

## Seeking to Prevent Deaths of Feedlot Calves

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### Project Title:

Investigation of Chronic Pneumonia and Polyarthrititis Syndrome (CPPS) in Beef Feedlots

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Chronic pneumonia and polyarthrititis syndrome (CPPS) was first identified in the 1980s. It causes significant economic losses to feedlots – 30 to 50 per cent of feedlot calves that die early in the feeding period have CPPS. This syndrome consists of pneumonia that does not respond to antibiotics and severe lameness as the infection spreads into the animal's tendons and joints. The organism most frequently found in cases of CPPS is *Mycoplasma bovis* (M. Bovis), which is also a cause of mastitis (infection of the mammary glands) in cattle.

The cause of CPPS is not clearly understood. The virus that causes bovine viral diarrhoea (BVD) is frequently found along with M. bovis in calves with CPPS, but it is unclear whether the BVD virus and M. bovis together cause CPPS, or whether calves already suffering from CPPS are simply more susceptible to BVD or vice versa.

This study was undertaken to better understand the relationship between BVD and M. bovis in causing CPPS, to determine whether or not management practices in Ontario feedlots were affecting the prevalence of CPPS, and to find out if increased mortalities from M. bovis in feedlots are the result of the emergence of a more virulent strain of the organism.

The study found that CPPS was the most prevalent cause of mortality in southwest Ontario feedlot calves. Just less than half of the calves that had M. bovis pneumonia also had arthritis. All the calves that had arthritis caused by M. bovis also had pneumonia.

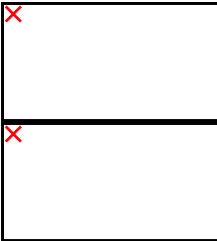
Calves that died more than seven days after the start of treatment with antibiotics were most likely (82 per cent probability) to have had CPPS. The BVD virus was no more common in calves dying from M. bovis pneumonia than in calves dying from another form of pneumonia, M. haemolytica.

It was found that CPPS tends to cluster within pen groups, with other pens remaining unaffected, indicating that it is not likely caused by producer management practices. Interestingly, producers who purchased calves locally tended to have an increased risk of CPPS and producers who kept quality written records had a lower risk of CPPS.

M. bovis was isolated from the lungs of 20 feedlot calves, 10 of which had M. bovis pneumonia and 10 of which had normal lungs or other forms of pneumonia. There were no striking differences between M. bovis pneumonia and non-M. bovis pneumonia isolates, so the question as to whether there might be a more virulent strain of the organism causing pneumonia was not concluded. Rather, it is suggested that changes in management (such as treatment protocols or intensity of monitoring) or perhaps the emergence of co-pathogens are important factors in the emergence of M. bovis pneumonia in feedlot calves.

This study was useful in identifying what may and may not cause CPPS in terms of both microbiology and producer management practices.

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