

**Scenario analysis of changes in consumption of dairy products due to a hypothetical causal link between *Mycobacterium avium* subspecies *paratuberculosis* and Crohn's disease**

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Johne's disease (JD) is an infectious disease of cattle caused by *Mycobacterium avium* subspecies *paratuberculosis* (**MAP**). Crohn's disease (CD) is a human disease of unknown etiology that is characterized by chronic bowel inflammation. No causal link has been scientifically established between MAP and CD, but it is important to understand possible impacts on society, should such a causal link be established. The goal of this paper is to analyze the implications and the possible economic impacts that finding such link would have on milk demand in the dairy industry, and to provide a framework for further discussion among stakeholders.

Three scenarios were developed based on the effectiveness of possible risk mitigation strategies. In the first scenario, it was assumed that an effective strategy exists; therefore a negligible demand decrease in consumption of dairy products was expected. In the second scenario, it was assumed that new risk mitigation would need to be implemented to minimize the health hazard for humans. In this case, a small milk demand decrease was expected, but larger demand decreases were also possible. The third scenario assumed that no fully effective risk mitigation was available and this resulted in a considerable demand decrease and a potential reduction in milk supply as a result of regulatory measures.

A milk demand reduction of 1% or 5% resulted in a reduction in consumer surplus of \$600 million and \$2.9 billion, and a reduction in dairy farm income of \$270 million and \$1.3 billion, respectively. A decrease in milk supply would cause a slight increase in total losses, but would cause greatest losses to test-positive dairy farms.

Given the current scientific knowledge about MAP and CD, we conclude that if a link were established, it is most likely that the first or second scenario would occur. Thus, consumer response and economic consequences to the discovery of such a link are expected to be limited, but could be large if the consumer's perception of risk is large or if risk-mitigation strategies were ineffective.