

**STUDIES ON THE EPIDEMIOLOGY OF CLASSICAL
SWINE FEVER IN THE REPUBLIC OF KOREA**

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DECLARATION

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

Signed.....

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ABSTRACT

Classical swine fever (CSF) is a serious and highly infectious viral disease of domestic pigs and wild boar, which is caused by a single stranded RNA pestivirus. A study was undertaken to further understand the disease in pigs in the Republic of Korea. This study was designed to describe the history of outbreaks and risk factors for the disease in the Republic of Korea and to conduct a risk assessment for the introduction of CSF into Jeju Island, which is currently free from the disease.

The pig industry has an important role in the Republic of Korea due to the preference by Koreans for the consumption of meat from freshly killed pigs. Historical data, collected as part of active disease surveillance, were examined to determine the seroprevalence of antibodies and antigen to CSF. Only 0.03% (95% CI: 0.03 – 0.04) of samples tested from 2004 to 2010 were positive for CSF antigen. There was no significant difference in the prevalence between years. In contrast the average seroprevalence (antibody) for this period was 89.25% (95% CI: 89.20 – 89.29). The level of antibody in piglets was lower than in older pigs, most likely due to maternal antibody interference. There were no consistent differences in the prevalence from samples collected from different provinces or cities. It is suggested that these inconsistencies arose from differences in the efficacy of vaccine due to

variation in the cold chain, method of vaccination and cross-reactions from other pathogens.

After the declaration that the Republic of Korea was a CSF-free country in December 2001, the disease was again reported in 2002. It was hypothesised that the disease was reintroduced through indirect means from other countries and subsequently 72 outbreaks originated from one infected breeding farm. This finding highlights the importance of biosecurity on farms. Subsequently sporadic cases of CSF have been reported and may indicate spread through wild boars.

Four major factors were identified in the risk assessment for the introduction of CSF into the free area of Jeju Island: the prevalence of CSF on the mainland; the smuggling of pork into Jeju; the heat treatment of swill; and the rate of transmission between farms.

It is concluded that CSF will only be eradicated from the Republic of Korea if there is full cooperation between the government and the livestock industry. However, the disease has the potential to reenter via pork smuggled from infected neighbouring countries or through the inadequate treatment of swill. Since the eradication of CSF is the ultimate goal of the Republic of Korea, it is recommended that material be developed to improve the education of farmers about the disease, and a cost benefit analysis is undertaken to evaluate the benefit in stopping the vaccination of pigs.

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