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Survey of *Mycoplasma hyopneumoniae* Maternally-Derived Antibodies in Suckling Pigs

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In a previous study, we found that maternally-derived antibodies (MDA's) inhibit serological responses to *Mycoplasma hyopneumoniae* (MH) vaccination. Vaccination interference by MDA's also has been shown with pseudorabies virus, porcine parvovirus and *Actinobacillus pleuropneumoniae*. Likewise, the level of maternally-derived MH antibodies in piglets will reflect the antibody status of their dams which in turn may reflect the recency of infection or re-infection of the dams.

The objective of this study was to evaluate the MDA status of herds within a production system to determine the optimal time for vaccination and to correlate the antibody status of the breeding herd with the pattern of MH disease in the offspring.

Twenty-two sow herds, each containing approximately 4,000 sows, were used in this study. Blood was collected from 30, seven-day-old pigs from 10 litters within each herd. Serum was tested for MH antibodies by the Tween-20 ELISA. The data reported here is the S/P (sample/positive control optical density values) ratio. For each herd, the mean S/P ratio, % seropositive and frequency distributions were calculated. To determine the optimal time (youngest age) for MH vaccination, we estimated (from two previous experiments) that the S/P ratios declined by 0.2 each week, and required the S/P ratio to be <0.5 (seronegative) at the time of first vaccination for at least 80% of the pigs in one scenario and 100% in a second scenario.

The mean S/P ratio for all 22 herds was .940 and the percent seropositive was 69.6%. The number of herds with mean S/P ratios of <.500 was 2; .501 to 1.000- 14; 1.001 to 1.500- 4; and >1.501- 2. The number of herds by percent seropositive was: <40%- 2; 41 to 60%- 6; 61 to 80%- 9; and >80%- 5.

The number of herds (out of 22) when 80% of the S/P ratios were <0.5 by week of age was: 1 week-0; 2 weeks-3; 3 weeks-9; 4 weeks-6; 5 weeks-2; 6 weeks-1; 7 weeks-1; and >7 weeks-0. The number of herds (out of 22) when 100% of the S/P ratios were <0.5 by week of age was: 1 week-0; 2 weeks-0; 3 weeks-2; 4 weeks-4; 5 weeks-5; 6 weeks-5; 7 weeks-2; and >7 weeks-4.

These data suggest that the timing of vaccination to avoid interference by MDA may vary from herd to herd. Interestingly, nursery pigs that originated from Herd 3 had experienced clinical mycoplasma pneumonia just prior to this survey.