Passive MAP fecal shedding in dairy cattle


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BACKGROUND
Detectable MAP in fecal samples has been the long acknowledged Gold standard diagnostic test for Johne’s disease in most species. With the recognition of MAP supershedder cows excreting up to 50 billion MAP organisms per day, some culture positive fecal samples have been attributed to ingestion of small amounts of feces from supershedders resulting in passive shedding.

OBJECTIVE
To estimate the frequency of passive MAP shedding in dairy cattle.

MATERIALS AND METHODS
Semi-annual whole herd fecal cultures were done in three dairy herds with more than 560 adult cows for four years. Passive shedders were defined as cows with low to moderate numbers of MAP on the surface of HEY culture tubes with at least two subsequent negative fecal cultures, ELISA negative or no MAP in tissues at slaughter. Fecal and tissue samples (ileum, IC valve, and 2 ileo-cecal Iln) from selected cows followed to slaughter were cultured to determine the extent of MAP infection in the tissues in passive shedders compared to active shedders.

RESULTS
Data collected over four years (4,155 fecal samples) in three dairy herds found 35 (30%) of all positive fecal cultures (117 samples) as passive shedders. The extent of passive shedding was proportional to the presence of herd mates as MAP supershedders. Low shedders had orders of magnitude less MAP/gm of tissue compared to active shedders.

CONCLUSIONS
Based on these herd investigations, passive shedding occurs frequently in low to moderate MAP infected herds. Positive fecal cultures should not be considered as the Gold Standard test to determine infection in cattle. On occasion, more than 60% of positive fecal cultures in a whole herd test may be due to passive shedding attributable to a MAP supershedder in the herd.