

# Lactoferrin reduces mortality in pre-weaned calves with diarrhea

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## Introduction

Calf diarrhea is the most common illness in young calves, and nearly 8% die as a result. Alternatives to antimicrobials are frequently used to treat calf diarrhea on organic operations, but there is little data confirming their effectiveness. Additionally, the availability of effective antimicrobial alternatives could help improve antimicrobial stewardship and reduce usage in cases of diarrhea. Lactoferrin and garlic extract have antimicrobial properties and have shown positive impacts on growth in pre-weaned calves. We hypothesized that lactoferrin and garlic extract would decrease mortality, improve weight gain, and decrease disease duration in pre-weaned calves with diarrhea.

## Materials and Methods

In total, 633 calves with diarrhea were enrolled in a blinded, randomized field trial. Calves diagnosed with diarrhea (fecal score >3) were randomized to 3 consecutive days of oral treatments with garlic extract, lactoferrin, or water (control). Calves were clinically evaluated for up to 10 days following enrollment, and body weight was measured at enrollment and 10 days later. Mortality, culling, and farm treatments were recorded.

## Results

Lactoferrin significantly ( $P < 0.05$ ) reduced the risk of death and culling in the pre-weaning period. In total, 7.5% (15/198) of calves in the control group died compared to 3% (8/201) of calves treated with lactoferrin. Lactoferrin was similarly effective in reducing mortality in older calves (11 to 21 days of age) with severe diarrhea (fecal score = 4), without hyperthermia (temperature < 103.0 °F; 39.4 °C), and with absence of depression (depression score = 1) ( $P < 0.05$ ). Neither garlic nor lactoferrin had a significant effect on disease duration or average weight gain during the 10-day period ( $P > 0.1$ ).

## Significance

These results suggest that treatment with lactoferrin is effective as an alternative to antimicrobials to reduce mortality in calves between 11 and 21 days of age with watery diarrhea in the absence of systemic signs of dehydration or depression. If confirmed with additional research, lactoferrin has the potential to reduce antimicrobial use and improve calf health and welfare.

# Mortality risk factors for calves entering a multi-locational veal farm

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## Introduction

Mortality in pre-weaned dairy-breed calves, whether replacement dairy heifers, veal, or dairy beef animals, represents both a welfare issue and a source of economic loss for the industries involved. Previous work describing morbidity and mortality in veal calves reflects a wide range of management practices and requirements throughout the world. In both veal production and dairy heifer rearing, rates of morbidity and mortality can range dramatically, which may in

large part be due to different management strategies. It has been over 2 decades since morbidity and mortality in veal calves in Ontario have been described. The majority of mortality in white veal occurs in the first 3 weeks; farm of origin risk factors account for a portion of this risk. The objective of this retrospective case-control study was to determine if recorded on-arrival information from a large white veal farm could be used as predictors of mortality. If associations between on-arrival data and mortality existed, it was hoped this information could be used to better classify, group, and treat