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## Mycoplasma Infection in Stocker Cattle

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*Mycoplasma bovis* infection appears to be an increasingly frequent problem in stocker cattle, resulting in pneumonia, joint swelling and middle ear infections. *M. bovis* occurs in several strains which vary in their ability to cause disease and more than one strain can infect a calf. Aerosol droplets, close contact, and contaminated waterers and feeders spread this organism. Most cattle are exposed at some time in their life and may spread the disease for weeks after exposure. Stress makes this disease much more likely to occur and *M. bovis* often works with other pneumonia causing organisms including the BVD virus, *M. hemolytica* and *P. multocida* to produce more severe disease. Many commonly used antibiotics act on the bacterial cell wall and *M. bovis* does not have a cell wall. Also this organism can very easily mutate. Both of these factors make these infections difficult to treat. The organism can also elude the immune system making vaccines less effective than desired.

### **Predisposing Factors**

Risk factors that make *M. bovis* infection more likely are:

Lightweight calves

Calves from small herds in the SE that have not been previously exposed

Groups of calves assembled from a number of sources

Long shipping distances and times before arrival

Bad weather, changing weather

Calves with access to or held in poorly ventilated barns

Presence of a strain of *Mycoplasma* that causes more severe disease

Contact between newly arrived cattle and sick cattle

Newly arrived cattle having access to feeders and waterers that have not been cleaned and disinfected since being used by other cattle

Overcrowding, including insufficient pen space and/or bunk space

Stress from castration, dehorning, and processing in the afternoon during warmer times of the year

A less than adequate vaccination program especially against BVD, *M.hemolytica*, and *P. multocida*

Most cattle are exposed to *M. bovis* at some time and they can spread the disease for weeks or months after exposure. This organism can survive for 3 weeks on hay and 2 weeks on a waterer. Transmission to other cattle can occur via the air or by nose-to-nose contact resulting in acute outbreaks in 2 to 4 weeks after arrival. Contact with contaminated hay, feeders or waters results in slower developing outbreaks occurring later after arrival.

### **Symptoms**

Symptoms of *Mycoplasma* infection can be difficult to recognize early in the disease and hard to differentiate from other causes of pneumonia. Most outbreaks will begin 2 to 6 weeks after arrival and can result in the following symptoms:

Low-grade fever

Calves that will still eat but come to the feed bunk more slowly

Calves that are not as depressed as other calves affected with pneumonia

Rapid breathing and a moist cough

Clear nasal and eye discharge

Swelling along the back

Head tilt, ear droop

Stiffness, lameness especially in higher joints in about 25% of affected calves

Poor response to treatment

Up to 30% death rate with many calves becoming chronic poor doers

## **Treatment**

No antibiotics are approved by the FDA for the treatment of *Mycoplasma* infections. Treatment is often not effective because the organism has no cell wall and laboratory results are not very useful in treatment selection. An aggressive treatment program for Bovine Respiratory Disease should be used to eliminate *M. hemolytica* and *P. multocida* including giving antibiotics early in the course of the disease and over a long period of time. This allows the animal to concentrate on clearing the *Mycoplasma* infection once the other bacterial infections have been eliminated. Treatment success for an animal with pneumonia complicated with *Mycoplasma* can only be judged after 10 days to 2 weeks of therapy and antibiotic therapy is often stopped or changed too soon. Antibiotics most likely to be effective in such an aggressive treatment program for pneumonia complicated with *Mycoplasmosis* include enrofloxacin (Baytril 100®), tulathromycin (Draxxin®), florfenicol (Nuflor®), spectinomycin (Adspec®) and oxytetracycline (various brand names). Often, primary treatment with enrofloxacin, tulathromycin or florfenicol can be followed with long term treatment using feed additive chlorotetracycline or a very long acting tetracycline (Tetradure 300®).

## **Prevention**

Prevention of *Mycoplasma* infections is a difficult. The following have been recommended:

Clean and disinfect feeders and waterers before a new group of calves arrive.

Buy single source calves, which have had appropriate vaccinations before arrival.

Don't allow nose to nose contact between new calves and calves already on the farm

Manage newly arriving calves so that they eat and drink as soon as possible.

Make sure calves are not overcrowded and have adequate feed bunk and waterer space

Vaccinate on arrival using a modified live virus vaccine against IBR, BVD, PI3 and BRSV. Also, use a good vaccine against *M. hemolytica* and *P. multocida*. Booster vaccinations should be given according to label directions regardless of previous vaccinations.

*Mycoplasma* vaccine may be of some help if the strain on the farm is similar to the vaccine strain

Mass treatment of new arrivals using florfenicol, tulathromycin, tilmicosin or long acting tetracycline may be of some help

Chlorotetracycline (Aureomycin®) in the starter ration may be of some benefit.

An effective program of early and aggressive treatment for respiratory disease allows the calf to resist other infections such as Mycoplasmosis

Infected animals should be isolated from other calves and particularly newly arrived calves for up to 6 weeks after treatment

Don't expect success in treating chronically infected calves. They only serve as a source of infection for other calves and should be isolated from new arrivals and other treated calves.

*Mycoplasma* is the most difficult of the causes of pneumonia to identify, treat and prevent. Affected calves may continue to eat and show only a low grade fever. These calves may not be pulled early enough and this allows the infection to become well established before treatment begins. Calves that have not been previously exposed often come in contact with the organism in the lot where they are unloaded or by contact with sick animals. An aggressive vaccination program against other causes of pneumonia when the calves arrive and early and effective treatment of long duration (10 to 14 days) for *M. hemolytica* and *P. multocida* allow the calf to concentrate its body defenses on clearing *Mycoplasma*. Chronically affected animals, such as those with joint and ear infections are unlikely to ever be profitable and serve as a source of infections for newly arrived calves.