

Effect of Maternity Pen Management on Morbidity and Mortality in Dairy Heifer Calves from Birth to 90 Days of Life

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Introduction

Risk factors for calf morbidity and mortality have been well characterized. Type of maternity housing and where calves are born have been shown to influence the likelihood of morbidity and mortality suffered by calves during the preweaning period. Proper management and hygiene of maternity pens may help reduce the frequency of early calthood diseases in calves. The objective of this study was to determine whether heifer calves born in individual maternity pens will have a lower risk for experiencing calthood diseases versus heifer calves born in a multiple cow maternity housing area.

Materials and Methods

Four hundred and forty-nine dairy heifer calves were recruited into the study from three Minnesota commercial dairy farms between January 2005 and December 2005. Cows due to calve were systematically allocated to calve in either the individual maternity pen (treatment group) or multiple cow maternity housing area. Fecal material, placental remains and any other conspicuous dirty materials were removed from the individual maternity pens between each calving, and calves were separated from their dams and removed from the maternity area within 2 hours of birth. Hygiene of the multiple cow calving areas was not emphasized. Same volume of colostrum was fed to calves born in either calving location and navels of all calves were disinfected regardless of calving location. Calves were housed in individual hutches for eight weeks and later transferred to group pens of 10 calves each. Standard

disease monitoring and diagnosis protocols were developed for the study. Disease events (enteritis, pneumonia, and navel or joint infection) experienced by calves during the first three months of life, and treatments administered, were recorded by the calf managers. Simple χ^2 -analyses were performed to evaluate the distribution of calthood morbidity and mortality risk between groups. Days at risk for morbidity, enteritis and pneumonia for calves born in either calving location were also compared using product limit estimates of survivor functions.

Results

There were no differences in overall mortality ($P = 0.2$) and morbidity ($P = 0.8$) risks between groups. Similarly the risk for enteritis ($P = 0.6$), pneumonia ($P = 0.6$) and arthritis ($P = 0.3$) were not significantly different between calves born in either calving location. There was no evidence to suggest differences in survival experience between groups for morbidity ($\chi^2 = 0.16$, 1 df, $P = 0.6$, log rank test), diarrhea ($\chi^2 = 0.49$, 1 df, $P = 0.4$, log rank test) and pneumonia ($\chi^2 = 0.16$, 1 df, $P = 0.7$, log rank test).

Significance

Results suggest no difference in the incidence of calf morbidity and mortality between calves born in individual maternity areas when compared with those born in multiple cow maternity environments.