

Title: Characterization of *Mycoplasma hyorhinis* transmission and spread within endemically infected populations – **NPB #10-004**

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Scientific Abstract:

Mycoplasma hyorhinis is a common inhabitant of the respiratory tract of pigs, which can cause polyserositis in animals of 3 to 10 weeks of age, as well as arthritis in finishing pigs. Approximately 50% of the cases with polyserositis received at the Minnesota VDL in 2009 had the involvement of this pathogen. The objective of this study was to characterize the pattern of *M. hyorhinis* colonization in endemically infected herds. Three 6000 sow farrow-to-wean herds, defined as A, B and C, as well as their nurseries located in MN and SD were selected. These herds had a diagnostic history of recurrent mortality associated with *M. hyorhinis* isolation from systemic sites. Nasal swabs were collected from 60 sows, 60 piglets in each group of 1, 7, 14 and 21 days of age as well as 30 pigs in each group of 28, 35, 42, 49, 56, 63, 70 and 77 days of age. Oral fluids were also collected from the same post weaning pigs. In order to investigate the role of this pathogen in polyserositis cases tissue samples were collected from ten clinically affected and ten clinically healthy pigs necropsied at the age of the peak of mortality. All nasal swabs were tested by a real time PCR developed in our laboratory. *M. hyorhinis* was detected in the nasal cavity of 5/60 sows in herd A, 3/60 in herd B and none in herd C. In herd A and B where clinical cases of *M. hyorhinis* were present, the colonization prevalence in suckling piglets was low (avg=8%) and high in post-weaning pigs (avg=98%). In contrast, in herd C where *M. hyorhinis* clinical signs were absent, colonization in pigs was very low until the last week in the nursery. A total of 7/8 oral fluids tested *M. hyorhinis* positive in herd A and B, while 1/8 tested positive in herd C. Polyserositis was not observed in any of the healthy animals from all three herds or in the diseased pigs from herd C. However, in herds A and B polyserositis was observed in 9/10 and 4/10 diseased pigs respectively. Isolation of *M. hyorhinis* from the pericardium was achieved only in herds A and B. *M. hyorhinis* was detected by PCR in the pericardium of 8/10 diseased pigs in herd A and 3/10 in herd B. In the healthy pigs only one sample tested PCR positive. In herd C *M. hyorhinis* was not detected in any of the necropsied pigs. In summary, *M. hyorhinis* can be detected by PCR in nasal swabs, tonsil swabs and oral fluids. The pathogen can colonize pigs at day one of age; however, most of the pigs become colonized sometime in the nursery. High prevalence of *M. hyorhinis* nasal colonization in weaned pigs appears to be correlated to the presence of *M. hyorhinis* associated disease and the detection of the agent in polyserositis cases in nursery pigs.

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