Changes in Management Practices and Herd-level Prevalence of *Mycobacterium avium* subspecies *paratuberculosis* (MAP) Infection on US Dairy Operations

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Introduction

A voluntary control program for Johne's disease has been in place in the US since 2002. Although participation in the program by producers has been lower than expected, veterinarians and producers have gained access to information and new testing methods to address the disease. Previous National Animal Health Monitoring System dairy studies were compared to the most recent study conducted in 2007, and results indicate that since 1996, producers are much more familiar with Johne's disease and have implemented control measures to reduce the prevalence of disease. However, the herd-level prevalence on dairy operations in the US is much higher than previously reported.

Materials and Methods

The National Animal Health Monitoring System (NAHMS) surveyed dairy operations in 1991, 1996, 2002 and 2007. NAHMS Dairy 2007 studied 2,194 dairy operations in 17 dairy states representing 79.5% of US dairy operations and 82.5% of US dairy cows. In addition to administering questionnaires to elicit management practices and information regarding cow health, a subset of operations submitted six composite environmental fecal samples per operation for MAP culture. Samples from 524 operations were sent to the National Veterinary Services Laboratories and cultured using Herrold's egg yolk agar. Colony growth was confirmed as MAP using PCR. Statistical software which accounted for the complex study design was used to evaluate associations between management practices and the infection status of the operation.

Results

More than 94% of producers were fairly knowledgeable or knew basics about Johne's disease in 2007 compared to 54.8% in 1996. The percentage of operations participating in any type of control program increased from 0.9% in 1996 to 31.7% in 2007. Additionally, a lower percent of operations brought cattle onto the operation in 2007 (38.9%) compared to 1991 (53.3%). Testing for MAP infection has increased since 1996 where only 13.1 percent of operations tested compared to 35.3% in 2007. Culture results of environmental samples revealed that more than two-thirds (68.1%) of operations were infected with MAP with 95.0% of large operations being infected. All six environmental samples were culture-positive on 23.8% of operations. Operations that brought cattle onto the operation during 2006 were more likely to be infected with MAP. There was no association between milk production and infection status.

Significance

Producers' greater familiarity with Johne's disease and their increase in implementation of control measures suggest that producers have benefited from educational efforts of the voluntary control program. Veterinarians can continue to educate producers and assist them in designing on farm control programs. Results of this study suggest that most dairy operations in the US are infected with MAP.