

## FINANCIAL IMPACTS OF PRIORITY SWINE DISEASES IN PIG FARM HOLDINGS IN VIETNAM

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### Introduction

Pork is one of the most important agricultural products in Vietnam, around 3 million tons of pig meat are produced per year, accounting for 74% total meat yield produced in Vietnam (GSO, 2014). However, pig producers in Vietnam are threatened by numerous infectious diseases such as PRRS, FMD, pneumonia... Since the first occurrence of high pathogenic PRRS in Vietnam in 2007, PRRS became endemic and caused significant impact for national economy and farmer's livelihood. Some studies have assessed the economic impacts of several swine diseases such as PRRS, FMD, CSF at national level, but very few studies have provided estimate of the economic impact of pig diseases at producer level. The objective of this study was to estimate the financial impacts of priority swine diseases for local producers in Vietnam. The approach undertaken was the estimation of the disease impact on gross margin of pig holdings.

### Materials and methods

The study was carried out in two provinces of the Red River Delta (Hung Yen (HY) and Hai Duong (HD)) and one province in the Mekong River delta (Long An (LA)) in the North and the South Vietnam respectively. Criteria for province, district, and commune selection were the diversity of pig farming systems and number of outbreaks of reportable diseases (PRRS and FMD) in 2010-2012 (DAH, 2013). Participatory approaches were used to identify the priority diseases for local pig producers. Economic impacts of PRRS, FMD, and epidemic diarrhea were assessed at pig holdings (n=162), using data on pig production and disease outbreaks at farms. A pig farm holding typology was performed. Gross margin and impacts of diseases were estimated per sow or per fattening pig and summarized according to pig farm typologies and provinces. Swine disease losses were estimated, including direct losses due to mortality (100% market value of pig prior disease onset) and morbidity (abortion, delay time of slaughtering after recovering or lower price in case of emergency selling) and indirect losses due to cost of treatment with medicine, cost of improving bio-security at farm (disinfection) during disease occurrence at farm, and cost of emergency vaccination in case of FMD occurrence.

### Results

Pig farm holdings in the study area were classified into three groups linked to herd size, production system, housing and feeding practices. Gross margin of pig holdings varied between provinces and pig groups ( $p < 0.001$ ), and ranged from USD 28 to USD

45 per pig. The estimation of total cost of PRRS was USD 44 (HD), USD 42 (HY) and USD 55 (LA) per pig ( $p = 0.007$ ). Both direct and indirect losses due to PRRS were high in three provinces representing 126% (HD), 92% (HY), and 192% (LA) of gross margin per pig, and were the highest among three diseases. The losses due to FMD were lower with USD 29 (HD), USD 26 (HY), and USD 19 (LA) per pig. Epidemic diarrhea was only observed in pig farms in the two Northern provinces (HD and HY). Its impact was the lowest in both provinces (USD 8 in HD and USD 6 in HY). Losses due to PRRS in breeding stocks were higher than those in fattening pig farms as consequence of disease impacts on reproductive performance. Financial impacts of PRRS varied in years and depended much on disease prevention and control strategies implemented in the pig farm holdings in each region.

### Discussion

This study was conducted within the framework of the evaluation of swine disease surveillance system in Vietnam. PRRS, FMD and epidemic diarrhea were selected for this economic impact assessment because they were classified as priority diseases according to farmers' perception, linked mainly to the re-occurrence of outbreaks and the perceived significant impacts. Although this study was limited to three provinces in Vietnam, the diversity in herd size, feeding regimes, housing and health management practices of pig holdings in the study area were representative of pig production in two distinguish ecological regions of Vietnam (Red River Delta and Mekong River Delta). In addition, the survey was based on participatory approaches including semi-structure face to face interview allowing in depth data collection on pig production, disease events and disease management in pig holdings. The results of this study highlighted the real financial impacts of swine diseases on pig holdings and provided critical elements to review the priorities for swine disease surveillance at farm level.

### References

1. General Statistics Office (GSO), 2014. <http://www.gso.gov.vn/>. Access on 15<sup>th</sup> December, 2014.
2. Department of Animal Health (DAH), 2013. <http://www.cucthuy.gov.vn/>. Access on 4<sup>th</sup> July, 2013