Mycobacterium avium subsp. *paratuberculosis* shedding and seropositivity in young stock on MAP-infected Alberta dairy farms

A. Caroline Pereira [1], Karin Orsel[1], Jeroen De Buck[1], , Larissa Martins [1], Marit M. Biesheuvel [1], Herman W. Barkema[1]
[1]Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary. Email: anacaroline.pereira@ucalgary.ca

Johne's disease (JD), caused by *Mycobacterium avium* subsp. *paratuberculosis* (MAP), poses significant challenges to livestock industries, impacting economic stability, animal welfare, and potential human health. Control and eradication programs aim to mitigate these issues by reducing MAP prevalence. However, the prolonged prepatent period of JD, coupled with the limited sensitivity of diagnostic tests, complicates early detection and effective control. The primary objective of the study was to ascertain the age at which calves initiate shedding MAP in field conditions. Through repeated sampling over a 14-month period on eight Alberta dairy farms, the study aimed to provide insights into the onset of MAP testing in young stock (<12 months). Both serum ELISA and fecal qPCR (ISMAP02 gene) were employed as diagnostic tools. Results revealed that 12% of the sampled young stock tested positive for MAP by qPCR, while 4% showed positive ELISA results. Notably, ELISA-positive cases did not correlate with fecal qPCR positivity. Among the herds studied, those with higher within-herd MAP prevalence exhibited more positive qPCR results in young stock. Positive ELISA findings in animals at such a young age raised questions about maternal antibodies, with some calves testing positive despite having negative dams. The study also identified a herd where 24% of qPCR-positive young stock were offspring of positive dams. The shedding of MAP in young stock was observed as early as 4 months with qPCR, indicating the importance of early identification for timely removal and reduced transmission risk. Overall, the findings contribute valuable insights to enhance JD control and eradication strategies, emphasizing the significance of targeted sampling in young stock.
Take home message: The early identification of positive young stock is crucial to early removal and reduction of transmission. Additionally, targeted sampling in young stock is important to bolster the efficacy of JD control and eradication strategies, and disease management.

Effects of *Saccharomyces cerevisiae var. boulardii* CNCM I-1079 probiotic supplementation during the late dry and early postpartum periods on feed intake and production responses of dairy cows

A. Pineda[1], S. Jantzi[1], K. Dekraker[1], S. Cartwright[1], M. Boerefyn[1], C. Villot[2], and M. A. Steele[1]
[1] University of Guelph; [2] Lallemand, SAS, France. Email: apinedab@uoguelph.ca

The study aimed to assess the effects of *Saccharomyces cerevisiae var. boulardii* CNCM I-1079 supplementation (SCB; 1.0×10^{10} cfu/d) from d −28 to 70 relatives to calving on dairy cow feed intake and production responses. Eighty-three multiparous (n = 52; MP) and primiparous (n = 31; PP) Holstein cows were blocked by previous 305-d milk yield, parity, body condition score (BCS), and body weight (BW), and randomly assigned to either prepartum and postpartum control (CON; n = 43) or SCB (n = 40) dietary treatments. The BCS and BW prepartum were measured weekly. Individual dry matter intake (DMI), milk yield, and postpartum BW were recorded daily. Milk samples were collected weekly and analyzed for fat, protein, lactose, urea N, and somatic cell count. Pre- and postpartum DMI and milk yield were similar among dietary treatments. However, 3.5% fat-corrected milk (FCM) was greater in SCB than CON cows (43.3 *vs.* 40.7 kg/d; $P = 0.05$) and in MP than PP cows (49.3 *vs.* 34.6 kg/d; $P < 0.01$). Milk fat content was greater in SCB than CON (4.44 *vs.* 4.24%; $P = 0.05$) and in MP than PP cows (4.39 *vs.* 4.29%; $P < 0.01$). Similarly, milk fat yield was greater in SCB than CON (1.65 *vs.* 1.53 kg/d; $P = 0.05$) and in MP than PP cows (1.90 *vs.* 1.29 kg/d; $P < 0.01$). Content and yield of milk protein and lactose were similar among dietary treatments. The MP cows had greater yields of milk protein (1.35 *vs.* 0.98 kg/d; $P < 0.01$) and lactose (2.01 *vs.* 1.45 kg/d; $P < 0.01$) than PP. Prepartum BCS was greater in CON than SCB cows (3.40 *vs.* 3.33; $P = 0.01$), but no difference was observed postpartum. Prepartum BW was similar among dietary treatments but greater in CON than SCB cows postpartum (673 *vs.* 653 kg; $P = 0.05$). In summary, supplementation of SCB during the dry period and early lactation in dairy cows increased FCM and milk fat content and yield and did not impact DMI.
Take home message: Supplementation of the live yeast *Saccharomyces cerevisiae var. boulardii* CNCM I-1079 during the late dry period and early postpartum period improved production responses in dairy cows.