

# VACCINATION OF SOWS DURING GESTATION WITH A MODIFIED LIVE CLASSICAL SWINE FEVER VACCINE

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## Introduction

In countries endemic for classical swine fever (CSF), the disease is controlled through routine vaccination of sows and piglets. In some farms, mass vaccination of breeders that include pregnant sows may be carried out twice a year. Some farmers also attempt to boost the levels of maternally derived antibodies (MDA) in piglets *via* vaccination of pregnant sows. Although a previous study has demonstrated the safety of using PESTIFFA<sup>®</sup> in sows three weeks prior to farrowing (1), it is not known whether there is any validity to the belief that vaccination will boost antibody titres since it is well known that even levels of serum neutralizing (SN) antibodies as low as 1:32 in piglets interfere with the induction of immune response. The present study aims at determining whether multiple injections of PESTIFFA in pregnant sows would result in boosting SN titres and MDA levels in their litters. The study also examines whether such vaccinations have adverse effects on both sows and piglets.

## Materials and Methods

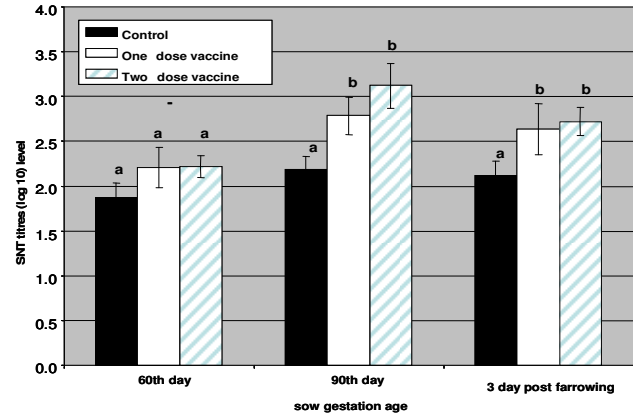
Thirty sows in mid pregnancy (about 60 days of gestation) were selected from a 1,000 sow commercial herd. All sows had been vaccinated at the previous weaning *i.e.* prior to mating. Ten sows were vaccinated at 60 days of gestation; 10 sows were vaccinated twice at 60 and 90 days of gestation; and the ten sows were not vaccinated during gestation. Blood samples were collected from each sow at 60 and 90 days of gestation. At 3 days post farrowing, blood samples were collected from each sow and from 3 randomly selected piglets per litter (*i.e.* 90 piglets in all).

The vaccine used was a modified live vaccine (PESTIFFA) composed of the Chinese Strain produced on a lamb-kidney cell line.

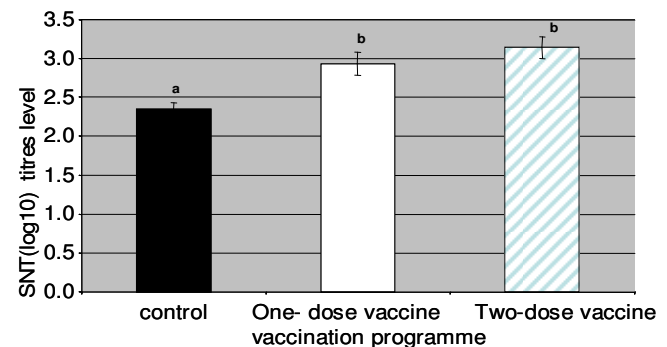
The data were analyzed by SPSS<sup>®</sup> version 15, using type of vaccination regimes (control, one-dose vaccine, and two-dose vaccine) as independent and SN titres as dependent. Duncan test was chosen to define the differences between groups, and the P value was set at 0.05.

## Results and Discussion

There were no significant differences between SN titres in all groups at 60 days of gestation. However, at 90 days of gestation and later at 3 days post farrowing, the sows that were vaccinated during gestation had significantly higher titres than those that were only vaccinated prior to mating (Figure 1). The SN titres in the sow vaccinated during gestation were not significantly different at any of the stages. The SN titres in piglets from litters of sows vaccinated during gestation are significantly higher than those from sows that were not vaccinated during gestation (Figure 2). However, there were no significant differences between the SN titres of piglets from sows vaccinated during gestation regardless of whether the sows were vaccinated once or twice.



**Figure 1:** SNT titres of sows at 60, 90 days of gestation and at 3 days post farrowing. a, b indicated statistical significance between groups. The error bars indicate standard error.



**Figure 2:** SNT titres level of 3 days-old piglets under different vaccination regimes. Control group showed a significantly lower SN titres compared to the vaccinated groups. a, b indicated significance between groups. The error bars indicate standard error.

The results showed that re-vaccination of sows that have been vaccinated prior to mating increased SN titres levels which were passed on to their progeny *via* the colostrum. Giving more than one injection during gestation appears to have no added benefits. The lack of adverse reactions in sows as well as their litters confirmed earlier work (1) that the use of PESTIFFA in pregnant sows is safe. Mass vaccinations in emergency situations with PESTIFFA are recommended. Although high levels of MDA may protect piglets against CSF, it will also interfere with vaccination. Therefore, farmers who practice mass vaccinations routinely should be aware of this phenomenon.

## References

1. Vandeputte *et al.*, (2001), *Am. J. Vet Res.* 62(11):1805

<sup>®</sup>PESTIFFA is a registered trademark of Merial and SPSS is a registered trademark of SPSS, Inc. in the United States and elsewhere.