

Perceptions of Beef Cow-Calf Producers and Veterinarians on Losses Associated with Johne's Disease

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Introduction

Johne's disease (JD) caused by infection with *Mycobacterium avium* subspecies *paratuberculosis* (MAP) is a chronic diarrheal disease that reduces production efficiency at the animal and herd levels. Due to the chronic nature of the disease, the losses at the individual animal level are not readily apparent, but they are often substantial at the herd level over the long term. In the absence of actual estimates of JD associated losses, understanding perceived losses would be useful to plan economically efficient control programs. This study was conducted to describe and compare the perceived economic losses associated with JD among cow-calf producers and veterinarians in the US.

Materials and Methods

Cross sectional mailed questionnaire surveys of beef producers who had risk assessments and herd management plans for JD were administered through Designated Johne's Coordinators in nine states. Member veterinarians subscribing to AABP-L were invited to complete a web-based survey. A total of 131 responses from producers and 45 responses from veterinarians were received and analyzed. Summary statistics were generated and comparisons between groups were performed using parametric and non-parametric methods.

Results

A total of 70% of producers and 70% of veterinarians indicated that there is higher veterinary expense for MAP infected animals. Producers reported an average of \$28 (95% CI: 18.12 to 37.43) higher veterinary expense per MAP infected animal in the herd. Additional veterinary expenses in MAP infected cows were not different between seedstock producers and non-seedstock producers (\$32.08 vs \$24.07; $P=0.57$) or producers with and without commercial cow-calf operations (\$29.83 vs \$23.12; $P=0.65$). Veterinarians reported an average of \$62 (95% CI: 20.74 to 103.25) higher veterinary expense per infected cow per year. Difference in additional veterinary expense per MAP infected cow per year was not significant ($P=0.39$)

when compared between veterinarians with and without seedstock producers in their practice (\$47.50 vs \$15.50). Except for the genetic loss, and additional veterinary expense associated with MAP infection, veterinarians are more likely to agree that there are losses due to the major economic metrics associated with MAP infection than are producers. Chi square comparisons of perceptions of veterinarians vs producers indicated that veterinarians are more likely to perceive higher pre-weaning mortality ($P=0.013$) and higher risk of mastitis ($P=0.019$). Similarly, compared to veterinarians, producers are more likely to perceive loss of genetic potential when cows infected with MAP are culled ($P=0.004$). Seedstock producers were more likely to perceive genetic loss due to culling of MAP infected animal relative to non-seedstock producers ($P=0.006$). Veterinarians did not perceive genetic loss due to culling, which was significantly different from seedstock producers ($P=0.0002$), but not significantly different from non-seedstock producers ($P=0.13$).

Significance

This study examined some of the major losses due to JD as perceived by beef cattle producers and veterinarians. Veterinarians perceived higher losses in most of the metrics evaluated in this study. Producers, and especially seedstock producers, perceived that genetic loss was important when infected cows are culled. Although the perception of higher veterinary expense in MAP infected cows was similar between veterinarians and producers, veterinarians estimated average higher dollar value. Producers often rely upon their veterinarians' views about the costs of a disease and associated testing and control programs or interventions as well as the justification for the control programs. The differences in perception identified in this study help identify information gaps and disparities among producers and veterinarians. Therefore, these results identify educational opportunities that must be addressed to motivate producers to participate in control programs. Future research quantifying actual economic losses will validate perceived losses and serve as educational material to fill gaps in knowledge and understanding of the economic consequences of JD in beef cattle herds.