



UNIVERSITY OF MINNESOTA

Swine Disease Eradication Center

July 2, 2012  
Volume 1, Issue 1  
[www.cvm.umn.edu/sdec](http://www.cvm.umn.edu/sdec)

# SDEC Partners Research Update

**Project Update: The effect of passive immunity to *Mycoplasma hyopneumoniae* and an extended lactation period on piglet immune development**

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**Funded in part by the Minnesota Pork Board and Pork Checkoff**

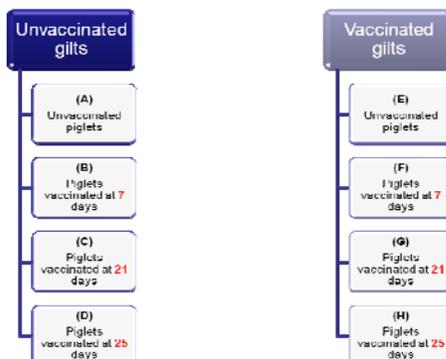
## Background

- *M. hyopneumoniae* is a proven model of maternal immune transfer in swine (Bandrick et al., 2008)
- Farrowing room management practices, such as cross-fostering affect passive transfer (Bandrick et al., 2011)
- Piglet vaccination for *M. hyopneumoniae* is usually performed in the farrowing rooms
- Vaccination protocols vary: Early days of life – Weaning day
- Research data suggests that increasing weaning age increases the economic value of weaned pigs (Main et al., 2005)
- However, little information exists on the impact of extended lactation length (>21 days) on the immune status of pigs

## Objective

To determine the optimal time to vaccinate pre-weaning pigs in the face of an extended lactation period of 25 days

## Experimental Groups



## Materials and Methods

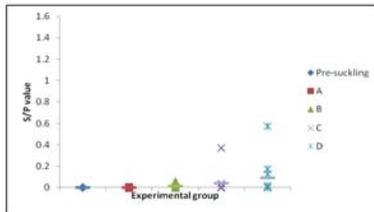
Humoral and cellular immune response specific to *M. hyopneumoniae* was evaluated in gilts and piglets by means of:

- Enzyme-linked immunosorbant assay—ELISA (Herd Check, IDEXX)
- Delayed-type hypersensitivity—DTH as described by Bandrick et al 2008

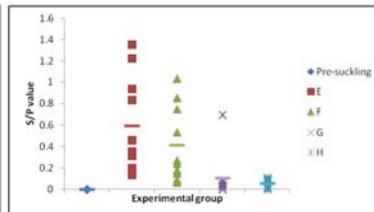
Groups compared using non-parametric statistical analysis

## Results

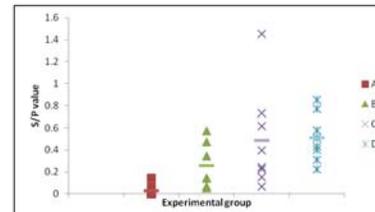
### Antibody detection in piglets: Pre-suckling and 3 weeks post-treatment



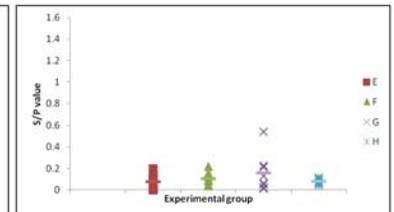
Born to Unvaccinated Gilts



Born to Vaccinated Gilts

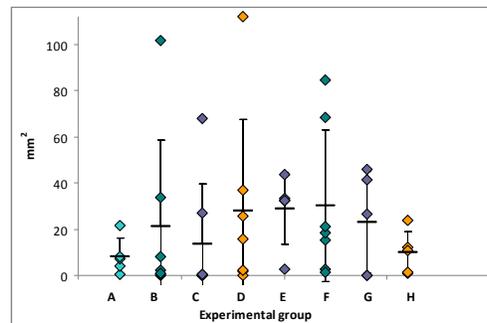


Born to Unvaccinated Gilts



Born to Vaccinated Gilts

### DTH Responses in piglets: 3 weeks post-treatment



Born to Unvaccinated/Vaccinated Gilts

## Conclusions

- The magnitude of humoral and cellular immune response was not significantly different when examined by age of vaccination
- In piglets born to vaccinated gilts, pre-existing antibodies interfered with active immunity at all 3 ages at vaccination
- Overall, vaccination status of the mother was more important than vaccination age of the offspring, at least at the vaccination times selected for this study.

## Implications

- Piglet immune response is similar in piglets vaccinated with *M. hyopneumoniae* at different ages during the lactation period.
- Humoral immune response to *M. hyopneumoniae* in the piglet is strongly influenced by the passive immunity acquired from the mother.
- The significance of humoral and cellular immune response for *M. hyopneumoniae* protection has not yet been elucidated.