

# Johne's Disease: Seroprevalence of *Mycobacterium avium* subsp. *paratuberculosis* in Florida Beef and Dairy Cattle

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## Introduction

*Mycobacterium avium* subspecies *paratuberculosis* (MAP) is an acid fast intracellular bacillus that infects ruminants worldwide. The disease is characterized by chronic diarrhea and weight loss, despite a good appetite, even on a high plane of nutrition. The disease has a significant economic impact on both the dairy and beef cattle industry in the USA. Control of the disease is difficult due to fecal shedding of the sub-clinical animal and much effort has been put into identifying the disease in the early stages. Currently there are no reliable tests for detecting early infection. The ELISA test has been used in many seroprevalence studies. This method offers the advantage of availability of results in a short period of time and comparable sensitivity to the fecal culture. Sensitivity of the test is approximately 40-50%, but may vary from 15-87% depending on the animal's stage of the infection. Higher sensitivities are obtained from heavy shedders of the bacteria. The specificity of the current ELISA test is 99%. In 1990 Braun *et al* reported ELISA results of a 1986-1987 survey of Florida cattle indicating a prevalence of 8.6% in beef cattle and 17.1% in dairy cattle. The high prevalence in that study warranted the re-evaluation of the prevalence of Johne's disease in the state. The objective of this study was to estimate the apparent prevalence of MAP antibodies in Florida cattle from samples submitted to the Florida State Veterinary Diagnostic Laboratory.

## Materials and Methods

**Sample Population**-Serum samples from 32,011 cattle from 75 herds were included in the study. Selec-

tion was limited to whole herds being tested for diagnostic purposes by owners considering participation in the voluntary Johne's Control program or the voluntary Florida Johne's Disease Herd Status Program.

**Procedure**-Data were obtained from the Florida State Veterinary Diagnostic Laboratory and USDA APHIS statewide submission of specimens for Johne's testing from 1999 to 2001. Specimens were evaluated using a commercial IDEXX ELISA kit with a published sensitivity of 50% and specificity of 99%.

## Results

Overall prevalence in the sample population of Florida cattle was 6.5%. Prevalence in beef and dairy cattle was found to be 7.4 and 6.3%, respectively. Eighty-three percent of herds included in the study had one or more positive cows in the herd. Larger herds (>100 head) had a statistically significant higher herd prevalence than herds with less than 100 head of cattle. The true prevalence estimate was calculated to be 11.2%

## Significance

Although within herd prevalence was lower than previously reported in Florida, seroprevalence appears to be widely distributed and pervasive among Florida cattle. As many as 168,000 cattle in the state of Florida could be infected. There is a need for increased awareness of the disease and implementation of control methods appropriate for each individual herd.