Serological status of PCV2-infected pig herds

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INTRODUCTION

Porcine circovirus type 2 (PCV2) – systemic disease (SD), also known as Porcine circovirus associated disease (PCVAD), is currently considered as an important swine disease causing by porcine circovirus type 2 (PCV2). PCV2 is commonly associated with many severe clinical diseases such as postweaning multisystemic wasting syndrome (PMWS), porcine dermatitis and nephropathy syndrome and porcine respiratory disease complex (1). Although the pathogenesis of PCV2-induced PMWS is not well defined, the disease is believed to be mediated by the host immune response (2). An indirect ELISA is a useful tool for determining the infection periods and measuring the antibody levels post-vaccination. Serological profile from ELISA is essential data for managing and monitoring of PCV2 status in swine herds. Thus, our previously developed in-house ELISA could be a valuable assay for routine monitoring PCV2 status in large-scale herds.

OBJECTIVES

To investigate the serological status of PCV2 infection in Thai swine farms with and without clinical signs using an indirect ELISA in relation to clinical signs, viremia, and antibody titers.

MATERIALS AND METHODS

Serum samples were collected from farm A and B. Farm A will include pig herds with clinical signs of PCVAD at the time of sample collection. Farm B will include pig herds without clinical signs of PCVAD within the last 1 years (3). The samples were derived from sows (parity 1, 3, 5), and piglets (3, 5, 9, 13 and 17 weeks of age). PCV2 vaccination was performed in pre-farrowing sow, gilt and piglets in each farm. An in-house ELISA, using a recombinant nuclear localization signal truncated capsid (rntCap) protein of PCV2 expressed in an *Escherichia coli* system, was performed to detect antibody titer against PCVAD in effected swine farms. A cut-off S/P ratio was 0.30 (4). Pooled sera (from 5 to 1 sample) will be detected for the presence of PCV2 DNA using conventional PCR.

RESULTS AND DISCUSSIONS

Farm A, PCV2 infected pigs demonstrated clinical manifestation during 3 to 17 weeks of age or until slaughtering period. Our data revealed that most of the pigs were seronegative during 3-11 weeks of age, and antibody titer were dramatically increased in fattening period. However, PCR result revealed viremia in all ages. Thus, it could be assumed that this PCV2 vaccination program was not fully effective during late grower period. Farm B, both sows and piglets were clinically healthy in accompanied with no viremia as detected by PCR. However, antibody titers were detected at 3 weeks of age and gradually decreased during week 5-13. Interestingly, seropositive response was detected again before the slaughtering period. This seroconversion during fattening period might be due to natural infection.

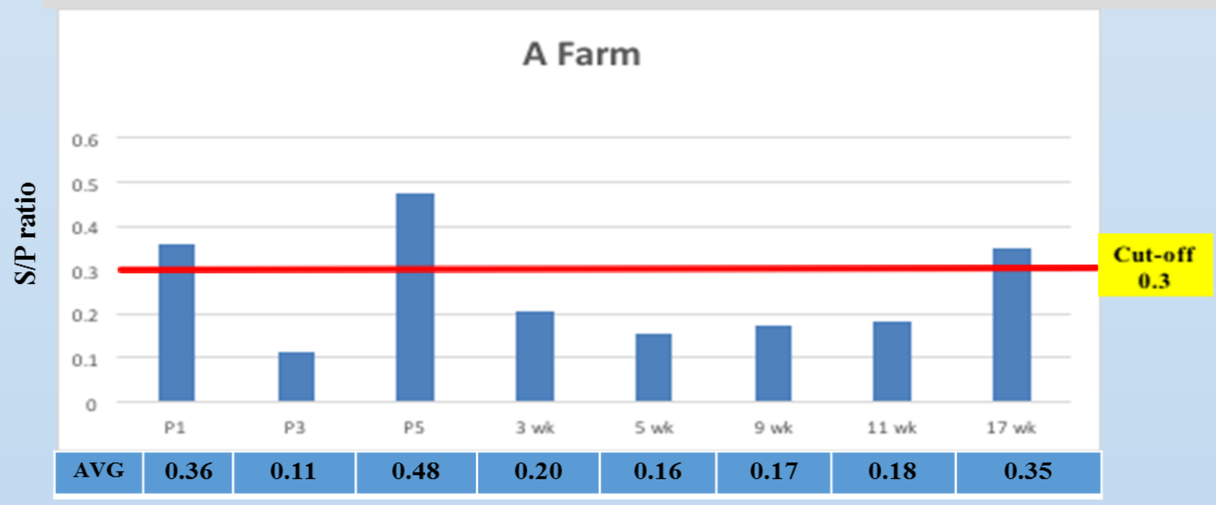

Figure 1: Farm A (PCV2 clinical signs), average S/P ratio of pigs with difference ages (n=5 / each group) determined by the in-house ELISA using capsid protein of PCV2.

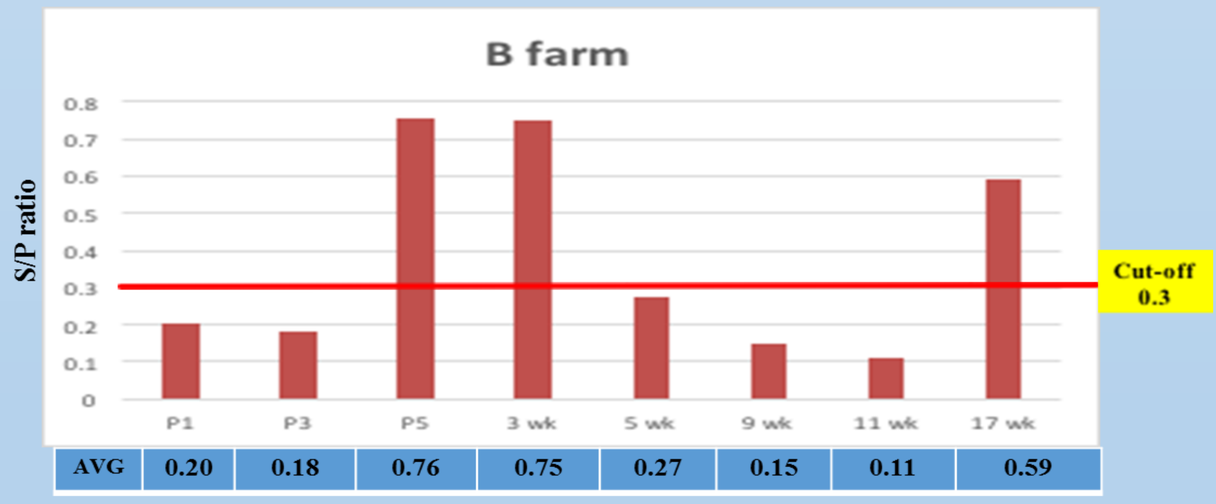

Figure 2: Farm B (without PCV2 clinical signs), average S/P ratio of pigs with difference ages (n=5 / each group) determined by the in-house ELISA using capsid protein of PCV2.

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