Risk of *Mycobacterium paratuberculosis* transmission on U.S. dairy operations

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A total of 70 dairy operations are currently enrolled in the National Johne's Disease Demonstration Herd Project (NJDDHP) in the United States. Data being collected include herd-level risk assessment and management plans with additional animal-level data. A subset of dairy cattle on operations participating in the NJDDHP were selected for inclusion in this study based on the availability of accurate dam-daughter identification and fecal culture and serum ELISA test results for *Mycobacterium paratuberculosis* (*M. paratb*) infection, as well as herd-level risk assessment information. The relationships between test results for dams and daughters were evaluated in SAS based on their most recent fecal-culture and serum ELISA test results.

Seventy dairy operations from 16 States reported test results from 3,594 dam-daughter pairs and were included in the fecal-culture analysis. Serum ELISA results were available for 50 dairy operations from 13 States, and included 5,271 dam-daughter pairs. Preliminary analysis via logistic regression revealed that daughters born to fecal-culture-positive dams were at 1.8 times the odds of being fecal-culture positive as those daughters born to fecal-culture-negative dams. Similarly, ELISA result analysis demonstrated that daughters from serologically positive dams were at 1.5 times the odds of testing positive compared to daughters of test-negative dams. These odds were calculated while simultaneously adjusting for risks in the six management areas addressed in the risk assessment. These results suggest that dairy producers should consider removing the last calf born to a test-positive dam, in addition to improving management of areas to which calves are commonly exposed.

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