

National Johne's Disease Demonstration Herd Project
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Johne's disease, or more correctly MAP infection, is a chronic disease with clinical signs of disease usually not apparent until years after initial infection. This lag time between infection and clinical disease and the fact that clinical disease is not always observed in infected (test positive) animals makes JD a difficult problem for dairy producers and scientific investigators. Producers may not realize that they have JD in their herd or appreciate the impact the disease has on productivity. Scientific projects designed to answer the practical questions concerning JD must be conducted over several years, are expensive, and do not always offer concrete conclusions. Recently, the National Johne's Working Group which is comprised of veterinarians, researchers and industry representatives convened a committee to define specific goals to guide the direction of the Control Program and also define necessary research topics.

Congress allocated approximately \$18 million to support Johne's disease activities in 2003. A portion of these funds was then used to start the demonstration herd project. Some states, such as Minnesota and Wisconsin have had demonstration herds for the past few years where they have been monitoring herds for changes in disease prevalence and management practices. Although many management practices, such as not feeding pooled colostrum, have been advocated to reduce the prevalence of infection, there have been no published studies that have evaluated which practices are most critical in preventing infection.

There are currently 18 states, including Colorado participating in the demonstration herd project nationwide. States chosen to participate in the project represent the major dairy states in the US. There are approximately 60 dairy and 15 beef operations enrolled, with the potential of adding 30-40 more dairy herds in 2005. Although this doesn't sound like many operations, the amount of personnel, laboratory and monetary resources required is substantial and the current budget is approximately \$1.5 million.

The demonstration herd project is a 5-7 year project where farms are monitored over this period for changes in management practices and prevalence of MAP infection. One huge obstacle to overcome in researching this infection is the long time between exposure and subsequent clinical disease. This is the reason for monitoring farms over multiple years. The bottom line is that prevalence of infection in the herd today is a result of management practices in place over the last 3-5 years.

There are three main goals of the demonstration herd project. The first goal is to measure the incidence of clinical disease within a herd. Previous studies suggest that as infection rate in a herd decreases, the number of clinical cases observed will also decrease. Incidence of clinical disease along with whole herd or partial herd testing allows a good estimate of herd prevalence of infection. This is a critical parameter to measure since the overall goal of the demonstration herds is to show that proper management practices will

decrease the prevalence of disease over time.

The second goal is to determine the percentage of animals that are removed from a herd based on test results without any evidence of clinical disease. This measure allows us to evaluate how producers manage using test results and also can be used, along with incidence of clinical disease, to determine if infected animals are more likely to be removed from the herd compared to test negative cattle. Some research has shown that test positive cattle are more likely to be removed, but it is unclear whether this is based on test status, or progression of the clinical disease and subsequent removal.

The last goal, which may be the most difficult to reach, is to measure the risk of spreading the infection to other animals in the herd. Presently, this requires a risk assessment which is based on basic research information but not been confirmed by field based studies. A potential outcome from the demonstration herd project is to determine the most critical management practices associated with decreased prevalence of infection. Ultimately, veterinarians may be able to prioritize management practices based on current herd practices and those that have been proven to decrease prevalence in other operations. Hopefully, with increased producer participation in the voluntary control program and using the data generated from the demonstration herd project, we can work together to stop this epidemic.