

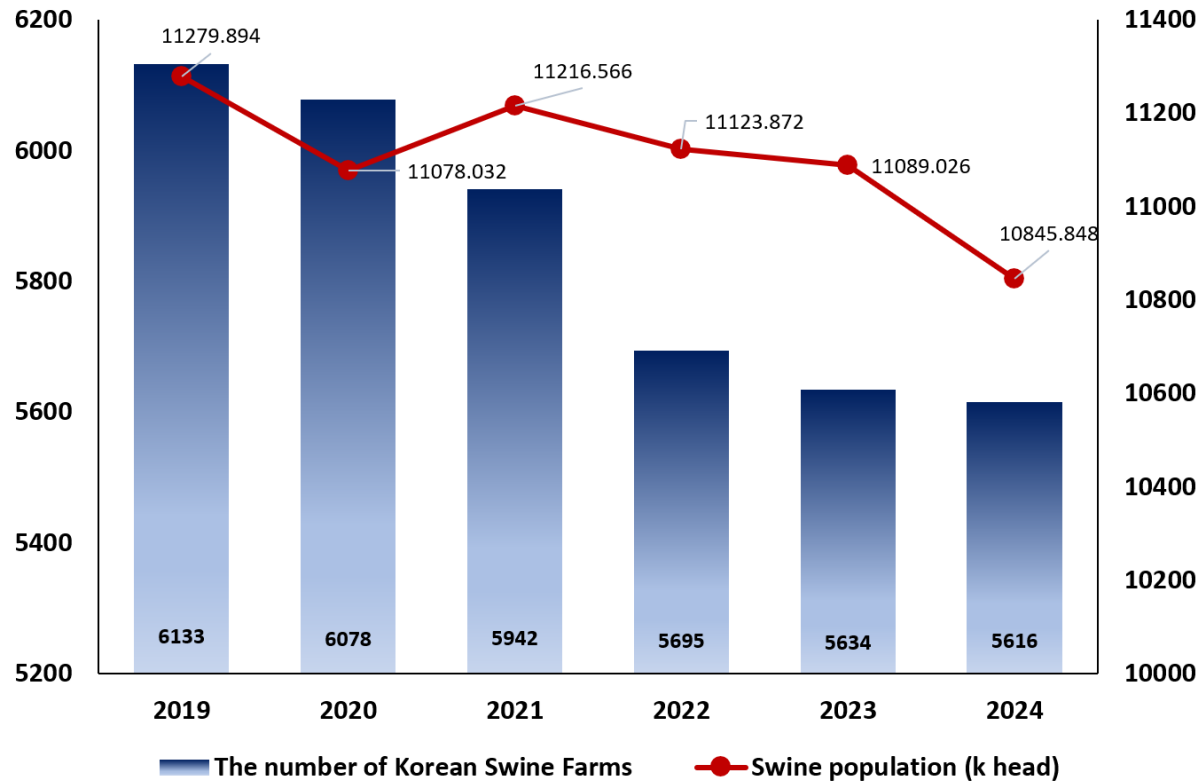
Member's experience on swine-infected disease diagnosis: CSF in South Korea (PED in South Korea)

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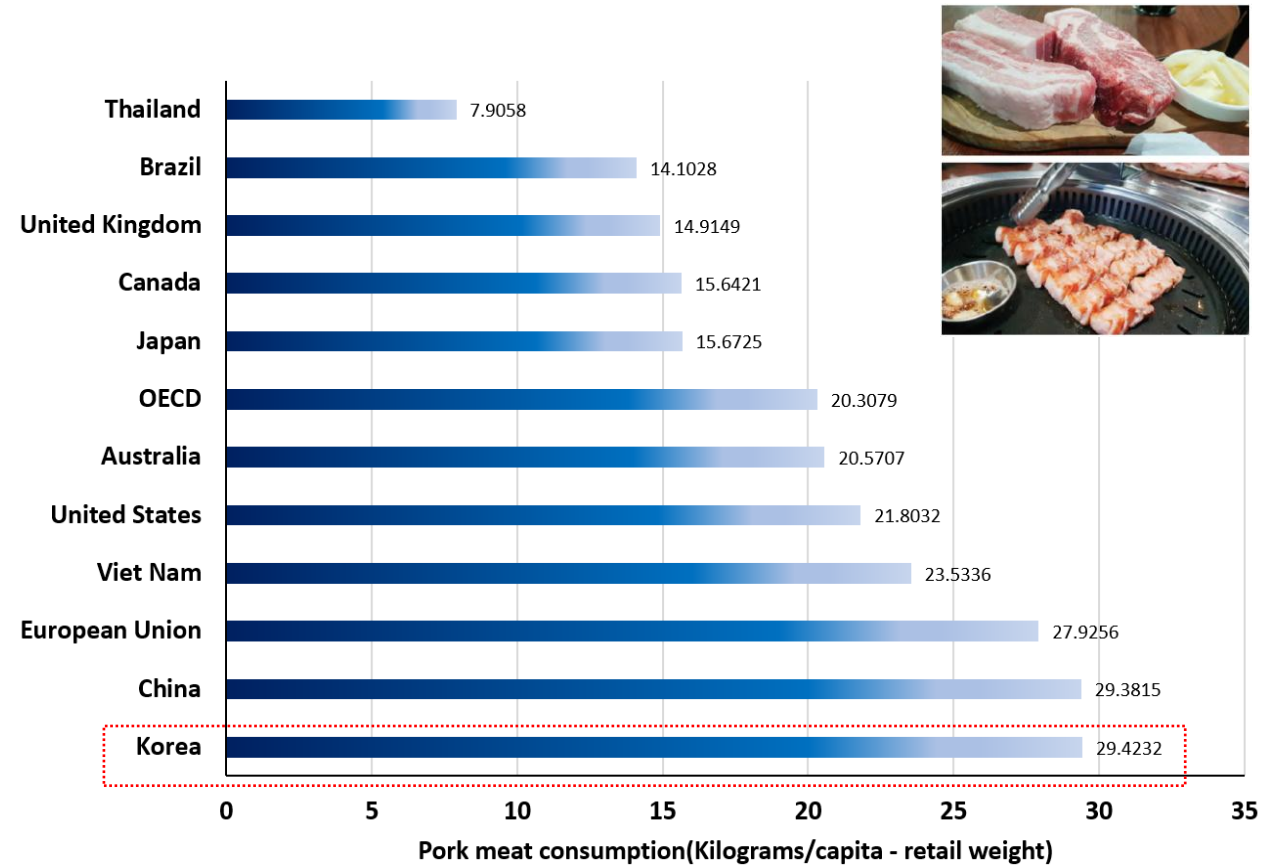


- The number of swine farms of South Korea



Source: KOSIS, Rep. of Korea

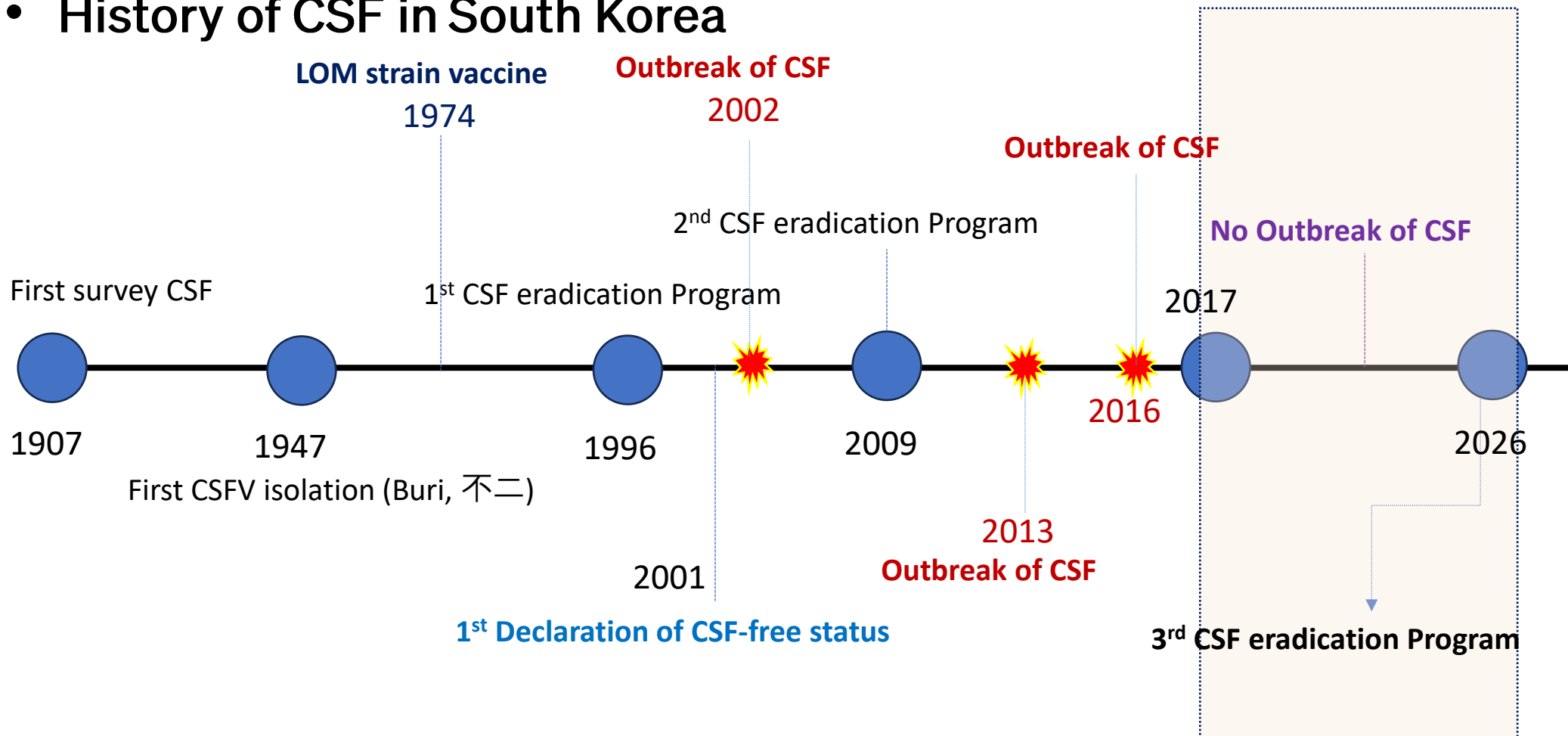
- Meat consumption by country



Source: FAO, 2024



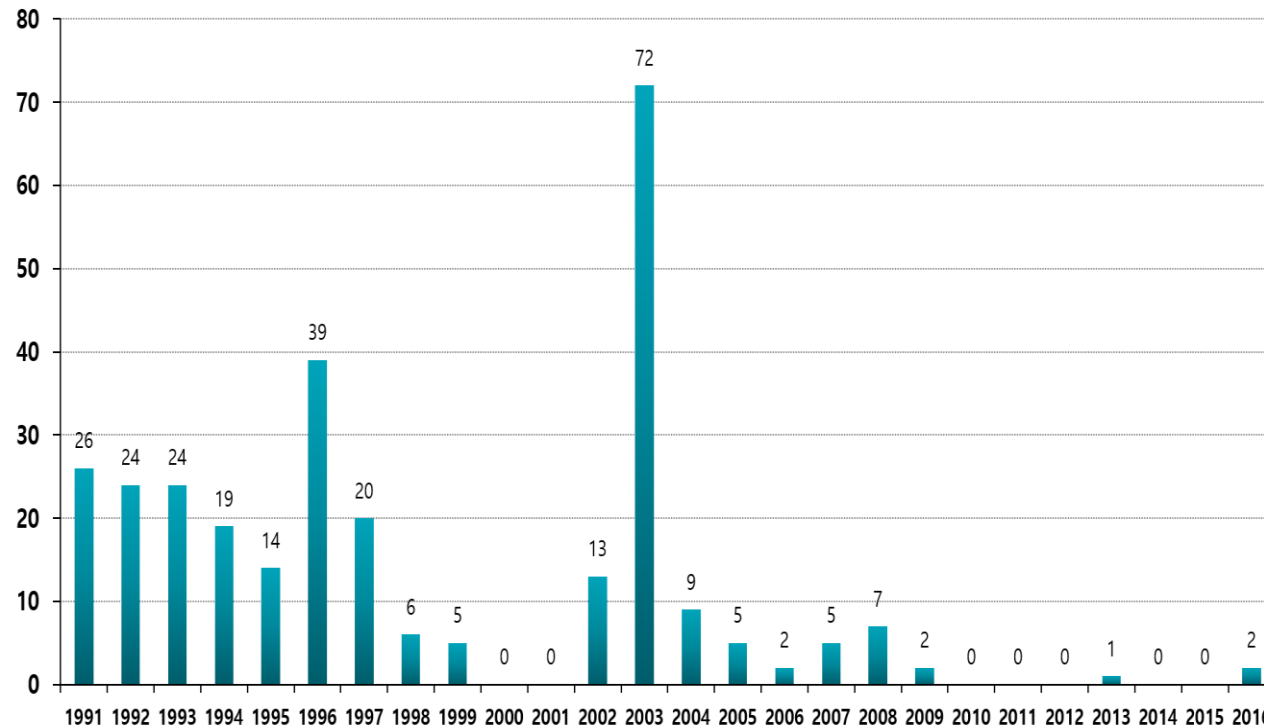
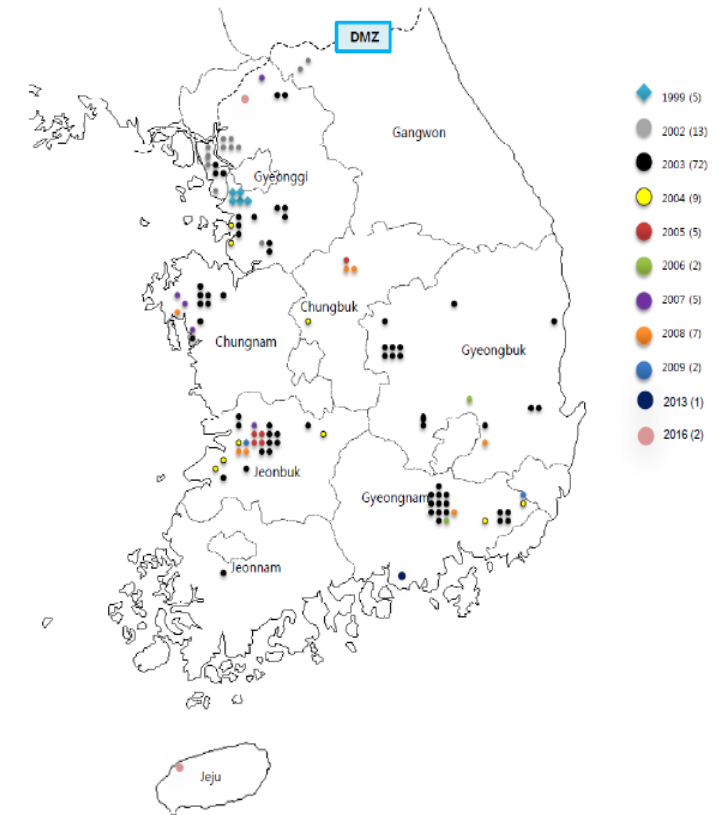
- History of CSF in South Korea



✕ Jeju island (1999-2016.6): WOAHP recognized CSF-Free Zone



- CSF Outbreak in Korean Domestic Pigs from 1991 to 2026



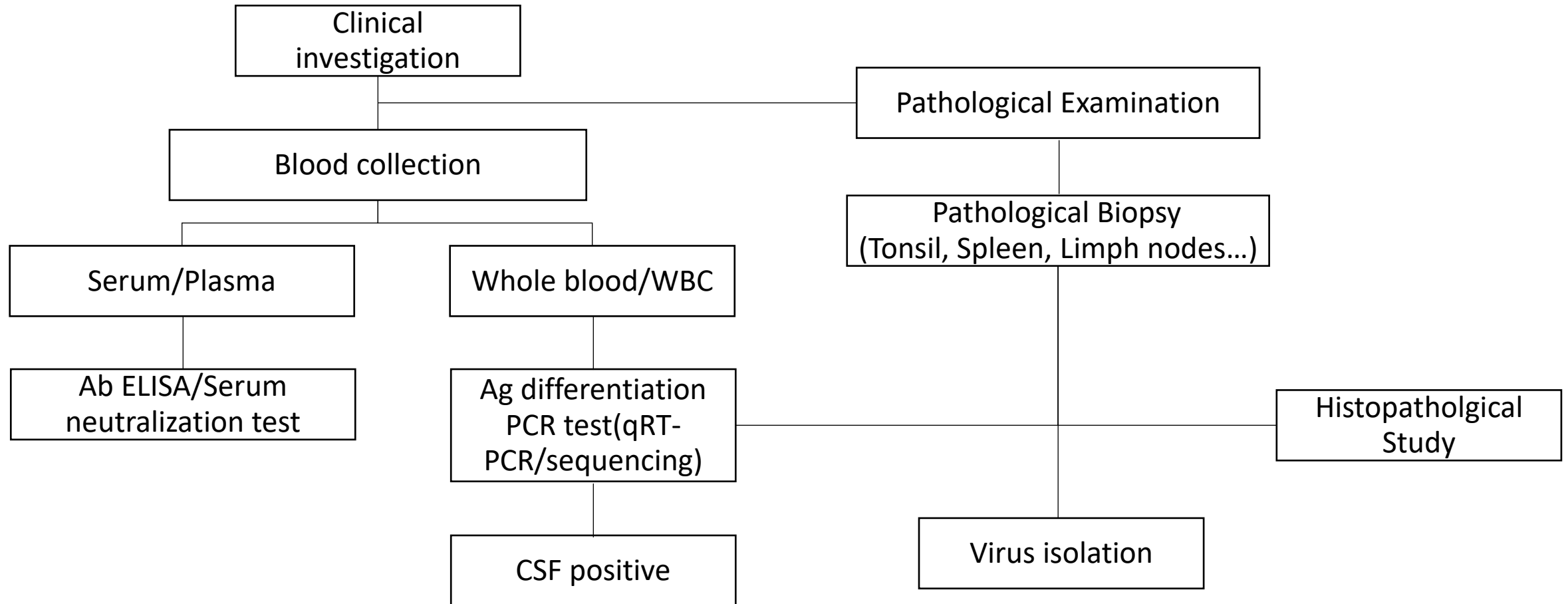
✖ No CSF outbreaks have been reported in Korean pig farms from 2017 to the present.



- **Diagnosis is impossible without lab testing**
 - Porcine Reproductive and Respiratory Syndrome (PRRS)
 - Porcine Circovirus Associated Disease (PCVAD)
 - Salmonellosis
 - Erysipelas
 - Leptospirosis
 - Aujeszky's Disease (Pseudorabies)
 - African Swine Fever (ASF)

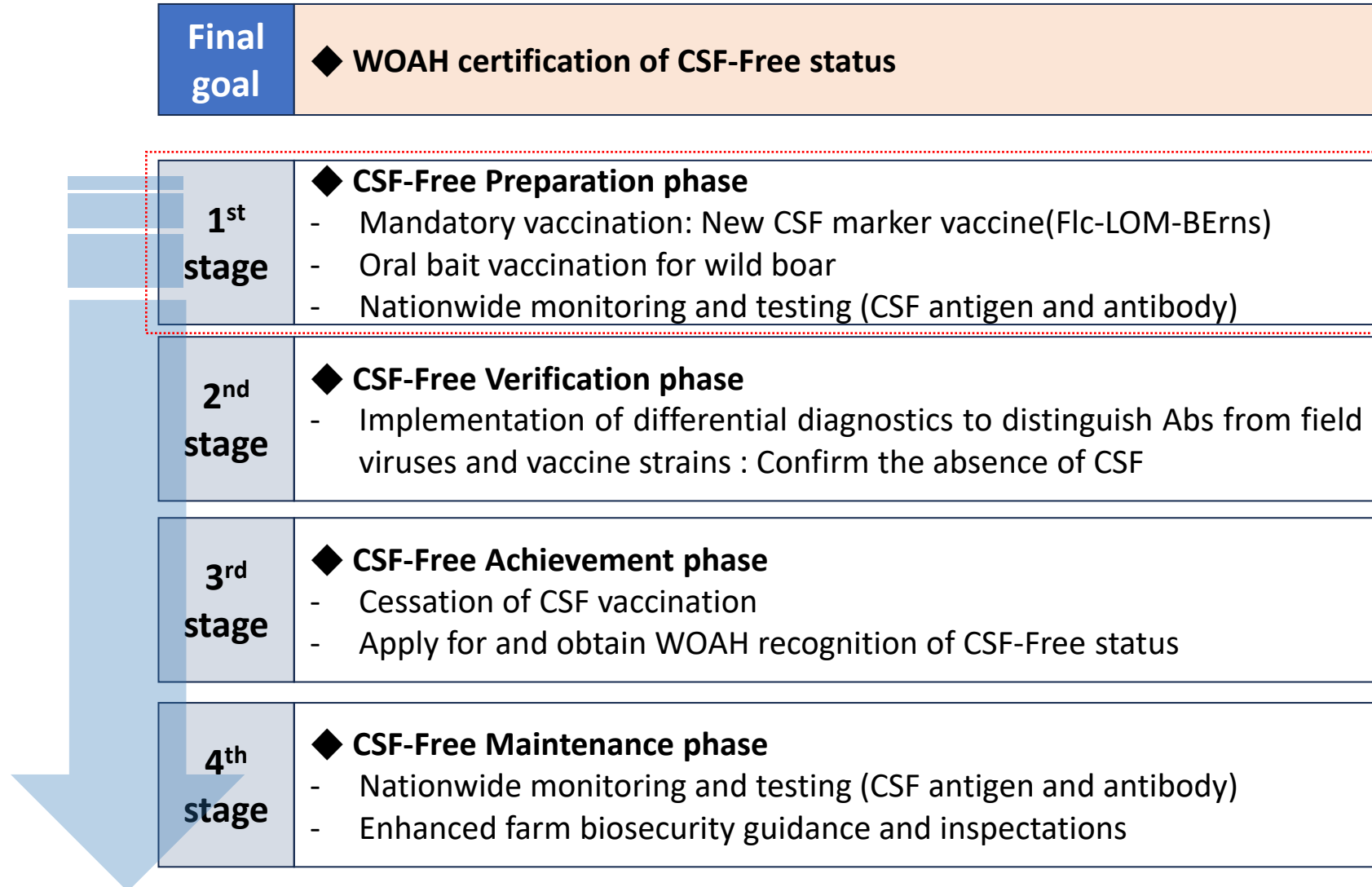


- Standard diagnostic procedure for CSF





- Measures to Achieve CSF-Free Status





- History of CSF Vaccine in South Korea

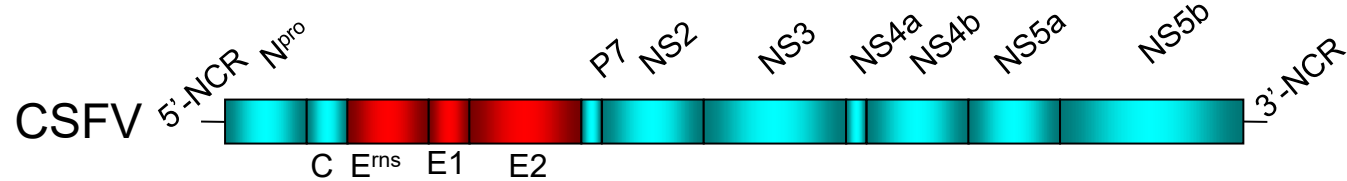
Year	Type of Vaccine	Description
1947	Formalin (Killed)	Infected (Pig) Tissue Vaccine
1949	Crystal violet (Killed)	Infected (Pig) Blood Vaccine
1951– 1983	Rabbit (ROVAC)	Attenuated Live Vaccine (Rabbit Passage)
1974 – Present	LOM Vaccine	Attenuated Live Vaccine (Cell Culture)
1990 – Present	LOM-END ⁻ Vaccine	Attenuated Live Vaccine (E ⁻) (Cell Culture)
1998	Recombinant Vaccine	E2 Subunit Vaccine (DIVA)
2005 – 2011	Live Marker Vaccine	Flc LOM + BVDV Erns (DIVA)
2012 – Present	Live Marker Vaccine	Flc LOM + BVDV Erns+ Flag Epitope (DIVA)



Challenge and solution (3)

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CSFV GENOME :



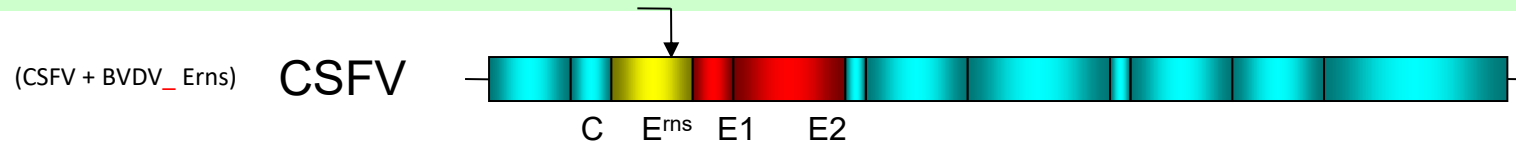
1) E2 subunit vaccine : recombinant E2 protein

DIVA



2) FlcLOM-BVDV Erns Live CSFV: recombinant CSFV live vaccine

DIVA



> Vaccine. 2019 Jun 12;37(27):3598-3604. doi: 10.1016/j.vaccine.2019.04.076. Epub 2019 May 28.

Assessment of the efficacy of an attenuated live marker classical swine fever vaccine (Flc-LOM-BE^{rns}) in pregnant sows

> Vaccines (Basel). 2021 Apr 13;9(4):381. doi: 10.3390/vaccines9040381.

Comparative Analysis of the Productivity and Immunogenicity of an Attenuated Classical Swine Fever Vaccine (LOM) and an Attenuated Live Marker Classical Swine Fever Vaccine (Flc-LOM-BE^{rns}) from Laboratory to Pig Farm

> Vaccine. 2023 Nov 30;41(49):7377-7386. doi: 10.1016/j.vaccine.2023.10.071. Epub 2023 Nov 15.

Efficacy of an orally administered classical swine fever live marker vaccine (Flc-LOM-BE^{rns} strain) in pigs

> Vaccine. 2025 Jan 1;43(Pt 1):126517. doi: 10.1016/j.vaccine.2024.126517. Epub 2024 Nov 10.

Immunogenicity of a classical swine fever bait vaccine (Flc-LOM-BE^{rns}) in hybrid-wild boars

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Affiliations + expand

PMID: 39527889 DOI: 10.1016/j.vaccine.2024.126517

Free article

Abstract

To identify the best method of distributing vaccine baits for animals, the oral vaccine Flc-LOM-BE^{rns} was buried or placed directly on the ground within a mountainous area measuring 163 ha. Wild boars were observed more often around sites where the oral vaccine was buried than around sites where the oral vaccine was placed directly on the ground. Only wild boars consumed both the bait and the vaccine formulation. To confirm whether the Flc-LOM-BE^{rns} vaccine strain has DIVA function, it was spread or buried within a mountainous area of 2.3 ha that was frequented by grazing hybrid-wild boars. Among the 15 hybrid-wild boars captured before consuming the oral vaccine, two were positive for anti-CSFV E2, but negative for anti-BVDV E^{rns} antibodies. The CSFV E2 and BVDV E^{rns} antibody positivity rates in 46 hybrid-wild boars captured 6 weeks after distributing the oral vaccine were 56.5 % (26/46, 95 % CI: 42.2-69.7) and 52.1 % (24/46, 95 % CI: 38.1-65.8), respectively. However, the CSFV E2 and BVDV E^{rns} antibody positivity rates at 28 weeks post-distribution of the oral vaccine decreased by 10.3 % and 13.7 %, respectively, when compared with those in hybrid-wild boars captured after 6 weeks. Since the antibody positivity rates induced by the oral vaccine decreased after 7 months, it is necessary to distribute the oral vaccine at least twice a year (early spring and late fall).

Keywords: Antibody; Bait; CSFV; Oral; Vaccine; Wild boar.



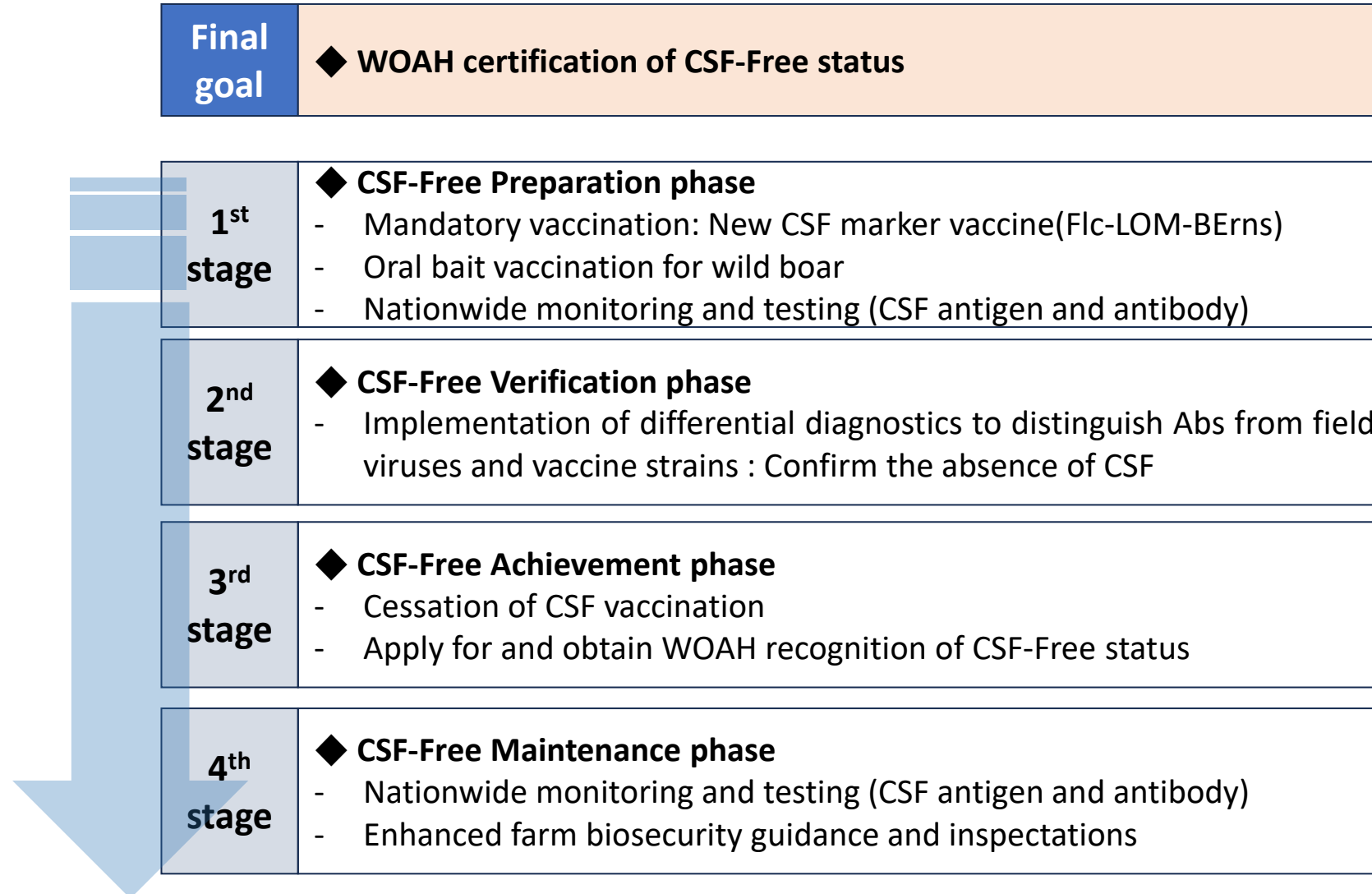
- **Surveillance and Monitoring of CSFV by Antigen and Antibody Detection**
 - **Purpose**
 - Maintain a surveillance system for continuous verification of CSF status and rapid detection
 - Secure evidence to substantiate CSF-free status
 - **Test types**
 - (Antigen test): ~70,000 tests per year at farms and slaughterhouses to identify infected animals.
 - (Antibody test): ~190,000 tests per year to verify vaccination status.
 - **Wild boars: Important reservoir for CSFV**
 - About 2,000 are captured annually to evaluate introduction risk, followed by antigen and antibody testing.

✘ **No CSF antigen has been detected in Korean domestic pigs since 2017.**

✘ **No CSF antigen has been detected in Korean wild boar since 2021.**



- Measures to Achieve CSF-Free Status

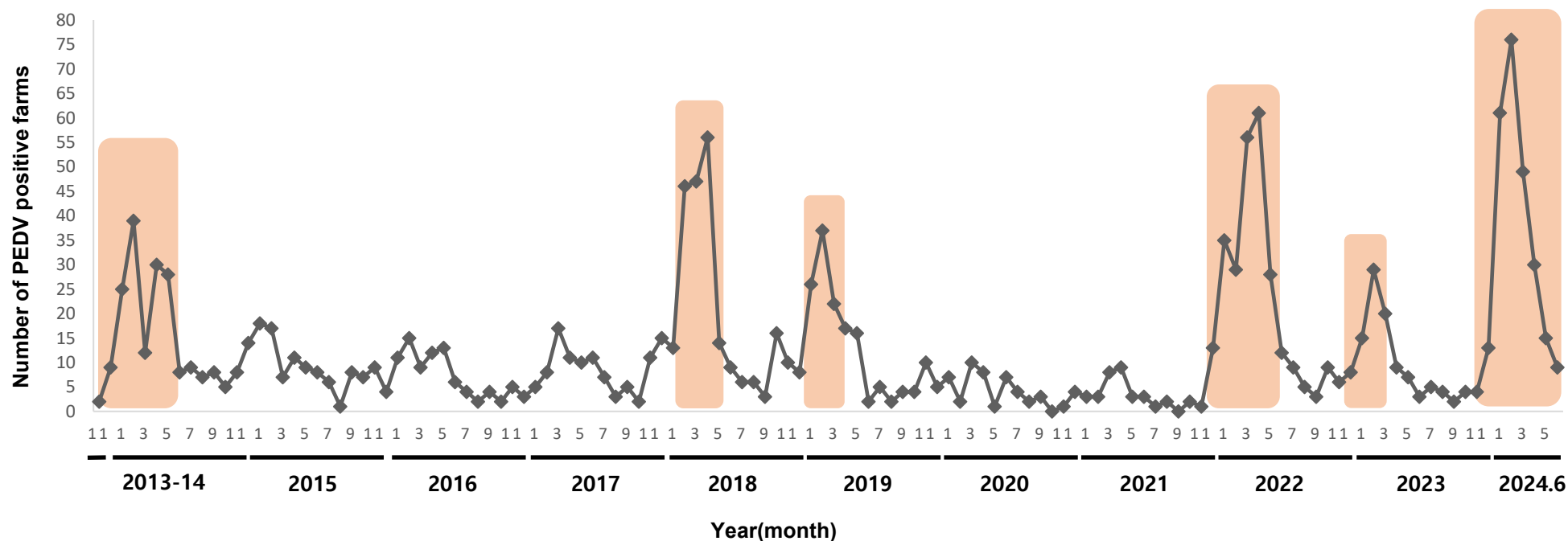




- PED Outbreaks in South Korean Domestic Pigs

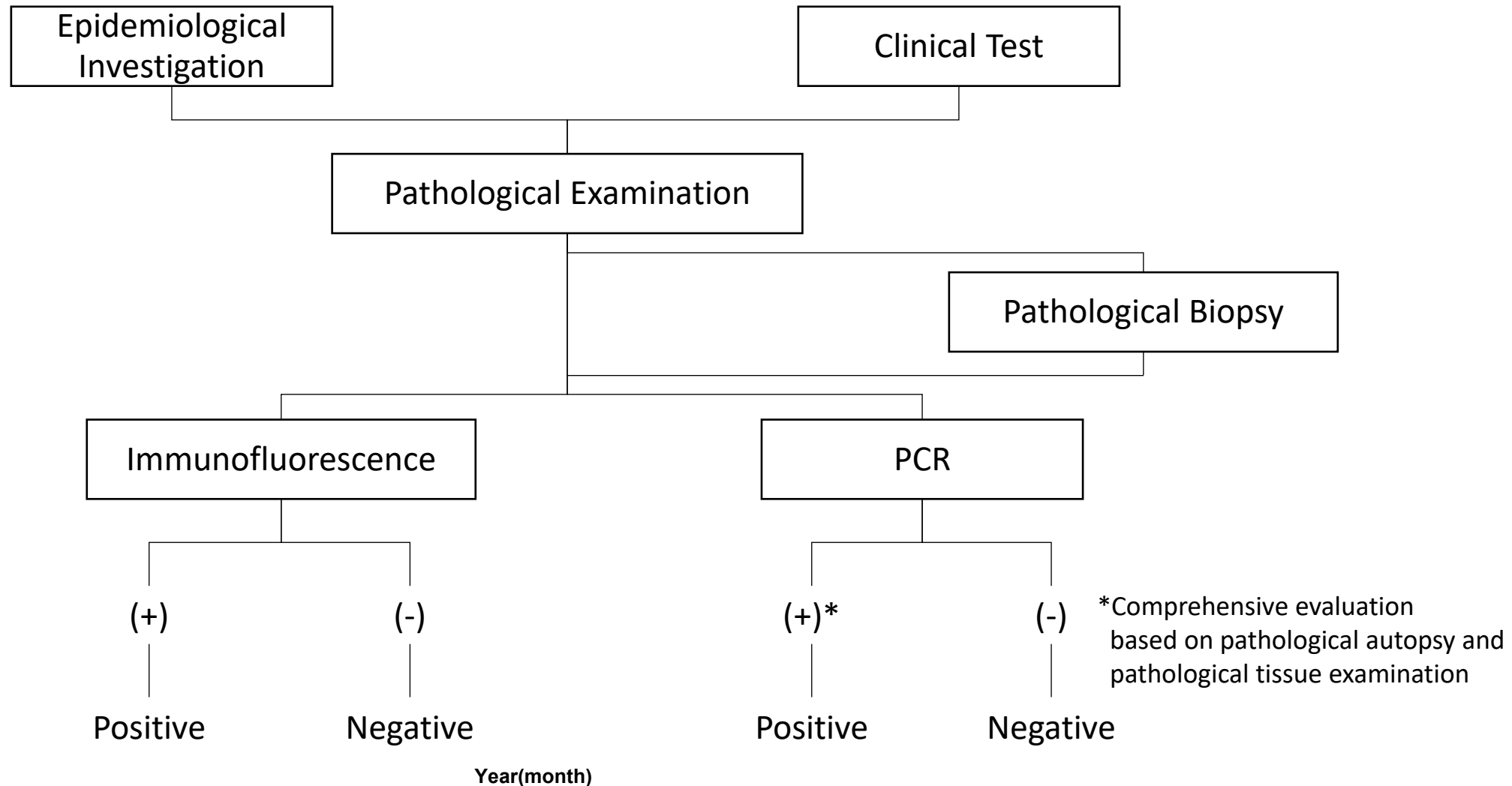
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024.6.
No. of PEDV positive farms	12	169	105	82	105	234	151	45	48	261	115	240
No. of PEDV positive pigs	4,703	33,636	17,657	8,963	8,004	34,967	28,228	4,598	6,122	21,852	10,825	22,389

*KAHIS system(Korean Animal Health Investigation System, <http://www.Kahis.go.kr>)





- Standard diagnostic procedure for PED



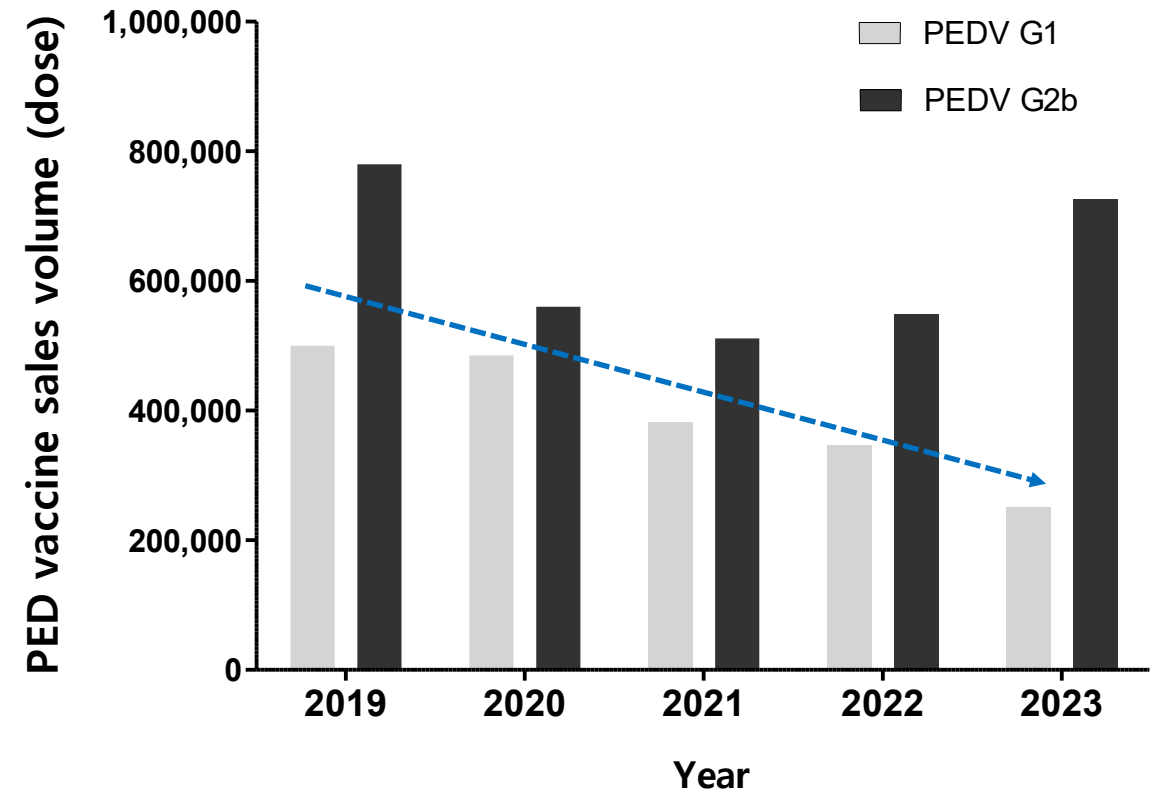


Maintain and boost herd immunity

- Licensed PED Vaccines in South Korea

Genotype	Platform	Vaccine name	Strain
G2b	Live-attenuated virus	PED-X Live	KNU-141112
		PED-Q Live	HSGP
	Inactivated virus	PED-X	ISU 46065IA13
		PED-Fc(II)	CH/SC/13
		PED-M	WGV-PED-0923
		PED-Q	QIAP1401
		PED plus	
		PED Guard	
G1a	Live-attenuated virus	PED-SM	SM98P
		PRT2	SM98
		PRO-VAC PED	SM98P
		PED Live	SM98P
		PED LIVE(oral)	DR 13
		PED-SM	SM98P
		PED live	P-5V
	Inactivated virus	PED-K	SM98
		PED-FC	PED-Fc
		PED-K	SM98

- PED vaccine sales volume by genotype





- *Future plan*

- *Continuous surveillance*
- *Improve biosecurity*
- *Development of vaccine platform for mutant PEDV*

- *Requirement to WOAHA for PED diagnosis support*

- *Strengthening the Asia Pacific network through regional expert meeting*
- *Strengthening the diagnostic capabilities*
 - *Twinning program between diagnostic laboratories*
- *Strengthening the capacity on genetic information of major diseases*

Thank you!

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