

Getting to the Bottom of Lameness Concerns

National Hog Farmer

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Data from the Iowa State University Veterinary Diagnostic Laboratory (ISU-VDL) and shared experiences from swine veterinarians suggest the frequency of cases of infectious arthritis and lameness in pigs seems to be increasing. Although there are many potential causes and risk factors for lameness, two that are of interest include *Mycoplasma hyorhinis* and *Mycoplasma hyosynoviae*.

The frequency of detection of *M. hyorhinis* and *M. hyosynoviae* has dramatically increased, as has the frequency of diagnosis of arthritis in the ISU-VDL. It is tempting to correlate the increased number of cases of arthritis submitted with the increased detection of these pathogens. However, as described in the literature, the presence of these potential pathogens within the synovial cavity is not enough to confirm a positive diagnosis of infectious arthritis. This leads to some relevant questions:

- Are these pathogens important?
- How can we get an accurate diagnosis?
- Do these pathogens have significant impact in the swine industry?

Although arguments suggest that there is a lack of current literature to confirm and support our hypotheses regarding the course of the disease and its importance, we will address these questions to provide an alert to a possible emerging issue.

Are These Pathogens Important?

The simple and objective answer would be, yes, they are, but to what extent we do not yet know. Both are common infections in growing pigs that may or may not express themselves as disease. Historically, *M. hyorhinis* is recognized more often for causing polyserositis and polyarthritis in pigs in farrowing and nursery rooms.

On the other hand, *M. hyosynoviae* has been more associated with arthritis cases in the grow-finish stages of production. Recent data from ISU-VDL confirms that observation (see Figure 1).

Getting an Accurate Diagnosis

The first step in the diagnosis is to conduct a complete clinical assessment, performed by a knowledgeable veterinarian, to confirm that symptoms present are typical for these agents. Second, select non-medicated animals in the acute phase of the disease (animals that just became lame and have not received any treatment with antibiotics) to be sampled, usually by necropsy. Third, submit the appropriate samples to a veterinary diagnostic laboratory (VDL) for complete testing.

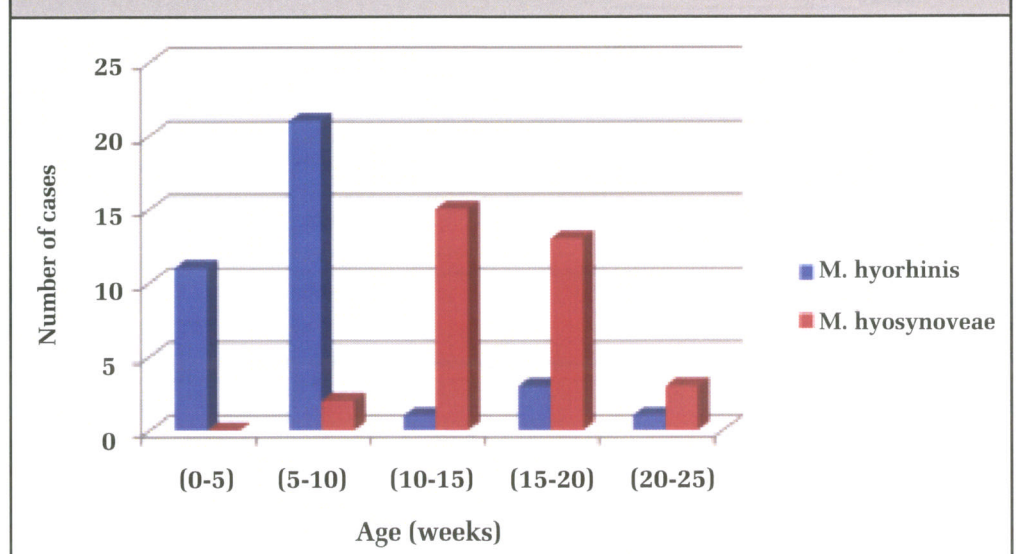
The samples that can be submitted to the VDL are: joint fluids collected in a sterile syringe, pieces of synovial membrane fixed in 10% formalin; joint swabs, or even the whole leg without being opened. Remember to rapidly chill and refrigerate all fresh specimens.

To rule out other causes, also submit a complete selection of fresh and formalin-fixed tissues (e.g. lung, liver, heart, rib, etc.). If there are any doubts about what samples to send or what to test for, consult with the laboratory diagnosticians. They are your partners for achieving meaningful results and an accurate diagnosis.

Significant impact in the Swine Industry

At this point, the data to reliably assess economic impact or understand the current epidemiology of *M. hyo-*

Figure 1. Number of *M. hyosynoviae* and *M. hyorhinis* Cases Diagnosed by Age



rhinis and *M. hyosynoviae* is not available. What can be said with little doubt is that there are obvious impacts related to lameness and infectious arthritis in the field and slaughterhouse, such as:

- Increased number of culled animals at all ages (lost opportunity for full-value pigs);
- Increased number of culled gilts at the gilt developer unit;
- Increased treatment costs at the farm (antibiotic usage);
- Added carcass condemnation at the slaughterhouse;
- Needed animal welfare (lame pigs are a visual liability and euthanasia dilemma), especially with the rules coming from importer markets; and
- Heightened consumer perception regarding the well-being of animals.

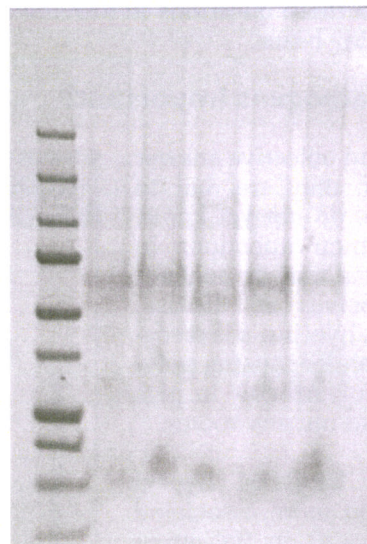
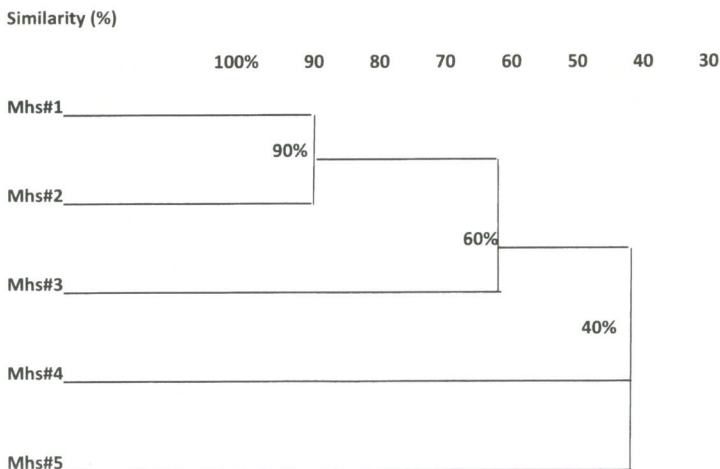
Now a “triple option” is available against swine mycoplasmas (*M. hyopneumoniae*, *M. hyorhinis*, and *M. hyosynoviae*). Contact MVP Laboratories for more information on an autogenous vaccine.



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Dr. Boh Chang Lin, Director of R & D, has optimized a culturing method for *Mycoplasma hyosynoviae* (Mhs) that supports growth to the level of CFU’s needed to produce high antigen content vaccines. This patent pending development is a significant breakthrough that offers a better tool for the control of Mhs-related lameness using licensed autogenous vaccines. As depicted below, the strains of Mhs recently isolated at MVP’s Diagnostic Laboratory varied considerably based on soluble protein profile results. Discrimination of Mhs isolates by means of this analysis can greatly assist practitioners in the selection of candidates to use in a Tailor-Made® licensed autogenous vaccine.

Dendrogram showing similarity (%) between five *M. hyosynoviae* field strains



Soluble protein profile of 5 *Mycoplasma hyosynoviae* strains