

# Diagnosing and developing control measures for classical swine fever in Mekong Delta, Vietnam

A. KAMAKAWA<sup>1</sup>, T. V. T. HO<sup>2</sup> and S. YAMADA<sup>3</sup>

<sup>1</sup>Animal Production and Grassland Division, JIRCAS

<sup>2</sup>Cantho University, Vietnam

<sup>3</sup>National Institute of Animal Health, Japan

<sup>1</sup>(Present address: Animal Quarantine Service, Ministry of Agriculture, Forestry and Fisheries)

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## Objectives

In Mekong delta pig production plays an integral role of nutrient-recycling farming system among other crop productions such as rice, fish, vegetables and fruits through exchange of by-products, besides pig sales account for substantial percentage of cash income. However, farmers' operations are often hampered by disease outbreaks with high mortality of piglets. Diseases are named by symptoms and without any differential diagnosis, sick pigs are treated by antibiotics and even temporarily improved, relapsed into death or become stunted. We suspected outbreaks of classical swine fever (CSF), a highly contagious and fatal viral disease, but it also happened in vaccinated herd. Therefore, our objective of the study was to diagnose CSF through laboratory examination, investigate CSF vaccines and vaccination practices to finally provide appropriate control measures for the farmers.

## Results

Between July 2002 and June 2003, we encountered ten fatal disease outbreaks in Cantho province. The symptoms were initially recognized in 44-day-old piglets (se 9.9, n=17 litters) and the sow was in her first parturition (median, 1 to 3). We detected CSF virus (CSFV) in piglets of seven farms with fluorescent antibody (FA) tests as well as CSFV genome in piglets of all ten farms by either analyzing amplified RT-PCR product (288 nt) of 5' NTR (Vilcek et al, 1994) with restriction fragment length polymorphism (RFLP, digestion with Bg1I) and/or from the sequence (240 nt) (Table 1). All four CSF vaccine viruses available in Mekong delta and viruses detected at farms belonged to different genogroups.

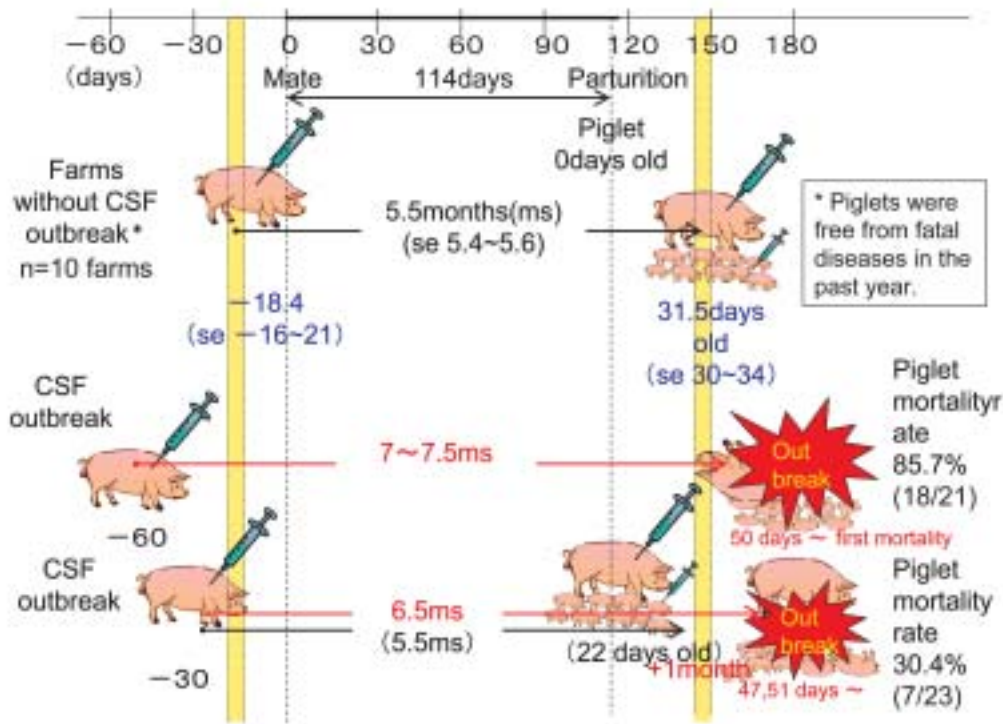
CSF vaccines were administered irrespective of the type of vaccine; no injections to the sow during pregnancy, and an injection for piglets near their weaning age and simultaneously for the sow. Thus boosters for gilts were often neglected and piglets from first parturition suffered from the disease in early stages. Higher weanlings' mortality was observed in the litter of sow vaccinated 60 days before pregnancy with a popular domestic N vaccine than that of 30 days, both failed in mating at the first heat. Ten farms that practiced N vaccines and had observed no fatal disease, so regarded as CSF free, had the sow pregnant within 3 weeks after simultaneous vaccination, and piglets at a-month old. Suggesting strict vaccination program of the sow before pregnancy is critical and sows in irregular reproductive cycle need to be individually re-boosted. CSF vaccines needs standardization and an applicable prescription shall accompany each product. Accurate diagnosis and correct recognition of the disease is indispensable to control CSF.

**Table 1.** Results of CSFV detection tests in piglets and the sows.

Test / Farm	1	2	3	4	5	6	7	8	9	10	Total
CSFvirus-FA	w/1	1/1	1/1	1/1	2/2	0/1	1/1	w/1	3/3	1/1	10/13
RT-PCR (5'NTR)	2/2	1/1	2/2	1/1	4/5*	1/2*	1/1	4/5*	3/4*	1/1	20/24*
RFLP (BglI)	1/1	1/1	1/1	1/1	2/2	1/1	1/1	3/3	n.t.	n.t.	11/11
Sequence (5'NTR)	1/1	1/1	2/2	1/1	4/4*	1/1	1/1	4/4	3/3	1/1	19/19*

n.t., not tested; w, weak/doubtful; FA, fluorescent antibody test; RT-PCR, reverse transcriptase polymerase chain reaction; RFLP, restriction fragment length polymorphism analysis.

\*including sows' sera.



**Fig. 1.** CSF outbreaks and the vaccine practice (N vaccine, HCMC, Vietnam).

## References

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**E-mail address:** kamakawaak@maff-aqs.go.jp