

Utilization of Intravaginal Probiotics to Lower the Incidence of Uterine Infections in Dairy Cows in Dairy Farms in Alberta

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Uterine infections affect almost half of dairy cows because of the compromised immunity in postpartum dairy cows. After calving pathogenic bacteria are present in uterine microbiota in almost 60% of dairy cows. In this study, a cocktail of lactic acid bacteria (LAB), isolated and prepared at University of Alberta, will be infused intravaginally to lower the incidence of uterine infections and consequently improve the reproductive performance of dairy cows. Six hundred dairy cows (450 Holstein and 150 Jersey cows) will be divided into 3 experimental groups as follows: 1) four doses of 2 mL of carrier solution (saline solution); 2) four doses (sterile skim milk); and 3) four doses of LAB (10^8 - 10^9 cfu/dose). The infusions will be divided on weeks -3 and -2 prior to the expected date of calving and at week +3 and +4 after calving. Blood, milk, and vaginal mucus samples will be collected on weeks -3, +1, and +4 weeks related to calving date. Evaluation of the involution of the uterus will be conducted by rectal palpation and ultrasonography. Vaginal mucus will be evaluated using a metricheck tool to monitor the occurrence of metritis. Milk yield for the first 50 DIM, reproductive performance, and health records will be collected for each cow. Blood and vaginal mucus samples will be analysed for immunology indicators.

Implications: Around 45% of dairy cows are affected by metritis and 15% of the total cows are culled because of reproductive issues totaling more than \$100 million every year in Canada. A product able to prevent uterine infections might improve cows health, productivity, and profitability of Canadian dairy industry.