

Public Abstract

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Department:Animal Sciences

Degree:MS

Title:Influence of subclinical hypocalcemia on plasma biochemical parameters, lipid mobilization, liver lipid infiltration, and common postpartum diseases in dairy cows.

This research was conducted to evaluate the relationship between blood calcium on the day the cow gave birth and energy balance, liver fat deposition, disease occurrence, milk production, and fertility in dairy cows. Cows were assigned to one of two groups based on blood calcium on the day of calving (low or normal). Cows were fed a balanced dry cow diet before calving, and a balanced lactating cow diet after calving based upon National Research Council requirements. Blood samples were collected for measuring mobilized body fat, blood calcium, and liver function indicators. Samples of liver were taken to see how much fat was in the liver. Milk samples were collected for measuring milk quality. Milk production and fertility data were obtained from Dairy Herd Improvement Association records. Disease occurrence was determined based on treatment records.

There is an association between blood calcium at calving and energy balance because low cows had higher levels of mobilized body fat, indicating a worse negative energy balance. Additionally, low cows had more fat in the liver. However, there were no differences in liver function between groups.

Normal cows had higher milk protein concentration, however no other parameters for milk production or quality differed between groups. There were no differences between groups for occurrence of postpartum diseases or fertility. This indicates that there is an association between blood calcium at calving and energy balance and liver fat deposition, but not between blood calcium at calving and milk production, disease occurrence, or fertility.