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# Mycoplasmal diseases of swine

Alex Hogg, William P. Switzer and Daniel O. Farrington<sup>1/</sup>

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## Quick Facts

- There are three recognized mycoplasma species of bacteria that cause disease in pigs.
- Mycoplasmal pneumonia affects pigs of all ages and is estimated to exist in 90 percent of all swine herds in the United States.
- Pigs are more severely affected by mycoplasma pneumonia when roundworm larvae or lungworms are present in their lungs.
- Mycoplasma hyorhinis* causes arthritis and inflammation of the lining of the chest, abdominal cavity and heart membranes of swine weighing from 15 to 60 pounds.
- Mycoplasmal arthritis is a disease of larger pigs; it affects pastured pigs more often than those raised on concrete areas.
- The only method of eliminating mycoplasma infections from a swine herd is through depopulation and restocking with animals known to be disease-free.

Swine producers often are confused by the complexity of mycoplasma infections. This fact sheet is an attempt to clarify the information that currently is available about these swine diseases. There are three recognized mycoplasma species of bacteria that cause disease in pigs—*Mycoplasma hyopneumoniae*, *Mycoplasma hyorhinis* and *Mycoplasma hyosynoviae*.

## Myoplasmal Pneumonia

Mycoplasmal pneumonia (in the United States or porcine enzootic pneumonia (England and other countries) is caused by *Mycoplasma hyopneumoniae*. Another synonym for this disease is swine enzootic pneumonia (SEP). Fifteen years ago this disease was called virus pneumonia of pigs (VPP); since that time it has been discovered that a mycoplasma, not a virus, is the cause. Mycoplasma are very small and

readily pass through ordinary bacterial filters. In addition, mycoplasma are difficult to grow in the laboratory. For these reasons, it was originally assumed that mycoplasma pneumonia was a virus.

Mycoplasmal pneumonia affects pigs of all ages, starting with those as young as 7 to 10 days of age. It is estimated that 90 percent or more of the swine herds in the midwestern United States are infected with mycoplasma pneumonia.

Mycoplasmal pneumonia is a chronic disease. A high percentage of pigs are affected, but death loss is low. Pigs usually show first signs of the disease between three and 10 weeks of age. The incubation period is 10 days or more after exposure to carrier swine. The pigs have a dry, nonproductive cough that is most noticeable after exercise. Pigs may cough for only one to three weeks or the coughing may persist indefinitely. Other conditions, such as influenza, pasteurella pneumonia and lungworms, also cause pigs to cough and should be considered in making a differential diagnosis.

In general, pigs with mycoplasma pneumonia continue to eat reasonably well, but some do not grow at a normal rate if lesions are extensive or secondary bacterial pneumonias occur. Severe pneumonia also results when mycoplasma pneumonia is complicated by large numbers of ascarid (roundworm) larvae passing through the lungs. Pigs also are more severely affected when lungworms are present. Growth retardation due to mycoplasma pneumonia is variable. Generally, the more severe the lesions the greater the effect.

Adequate treatment of established mycoplasma pneumonia is not currently available. Several promising treatments are being investigated. Sulfas and antibiotics are very useful in the control of secondary bacterial pneumonias. Good nutrition, a warm, dry, dust- and draft-free environment and ascarid and

<sup>1/</sup> Alex Hogg, University of Nebraska; William P. Switzer and Daniel O. Farrington, both Iowa State University. This information, originally published in the **Pork Industry Handbook**, has been reviewed for Colorado producers by Marvin Heeney, CSU extension professor, animal sciences (5/15/79)

lungworm control programs are useful in minimizing the effects of mycoplasmal pneumonia. Uncomplicated lesions may heal in 55 to 60 days without treatment.

### **Mycoplasmal Polyserositis-Arthritis**

A second mycoplasma affecting pigs is *Mycoplasma hyorhinis*. This organism causes arthritis and inflammation of the lining of the chest and abdominal cavity and the membrane that covers the heart. In addition, the membranes around the testicles of male pigs often are affected. Pigs weighing from 15 to 60 pounds (22.7 to 27 kilograms) are most commonly affected. The producer may notice lameness and an unthrifty appearance in the animals, but no coughing. Occasionally, the producer may find a pig that has died suddenly. A veterinarian making a postmortem examination may find typical lesions around the lungs, the heart or in the abdominal cavity of the pig.

There is no satisfactory treatment on an individual basis. Herd treatment with injectable tylosin or lincomycin may be beneficial in the early stages of the disease.

### **Mycoplasmal Arthritis**

The third mycoplasma, *Mycoplasma hyosynoviae* causes arthritis in larger pigs weighing 90-220 pounds (40.8 to 99.8 kg). This disease seems to affect pastured pigs more often than pigs raised on concrete areas. In a typical case, a wave of arthritis goes through the group following a period of stress, such as regrouping of

pigs or cold wet weather. Many of the pigs become very lame with swollen hock, elbow, shoulder or stifle joints.

*Mycoplasma hyosynoviae* often affects new animals, such as boars, being introduced into an infected herd. New additions to the herd pick up the mycoplasma from apparently healthy carrier animals already in the herd. These animals often carry the organisms in their tonsils for many months with no apparent effects. Swine producers having herds known to be infected often are advised by veterinarians to inject tylosin or lincomycin into new animals being added to the herd to prevent infection and the lameness that follows.

Injectable tylosin or lincomycin given during the first 24 hours of the acute stage and repeated daily for two to three days usually gives a satisfactory response. In addition, a single injection of a corticosteroid reduces the pain and inflammation but should be given only one time as repeated injections lower resistance to infections. Feed and water forms of tylosin are poorly absorbed and are not effective as a treatment.

The only method of eliminating mycoplasmal infections from a swine herd is through depopulation and restocking with animals known to be free of these diseases. Because the mycoplasmal diseases are some of the major disease problems in American swine, much additional research is needed in this area. A high priority should be given to developing reliable control programs for swine mycoplasmal diseases.