

# CALVING EASE

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## **Holes in Biosecurity**

Day in and day out biosecurity has relative low priority among calf raisers. Yes, all of us try to keep the pathogen load low in both our colostrum and milk/milk replacer. This is a "ho, hum" situation. Mortality is low and the calves are healthy.

However, in the past year I have seen many farms faced with highly contagious pathogens. Death rates shot up and nearly all the calves needed some kind of treatment. Which pathogens? Mycoplasma and salmonella are the worst ones.

### **The immunity tipping point**

How do farms move from an occasional sick calf to nearly epidemic conditions? One hypothesis is that a low level of exposure was present nearly all the time. But, due to mismanagement of the colostrum program, a critical mass of immune incompetent calves may be established. Estimates suggest that when the proportion of calves with failure of passive transfer goes over 11 percent that the tipping point has been reached. That is, beyond that proportion, the percentage of clinical ill calves goes up rapidly. Then, because the pathogen exposure goes so high, even immune competent calves cannot fight off infection.

Another hypothesis is that an external source of the pathogen was introduced to the operation. For a heifer grower, this may be calves from a source farm that has a salmonella or mycoplasma outbreak. For dairies, this may be bringing purchased animals onto the farm.

For dairies, it has been suggested that there is a low level of circulating salmonella and mycoplasma present all the time. When an animal is severely immune suppressed (for example, at calving), she may have a clinical infection. She sheds the organism in huge quantities, especially in and near the calving facilities. This situation may expose newborn calves to an infective dose of the pathogen that can overwhelm any level of immunity achieved by colostrum feeding. This exposure may be by (1) animal-to-animal contact, (2) airborne pathogen movement, and (3) pathogens spread by caretakers.

### **Holes in biosecurity**

Once the outbreak is established, however, one important element of control is biosecurity. Other important control elements are (1) pathogen identification, (2) identifying possible treatment protocols, (3) measurement of immune status and improvement if needed and (4) strict environmental sanitation.

Case study reports suggest that caregivers are one of the most important means of transmitting pathogens. Hands, boots, clothing are all implicated. In one case study on salmonella, these pathogens were found on the transport vehicle, housing where the newborn calves came from, gravel walkways between barns, calf barn floors, floors in the room where the milk replacer was mixed, and foot baths. Even a footbath that had just been emptied, rinsed and refilled with a strong disinfectant contained salmonella!

### **Management tips to reduce our role in spreading disease**

- Whenever possible, segregate sick calves. Set up a "sick calf" area away from healthy calves. Of course this reduces the chances of airborne transmission. But, more importantly, it forces caretakers to care for the sick calves separately from healthy ones. Segregation reinforces the idea that special care must be taken when leaving this area not to carry away the contagious pathogens. For example, a separate set of boots could be kept here and/or maybe a separate pair of overalls.
- Carefully scrutinize calfcare routines. When do our hands touch feeding equipment, pens or calves? Each touch is an opportunity for contamination, especially for mycoplasma or salmonella. For example, when feeding with pails we may feed milk and water from the same pail. Someone probably has to dump the water at least twice a day. Does the same hand touch every pail? If sick calves are housed in with healthy ones, does this hand go from healthy calf, sick calf, healthy calf?

Or, when we feed calf starter grain to the youngest calves we often dump the pails from the youngest calves daily in order to keep fresh grain in front of them. Oops! Does the same hand dump all the pails, healthy calf, sick calf, healthy calf?

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