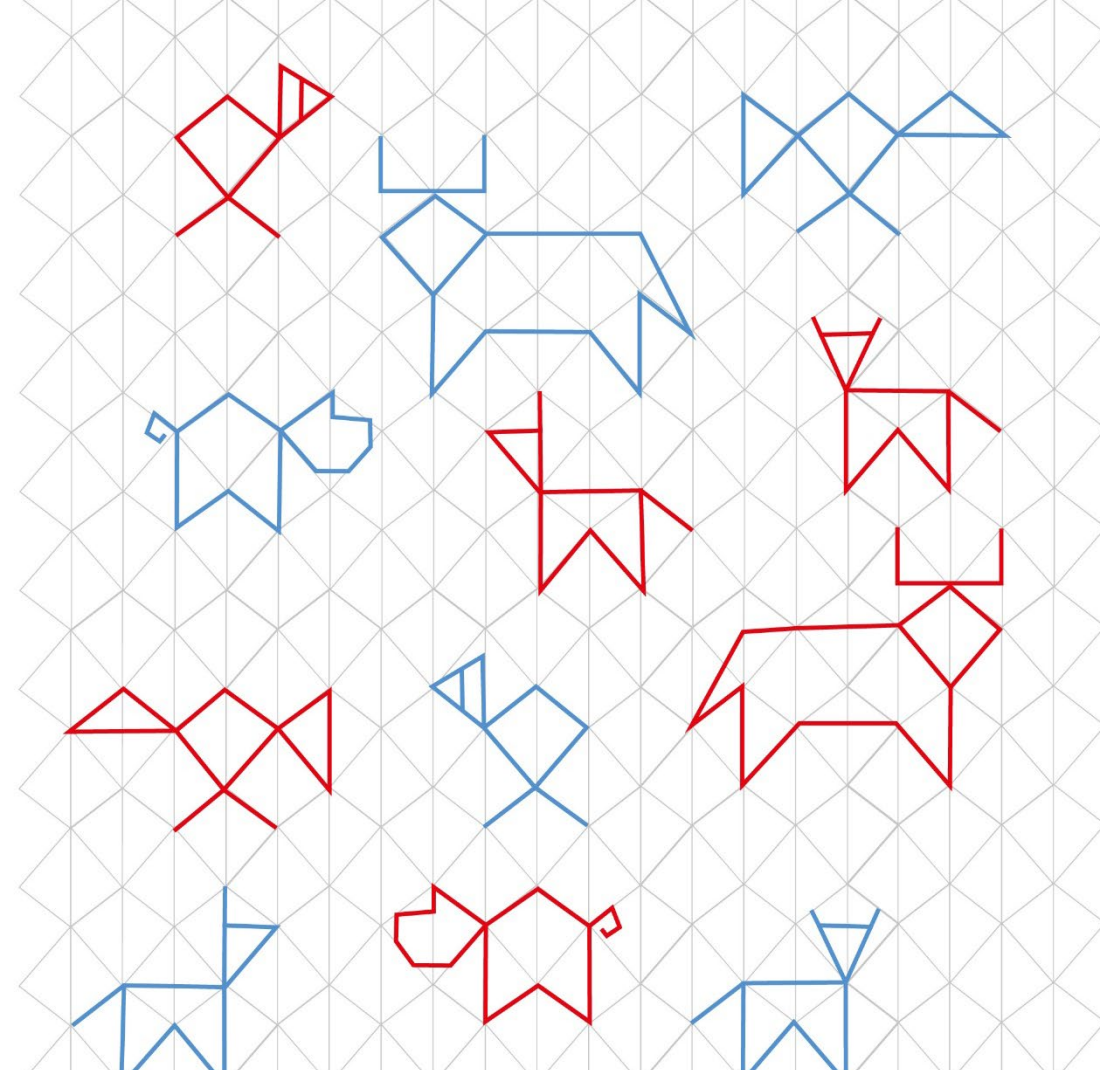


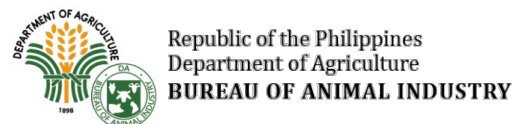


Ninth Meeting of the Standing Group of Experts on African Swine Fever for Asia and the Pacific



With support from:

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



Brief on the outcome/outputs

– Regional technical consultation on ASF

Yooni Oh, DVM, MVPH, PhD

Animal Production and Health Officer, FAO ECTAD RAP

SAFETY OF ONE, SaFeTy FOR ALL! STOP **AFRICAN SWINE FEVER** NOW!

Regional technical consultation for **African swine fever**

Asia and the Pacific

7 - 9 May 2024 | Seoul, Republic of Korea





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Regional technical consultation for ASF

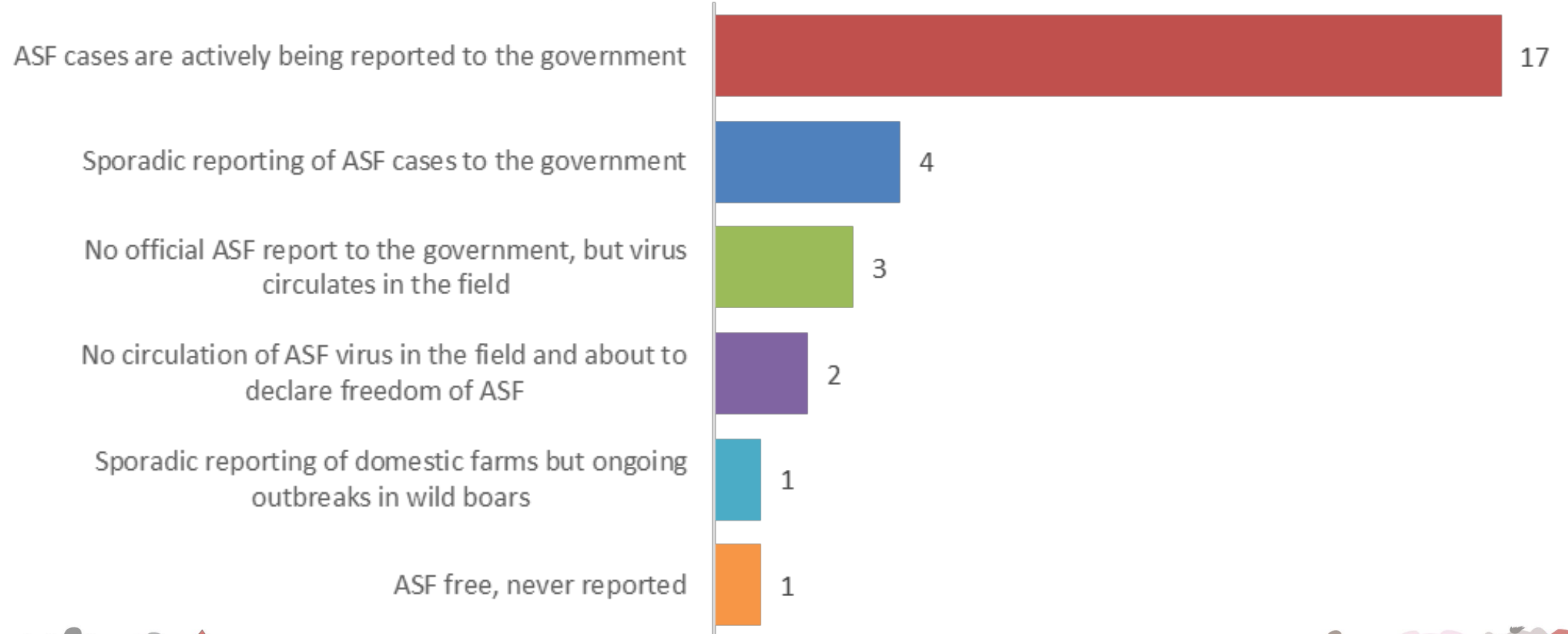
- 7 – 9 May 2024, Seoul, ROK
- Attended by over 60 participants, including government rep from 18 countries, experts, partner organisations
- Covered discussion on preparedness, detection, response, and recovery, with topic tailored to endemic scenarios





PRE-SURVEY RESULTS

- What describes your country's ASF situation?

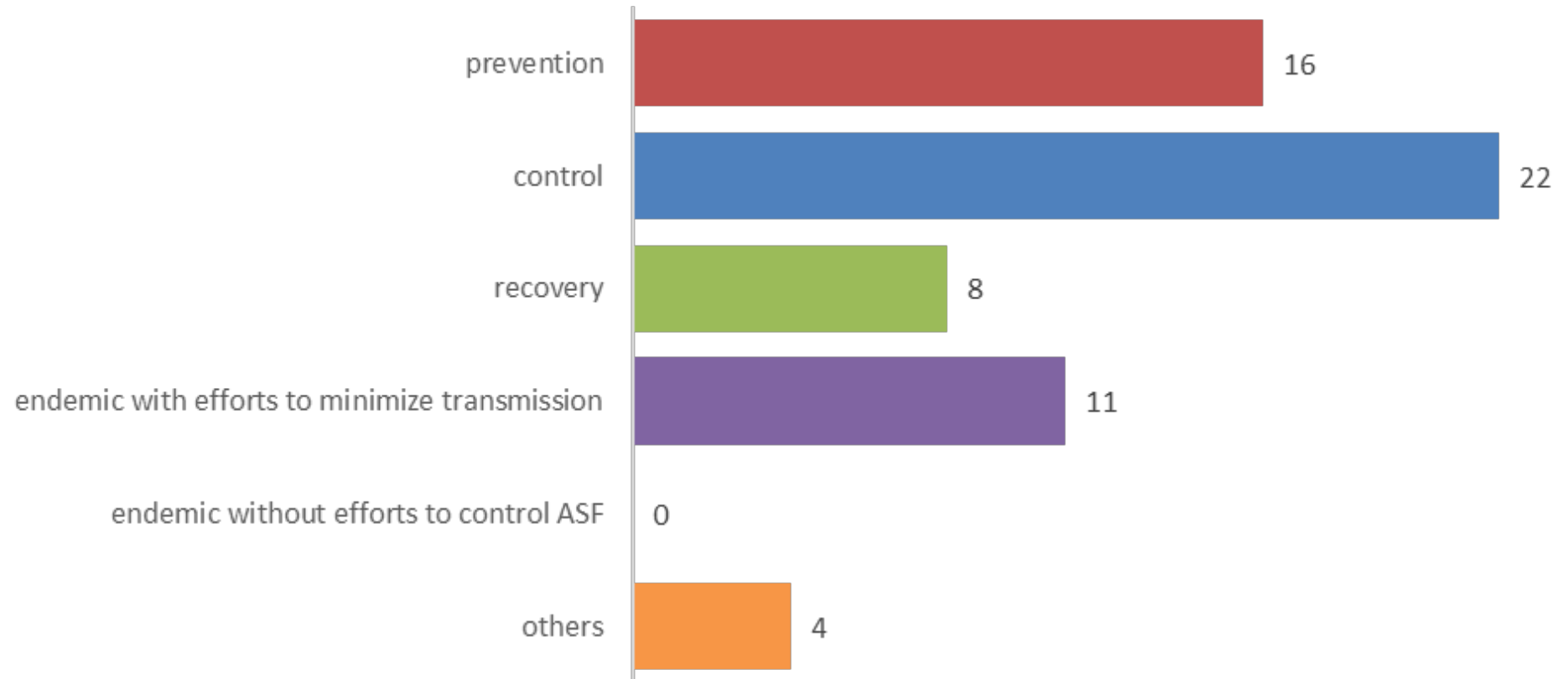




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PRE-SURVEY RESULTS

- Your personal opinion on the ASF situation in your country?



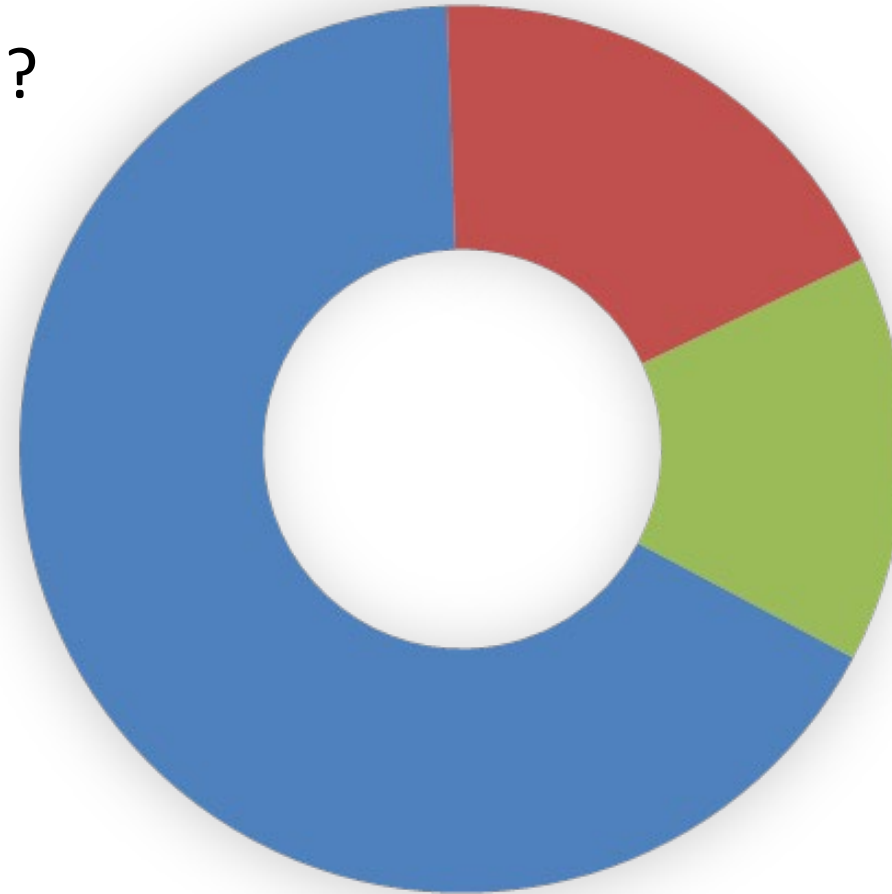


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PRE-SURVEY RESULTS

- National ASF elimination plan?

■ Yes
■ No
■ Other



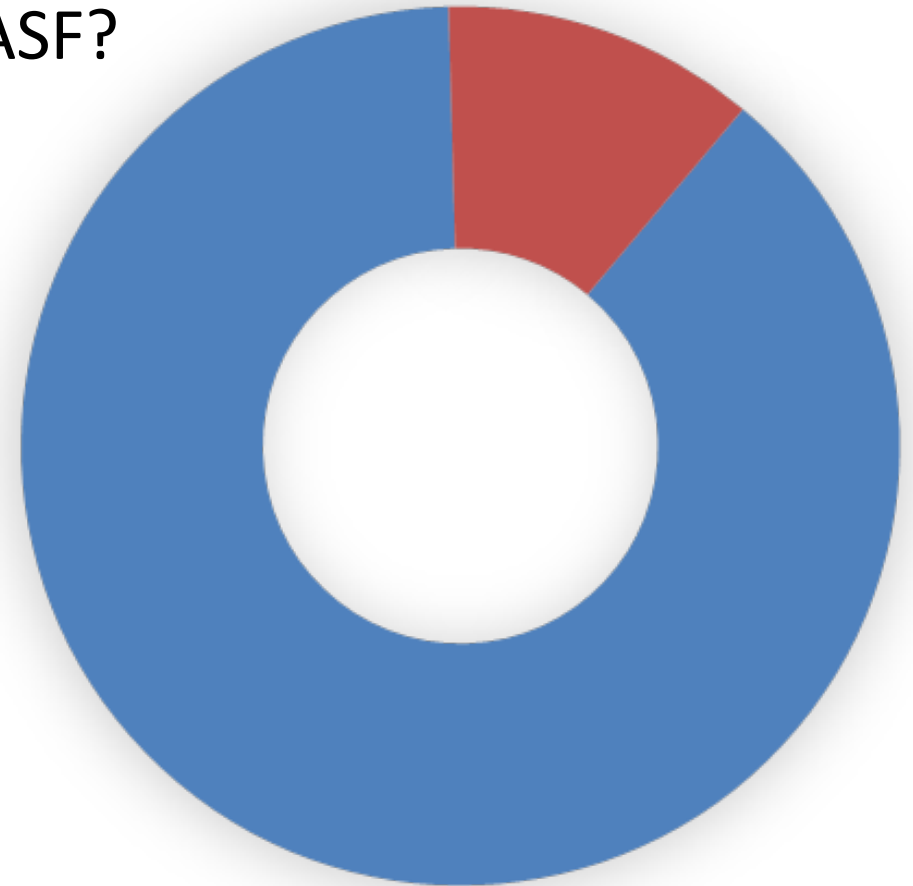


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PRE-SURVEY RESULTS

- Aware of GF-TADs Initiatives to control ASF?

■ Yes
■ No





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Global control of ASF

- A GF-TADs initiative. 2020-2025
- In English, Chinese, French, Russian, Spanish
- <https://openknowledge.fao.org/handle/20.500.14283/ca9164en>

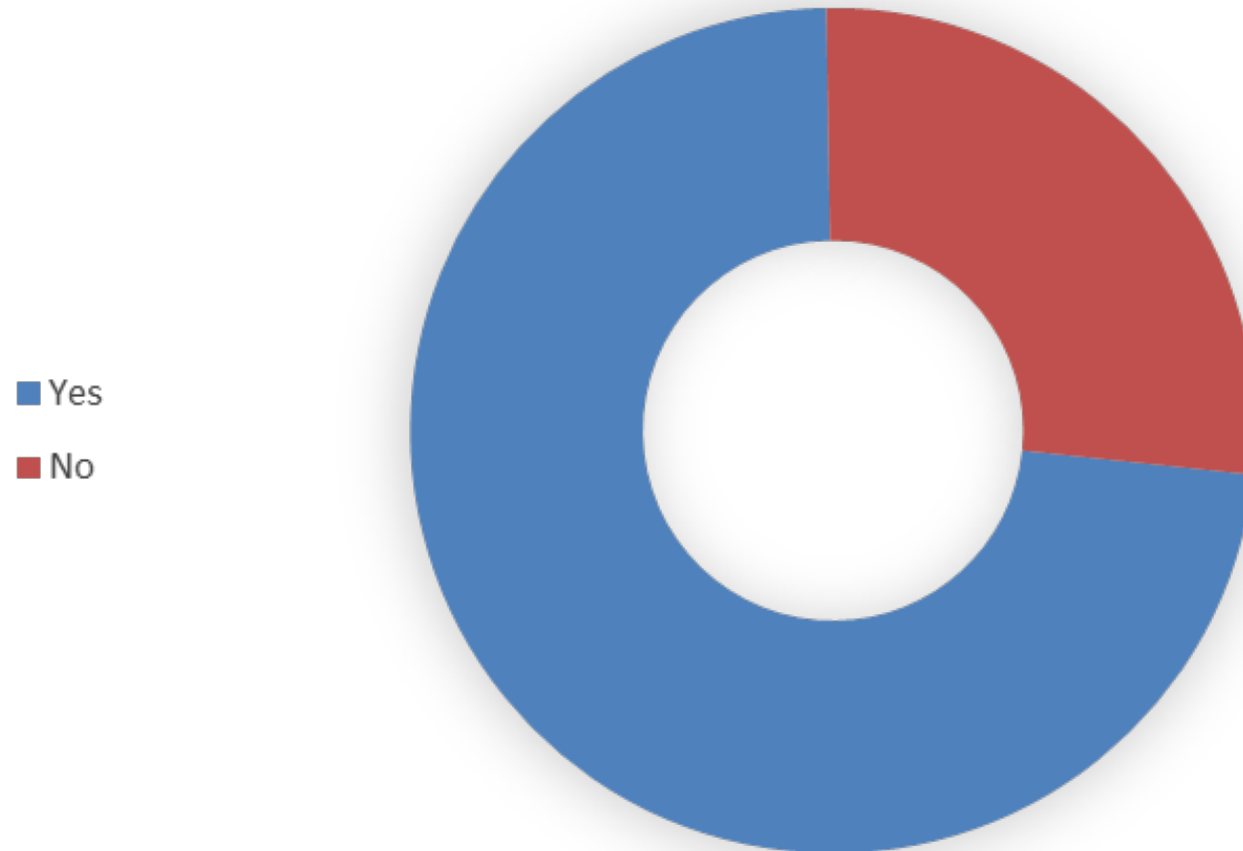




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PRE-SURVEY RESULTS

- Applying the global initiatives to ASF control in your country?





Regional technical consultation for ASF

- Emphasis on the importance of the holistic approaches on the value chain for the global food systems
- Enhance community level of engagement on improving biosecurity especially for smallholders
- Application of compartmentalization and zoning in the country level
- Consequences and considerations when using ASF vaccine with update on the development of the international standards and shared experience from Viet Nam
- Various ASF strain circulation in the region led to changes in ASF detection and response plan
- Tailor fit ASF diagnostics from the point of care testing to laboratory confirmation based on the country situation/scenarios. Where applicable simple rapid tests, serology and advanced molecular platform may be considered
- Risk-based approaches on ASF control include options for selective culling and use of pig products from healthy population within the infected area (preemptive culling)

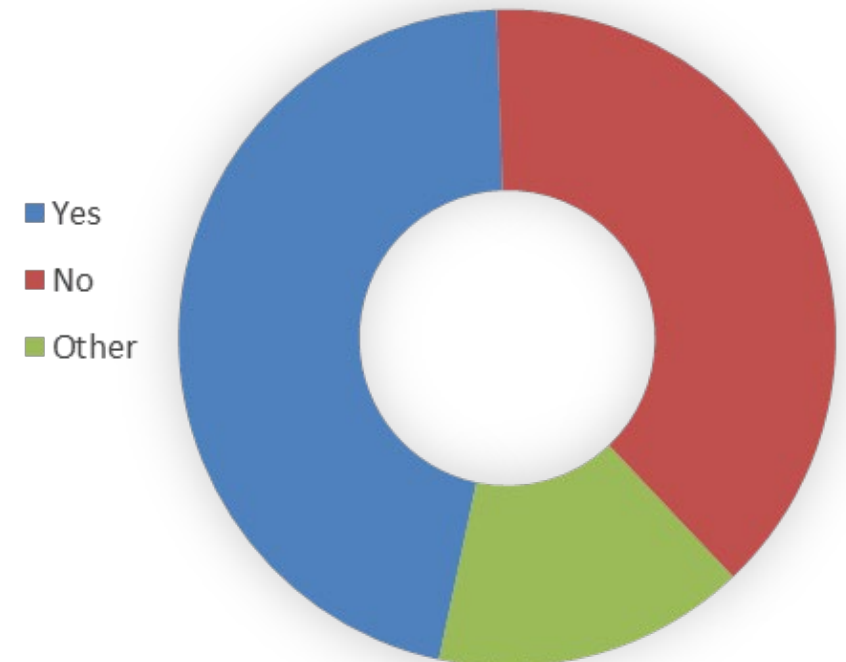




Regional technical consultation for ASF

- Emphasis on the importance of the holistic approaches on the **value chain** for the global food systems
- More thorough pug value chain information (multi/interdisciplinary approaches) are needed at the country levels along with capacity building programme on value chain

Analysis of swine value chain



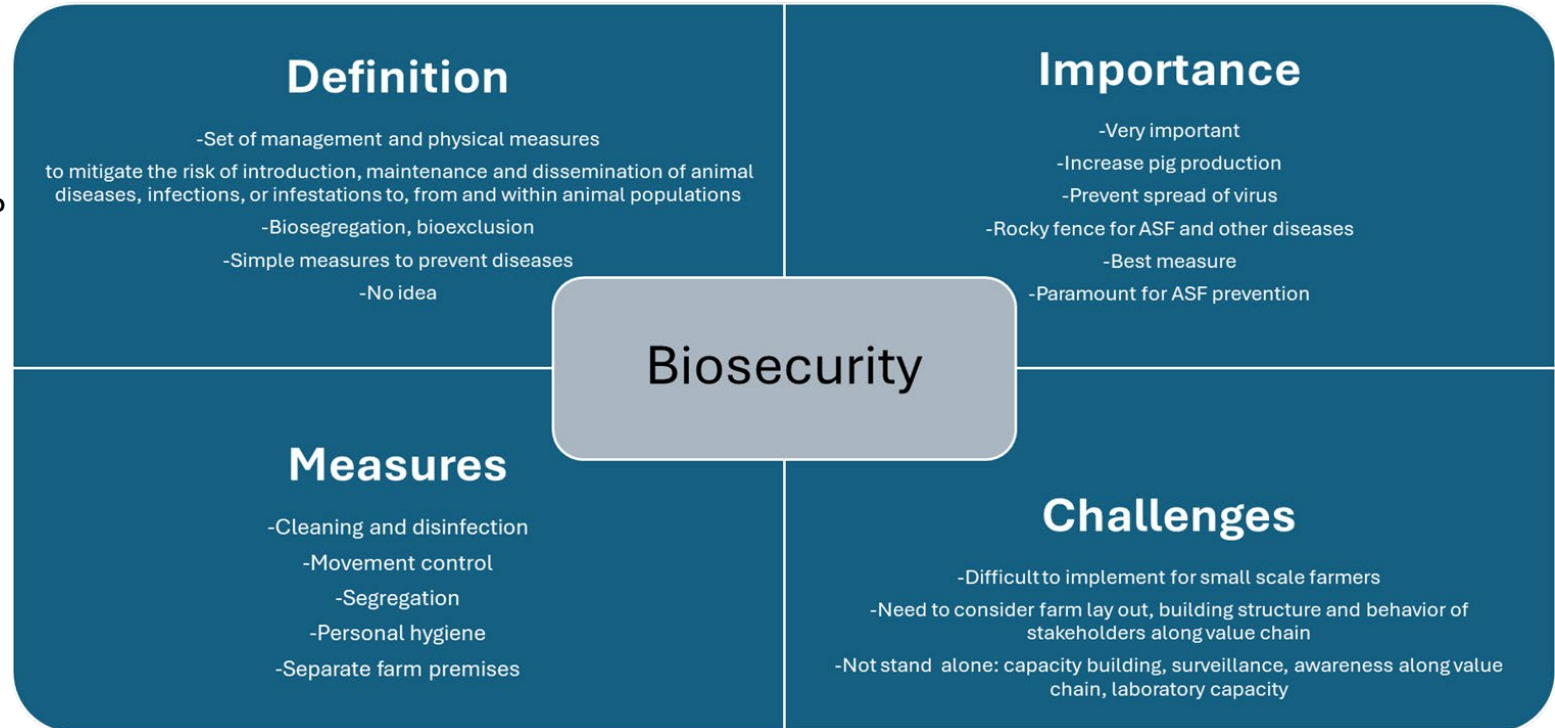


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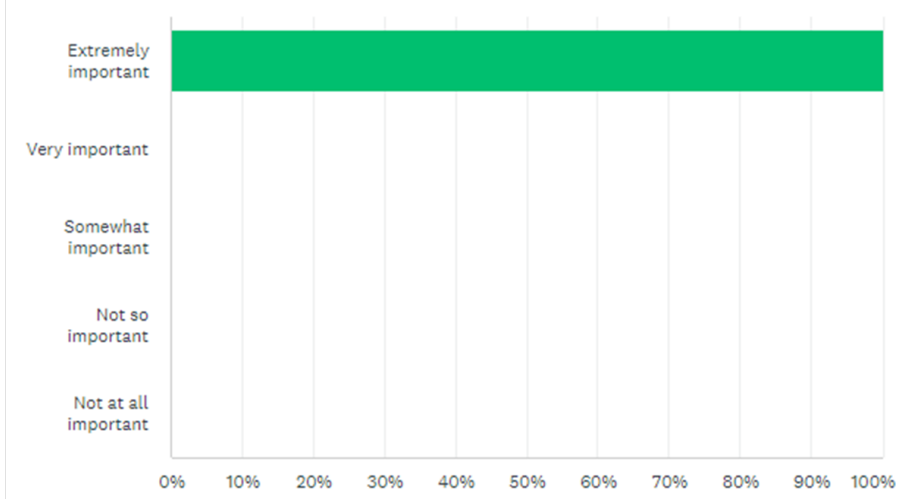
Regional technical consultation for ASF

- Enhance community level of engagement on improving **biosecurity** especially for smallholders

- Biosecurity: What comes to your mind?



How important biosecurity is in preventing ASF transmission?



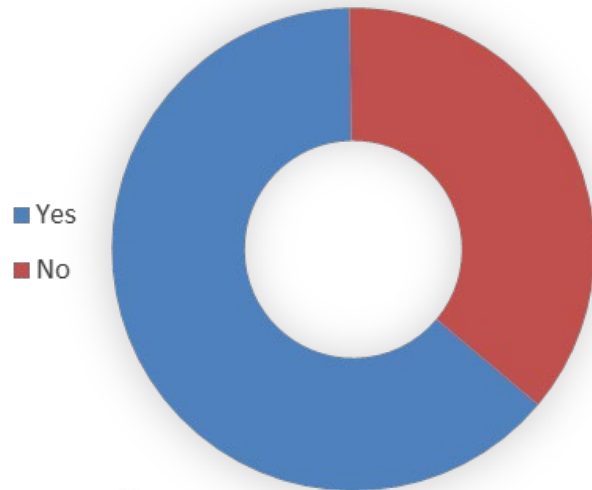


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Regional technical consultation for ASF

- Enhance community level of engagement on improving **biosecurity** especially for smallholders

National plan/policy for implementing biosecurity



Factors to consider when implementing biosecurity for ASF





Regional technical consultation for ASF

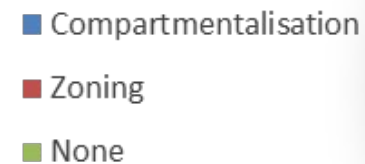
- Enhance community level of engagement on improving **biosecurity** especially for smallholders
- Agreed on: Biosecurity challenges focused on several themes, namely: economics, awareness and appreciation of biosecurity, implementing the technical aspects of biosecurity, collaboration and other factors that need to be considered in putting biosecurity measures in place.
- Endorsed action point on Biosecurity: launch community education on biosecurity; set incentives to encourage farmers to practice biosecurity; establish minimum standards for biosecurity; continue field testing or demonstration of effective biosecurity measures





Regional technical consultation for ASF

- Application of **compartmentalization and zoning** in the country level
- Agreed on: To apply zoning and compartmentalization, it is essential to have strong commitment from all relevant stakeholders. For compartmentalization, private sector engagement is necessary for finance and implementation.



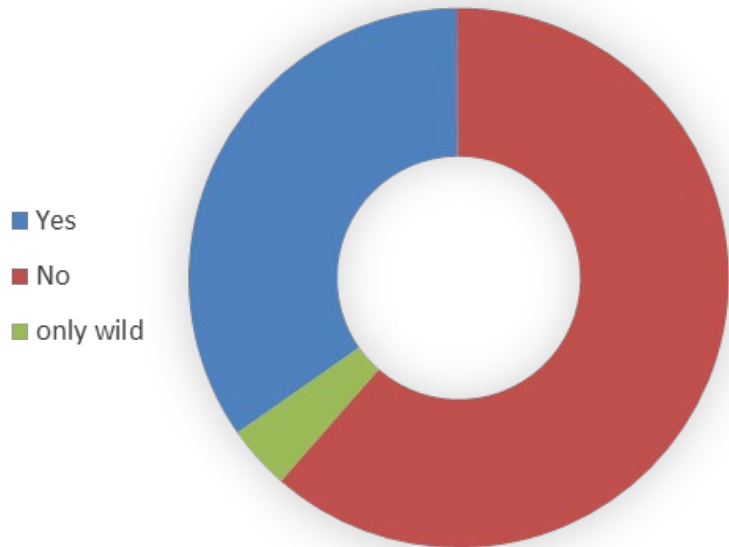


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Regional technical consultation for ASF

- Consequences and considerations when using **ASF vaccine** with update on the development of the international standards and shared experience from Viet Nam

Considering the use of ASF vx



Important considerations in introducing ASF vaccine in a country

Vaccine Characteristics	Policy	Objective	Challenges
High quality vaccine with proven safety and efficacy	Based on international standards	Prevent the spread of virus in the country	Difficult to implement vaccination due to free roaming system
Reliable	Need to assess that vaccine first	Clear objective (endemic, eradication, prevention)	
Effective against circulating strain	Need to achieve vaccination coverage based on vaccination programme objective		
No risk of reversal to pathogenicity			
No shedding of virus			



Technical considerations in the control & prevention of ASF

Consequences of using vaccine:

Are we all prepared for surveillance plan once vaccine is introduced?

- Passive to active surveillance
- Regular monitoring

Response plan

- Preparedness plan:
 - ASF vaccinated farm get infected with field strain
- Vaccinated ones shed live virus to naïve animals
- Recombinant ASF virus detected in pigs

Article | [Open Access](#) | Published: 29 May 2023

Highly lethal genotype I and II recombinant African swine fever viruses detected in pigs

[Dongming Zhao](#), [Encheng Sun](#), [Lianyu Huang](#), [Leilei Ding](#), [Yuanmao Zhu](#), [Jiwen Zhang](#), [Dongdong Shen](#), [Xianfeng Zhang](#), [Zhenjiang Zhang](#), [Tao Ren](#), [Wan Wang](#), [Fang Li](#), [Xijun He](#) & [Zhigao Bu](#) 

[Nature Communications](#) **14**, Article number: 3096 (2023) | [Cite this article](#)

3990 Accesses | 17 Altmetric | [Metrics](#)

Abstract

African swine fever virus (ASFV) poses a great threat to the global pig industry and food security. Currently, 24 ASFV genotypes have been reported but it is unclear whether recombination of different genotype viruses occurs in nature. In this study, we detect three recombinants of genotype I and II ASFVs in pigs in China. These recombinants are genetically similar and classified as genotype I according to their *B646L* gene, yet 10 discrete fragments accounting for over 56% of their genomes are derived from genotype II virus. Animal studies with one of the recombinant viruses indicate high lethality and transmissibility in pigs, and deletion of the virulence-related genes MGF_505/360 and EP402R derived from virulent genotype II virus highly attenuates its virulence. The live attenuated vaccine derived from genotype II ASFV is not protective against challenge of the recombinant virus. These naturally occurring recombinants of genotype I and II ASFVs have the potential to pose a challenge to the global pig industry.

Technical considerations in the control & prevention of ASF

Animal disease vaccines: known as cost effective way to control infectious diseases

Strain diversity

Cross-protection

Reversion to virulence

Cause chronic disease

Virus shedding

High level of mutation/
deletion/
recombination

Even more virulent during replication in pigs

Hard to detect/diagnose, low virulent strains

Socio-economic context

Stakeholders: tempted to use while candidate still needs evaluation of effectiveness and consequences

WOAH international standards for ASF MLV – pending

Urgency to develop and agree on ASF live attenuated vaccine (LAV or MLV) standards

- Large complex virus with many genes and proteins
- Inactivated virus does not protect
- Attenuated virus vaccine have caused disease
- Neutralising antibody only partially effective
- Vaccine trials require high containment facilities
- ASF was considered to be an African problem, so lack of commercial market for vaccines
- Historically, only few research groups involved in ASFV research and vaccine development





Modified live vaccine

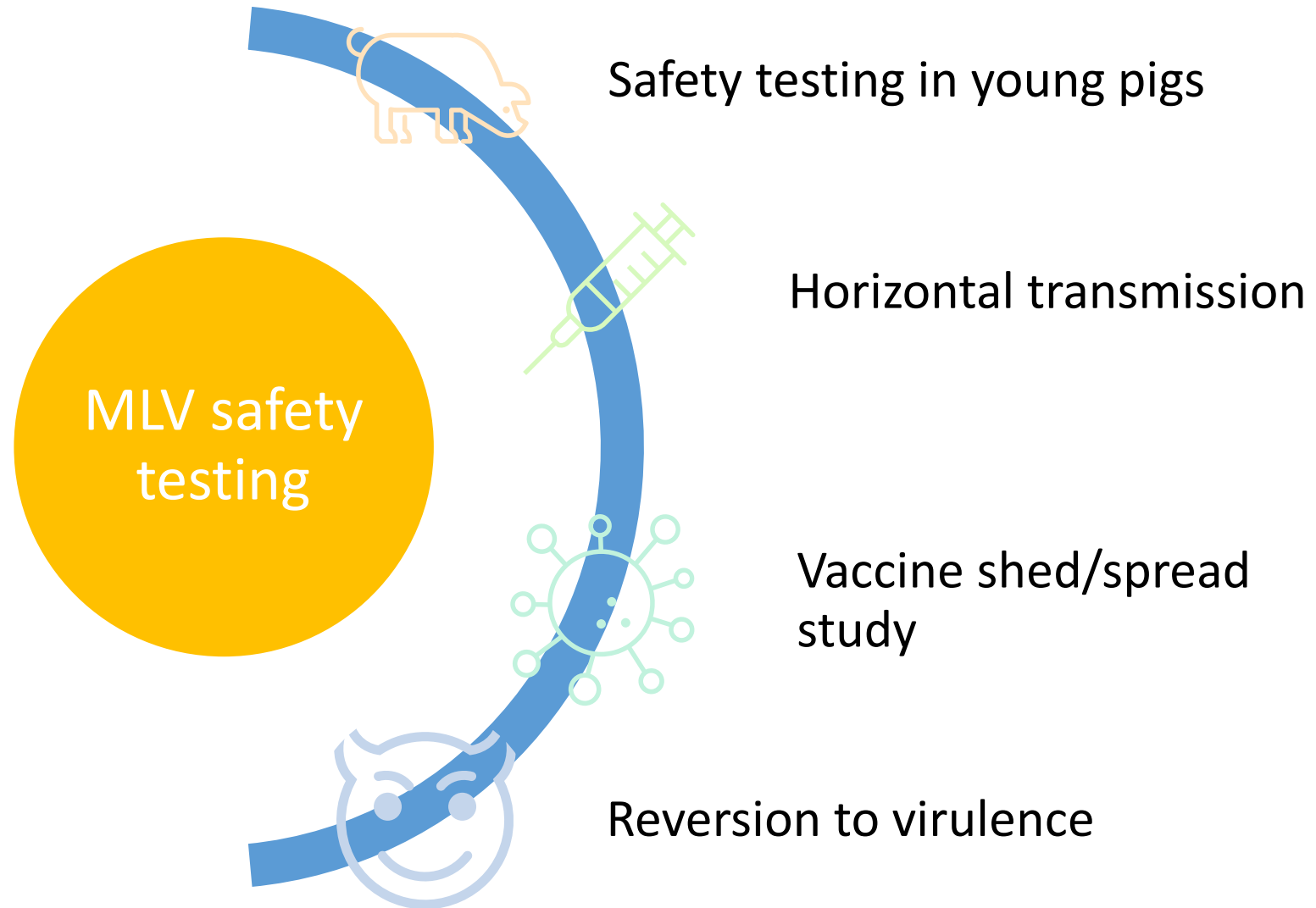
- Not perfect!
- Shedding of vaccine virus
- Transmission to contact pigs
- Not completely protective against the field strain
- Effective at protecting animals from clinical signs and death → Partially true
- Often protect for long period of time



ASF vaccine use in different scenarios

- In endemic situation, to lower the viral load and reduce the spread of virus
- New outbreak area but previously free areas, emergency vaccination as an additional tool to control the disease
- Vaccination in at-risk but ASF-free countries.....

→ Any use of the vaccine candidate should be solely based on a thorough risk-benefit assessment considering all safety and efficacy features as well as the potential vaccination scenario





ASF vaccine

Safety concerns

- Safety remains a critical issue with LAVs → must undergo extensive testing to ensure they do not revert to virulence or cause disease
- Potential for recombinants with field strain → leading to new virulent strains.
- Post-vaccination complications, virus shedding, insufficient protection in immunocompromised pigs are significant challenges



ASF vaccine

Regulatory and evaluation challenges

- High containment facility to evaluate LAVs → to ensure safety and efficacy
 - Delicate balance between attenuation and maintaining immunogenicity
 - Continuous monitoring for possible genetic recombination
 - Assess the risk of horizontal and vertical transmission to ensure field safety
-

Technical considerations in the control & prevention of ASF

African swine fever: WOAH warns Veterinary Authorities and pig industry of risk from use of sub-standard vaccines

Position statement
October 2023

The continuing spread of African swine fever (ASF) is a global concern for the pig industry, as no region is left unaffected. For many years, the lack of a vaccine or effective treatment has made it very difficult to control the disease. The research community has been working to develop an effective vaccine, and recent announcements of modified live vaccines being approved or tested in some countries have raised hopes for the availability of new effective tools to contain the current ASF epidemic. Many countries are interested in using these candidate vaccines to help control ongoing outbreaks on their territory.

In this context, the World Organisation for Animal Health (WOAH) stresses the importance of using only high-quality ASF vaccines with proven efficacy and safety, that have undergone regulatory evaluation and approval in accordance with its international standards [1].

The risks of using poor quality or non-compliant vaccines

The use of poor quality or non-compliant vaccines may not provide any protection against ASF and risks the spread of vaccine viruses that may lead to acute or chronic disease. Additionally, these vaccine viruses could also recombine with field strains to generate novel strains that could evade detection and lead to acute, chronic and persistent ASF infections on farms.

ASF vaccination should not be used as a stand-alone disease control measure

Regardless of vaccine efficacy, vaccination programmes should be implemented as part of a comprehensive prevention and control strategy, which should include other important control measures such as strict biosecurity, import measures and movement controls. Vaccination, when used, should be carried out as part of a well-designed vaccination programme that takes into account, among other factors, the local epidemiology of the disease, the expected objectives of vaccination and the adequacy and sustainability of the relevant technical, financial and human resources. They should always include post-vaccination surveillance and monitoring, as well as an exit strategy for the cessation of vaccination, as mentioned in WOAH international standards on vaccination [2].

On the way to licensed ASF vaccines

Convinced of the need for the international recognition of high-quality vaccines would have, WOAH is monitoring the progress of several ASF vaccine candidates at various stages of development. Some countries have either approved or are conducting field trials for the use of modified live vaccine candidates against ASF genotype II.

A new draft standard for the production of safe and effective vaccines against ASF has been proposed in the report [3] of the WOAH Biological Standards Commission, published in September 2023.

WOAH urges vaccine manufacturers and Members to consider these draft standards when developing and evaluating ASF vaccine candidates for regulatory approval and to comment on them.

ASF vaccination should not be used as a stand-alone disease control measure

Regardless of vaccine efficacy, vaccination programmes should be implemented as part of a comprehensive prevention and control strategy, which should include other important control measures such as strict biosecurity, import measures and movement controls.

References

1. *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (2023), 12th edition, WOAH.
2. *Chapter 4.16, on Vaccination, Terrestrial Animal Health Code* (2023), WOAH.
3. *Report of the Meeting of the Biological Standards Commission, 4-8 September 2023*, WOAH.



Regional technical consultation for ASF

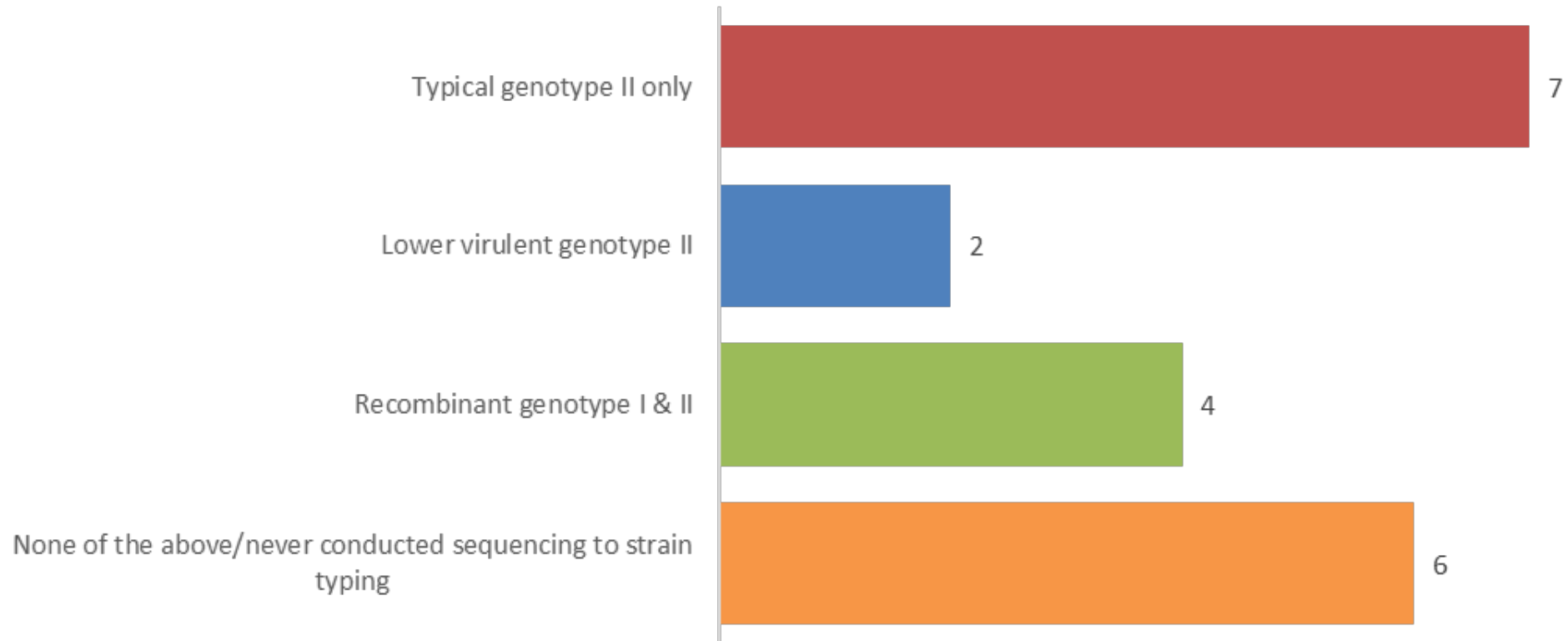
- Consequences and considerations when using **ASF vaccine** with update on the development of the international standards and shared experience from Viet Nam
- Endorsed action point on Vaccine and usage: develop technical standards on vaccination and vaccine production; develop guidelines on vaccine usage including pre- and post-vaccine monitoring; explore trade policy implications when vaccination is practiced; cost benefit analysis on the use of ASF vaccine





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- Circulating ASF strains in your country





Various ASF strain circulation in Asia

- In ASF endemic areas, where attenuated and lower virulence viruses circulate, serological testing is valuable for identifying evidence of previous exposure to ASFV in animals experiencing subacute, chronic or subclinical infections, or those that have recovered
 - Natural variants, evolved over time
 - Derived from illegal vaccines



Regional technical consultation for ASF

- Risk-based approaches on ASF control include options for selective culling and use of pig products from healthy population within the infected area (preemptive culling)
- Endorsed action point on
 - Technical components: importance of obtaining information on size of farm and disease situation in different settings to determine the measures that need to be considered such as implications on stamping out and its alternative, isolation, serosurveillance, diagnosis, movement control, research
 - Surveillance: need for a clear objective of surveillance, target of surveillance, approach whether passive or active; type of surveillance to include wildlife, vector, environment; guidance on surveillance of lower virulence strains and its management; importance of regional cooperation to review & update surveillance plan including value chain, and evaluation of current surveillance activities





Food and Agriculture
Organization of the
United Nations



Launch of the ASF information exchange platform

ASF information exchange – partnership platform

- Establish an information exchange platform on ASF to improve disease control through public-private partnership (with financial support from US-DTRA and ROK-MAFRA & technical collaboration with TAFS)
 - Intention to provide both a reliable information source for the public and a forum for all stakeholders
 - Learning from each other from their stories on managing ASF (success or failure)
 - Launch meeting was on 12-13 Jun, collected constructive and meaningful exchanges between different stakeholders (government, private sectors academia) from SEA
- ASF Partnership platform:
 - Website; <https://www.asfpartnershipplatform.org/>
 - LinkedIn; <https://www.linkedin.com/company/asf-partnership-platform/>





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