**2012L067D Calf management best practices for optimizing productivity of replacement heifers**

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Background: The rearing of healthy heifer calves is an essential component of the success of all dairy farms yet little work to date has evaluated the success of various practices. Calves are born with virtually no immunity, therefore the transfer of immunoglobulins from high quality colostrum is essential. Poor performance and high morbidity/mortality result in increased production costs and reduce profitability for the producer. Successful transfer of immunity is dependent on proper colostrum and calf management.

Objectives:

1. Determine the range of neo-natal calf management practices that are being used on Alberta dairy farms and subsequently provide producers with guidelines for calf management
2. Estimate the prevalence of FPT in heifer calves in AB
3. Correlate calf management practices with FPT (failure of passive transfer of immunity) and the prevalence of various illness with an emphasis on diarrhea
4. Demonstrate to producers the value of maintaining accurate records and of monitoring colostrum quality or total protein levels in their calves
5. Determine the reliability of STP (serum total protein) concentration as an indicator of FPT

Methods: In the herd level study 85 farms were visited where producers completed a survey on calving management (location of calving, removal of calf, naval dipping, etc.), colostrum storage and feeding method, health measures (disease incidence, mortality rate, etc.), and calf housing and nutrition. Blood samples were also collected during the visit from calves less than 1 wk old for IgG and STP as indicators of passive transfer of immunity. IN the calf level study 14 farms were visited weekly for 8 months and at each visit blood samples of calves less than 1 week were taken, colostrum quality was measured, calf health and growth were measured. A questionnaire was completed on management of each calf after birth and management practices were correlated with growth rate of calves to determine which practices promote rapid calf growth.

Outcome: In the herd level study blood samples were obtained from 151 calves and based on IgG 27 % of calves had FPT, and based on STP 29% of calves had FPT. In the calf level study 14 % of colostrum samples were below 50 mg/mL IgG (the minimum value for good quality) measured by the colostrometer and 29% of samples were below 50 mg/mL IgG when measured by Brix refractometer. According to STP, 44 % of calves had FPT. Variables that were significantly associated with FPT were method of feeding from 6-12 hours life, type of colostrum from 0-6 and 6-12 hours life, weight of colostral IgG consumed, if fresh or frozen colostrum was fed in first 12 hours life, type of milk fed after colostrum, and id medications were given in the first days of life. Variables that were associated with calf health were serum IgG, BW in week 1, method of feeding from 0 – 6 hours life, if the calving pen was cleaned prior to birth, volume/type/IgG concentration of colostrum, and if milk fed after colostrum was pasteurized.

Recommendation: it is essential to ensure that calves are receiving high quality colostrum for the successful transfer of passive immunity.

Benefits to Industry: This project identified calf and colostrum management practices that contribute to FPT and thus calf morbidity/mortality. We anticipate that recognition by producers of practices that increase susceptibility of calves to illness will encourage them to implement good management practices, decrease the incidence of calf-hood diseases and the spread of infection within the farm.

KTT:

* 4 industry presentations