Calf shedding of MAP on two farms with high and low environmental exposure

Rebecca Mans Mitchell, Robert H Whitlock, Julie M Smith, Michael Wood, Nicole S Gollnick, Ynte H Schukken

College of Veterinary Medicine, Cornell University, USA; New Bolton Center, University of Pennsylvania, USA; University of Vermont, USA; Vermont Agency of Agriculture, Food and Markets, USA; Clinic for Ruminants, University of Munich, Germany

Two cohorts of calves were followed for 11 months by monthly fecal culture on two northeastern USA dairy farms with known MAP prevalence. Index calves were selected from dams classified as moderate or high shedders based on fecal culture. The remainder of the cohort was selected to be most likely to be raised in the same environment as the index animal.

On both farms, fecal samples were collected monthly and stored until completion of the study. Samples were batch processed to decrease variability between timepoints. Samples were evaluated at New Bolton Center by Tetracore’s Vet-Alert™ real-time PCR and fecal culture of those samples with positive PCRs.

On farm A, no positive samples from animals were identified including the index animal. On farm B, 4 animals in the cohort had positive (Ct ≤ 42) or suspicious (Ct > 42) PCRs (a total of 7 potential positive samples were identified out of 146). The index animal was negative for all cultures.

Calves in farm B were housed in the same barns as the milking herd for 6 months before transitioning to heifer barns. Environmental samples were gathered from within calf pens and the contiguous milking herd pens to evaluate the likelihood of post-birth exposure. Environmental samples were positive by RT-PCR at 8 of 11 sampling timepoints, and for 4 of the 6 timepoints in which calves were housed exclusively with other calves.

Although this analysis did not reveal positive cultures from the index animal, on farm B there were multiple potentially positive calves in the cohort, one of which cultured positive 3 times in the course of 4 months. While we cannot illustrate calf-to-calf transmission, we do see culture positive young animals, even when housed in an environment which should not involve substantial exposure from adult animals.