

Bovine leukemia virus proviral load as a measure for selective removal of cattle for bovine leukosis control

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Bovine leukosis, which is caused by the bovine leukemia virus (BLV), is associated with low milk production, longevity, and immunity. However, controlling this disease is a challenge because of the high within-herd prevalence in Canadian dairy herds. Recent studies have indicated the role of BLV proviral load in BLV transmission and control, whereby removing high proviral load (HPL) animals helped in the reduction of BLV prevalence. The objective of this study was to assess the impact of selectively removing the HPL cows from the herd on the herd-level BLV prevalence. Also, the association of BLV proviral load on the milk production of cows was evaluated. Ten free-stall dairy herds across Alberta with an adult herd size ranging from 81 to 402 cows were enrolled in a three-year study. BLV status of each cow was annually assessed in milk or blood sample using an antibody detection ELISA and the proviral load with the BLV SS1 qPCR assay (CentralStar Cooperative Inc.). It was recommended to remove the HPL cows from the herd after each test. For the milk production association analysis, 305-day milk production records were obtained from Lactanet Canada to conduct a cross-sectional study. At the end of this study, the overall median herd-level BLV prevalence decreased from 29% in the first year to 23% in the third year. The results from the cross-sectional study demonstrated that HPL cows produce less milk than BLV-negative cows, however, this was not statistically significant. Our results indicate that information on BLV proviral load could be useful for BLV control and assessing the impact of BLV in the milk production of dairy cows.

Take home message: In situations of high within-herd prevalence, the removal of HPL animals could be a practical and economical strategy for BLV control.

Understanding the effects of different types of outdoor access on dairy cow health

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In 2021, <30% of Canadian dairy farms provide lactating cows outdoor access; <55% provide dry cows outdoor access. Given that Canadians view outdoor access as important for dairy cattle, it is crucial that the Canadian dairy industry effectively addresses this public concern, while fitting within the constraints of modern Canadian dairy farms. In a study to understand Western Canadian dairy farmers' perspectives on outdoor access for dairy cows, many farmer participants expressed concerns about the effects of outdoor access during the dry period on the incidence of transition diseases. Others had questions around the effects of outdoor access on mastitis incidence and hoof health. Indeed, research on transition diseases in dairy cattle have mainly focused on dairy cows kept indoors; research on transition diseases in dairy cows kept in outdoor systems is lacking. Therefore, we aim to understand the effects of different types of outdoor access (i.e., pasture and alternative outdoor areas) for lactating cows, dry cows, and pregnant heifers on the incidence of transition diseases and clinical mastitis, and hoof health. A total 35 herds with pasture access, 35 with alternative types of outdoor access and 35 without any form of outdoor access are recruited and followed for 1 year. Management of the participating farms is documented using surveys and by visual observations of the indoor and outdoor environments, before, during and after the outdoor seasons. All disease incidences are recorded by producers and their hoof trimmers; producers also collect a milk sample of each clinical mastitis case. By comparing health outcomes of farms with and without pasture or alternative types of outdoor access and within farms over time, we will investigate how various outdoor environments influence dairy cow health.

Take home messages: Better understanding the effects of different types of outdoor access on cow health will provide knowledge to help farmers make an informed decision around (implementing) outdoor access practices on their farm.