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Preliminary data to Suggest the use of Colostrum and/or Milk Samples as Test Media for Johne's Disease in Sheep and Goats

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Objectives: To investigate which test(s) and which sample(s) would provide the most accurate, convenient, and economical means of finding positive individuals in sheep flocks and goat herds that have had Johne's disease, caused by *Mycobacterium avium* subsp *paratuberculosis* (MAP), diagnosed in the flock or herd.

Materials and Methods: Twenty-nine paired sera, milk, and fecal samples were collected from ewes and does of known Johne's positive flocks/herds. Milk samples were centrifuged with the skim used for antibody testing and the pellet for culture. Sera and skim milk were split for antibody testing using two serological ELISA tests (IDEXX Herdchek™ and Biocor Parachek™). Our lab ran the milk undiluted and at 1:2 dilution and the sera per kit instructions using IDEXX Herdchek™. A second lab ran the split samples using kit instructions for both the IDEXX and Biocor tests. Milk pellets and feces were cultured using an increased inoculum in two culture media: BACTECTM MGIT™ (BD Diagnostics) para TB liquid medium with the fluorometric manual read method; and Herrold's egg yolk agar (HEYA) with and without mycobactin J. Cultures were incubated at 35 C for up to 12 months.

Results: Twelve of 29 sera were positive with IDEXX Herdchek™ and 4 of 29 positive with Biocor Parachek™. Eleven of 29 milk samples were positive undiluted and/or at 1:2 dilution with IDEXX Herdchek™, 2 of 29 positive with Biocor Parachek™, and 0 of 29 positive with IDEXX Herdchek™ at the standard sera dilution of 1:20. So far 6 of the 12 serology and/or milk positive animals have been fecal culture positive. An additional animal was milk pellet positive, fecal acid fast bacilli (AFB) positive, and tissue AFB positive on histopathology. Making 7 of 12 serology and/or 11 milk positive animals confirmed as MAP culture positive.

Conclusion: Milk samples tested undiluted and/or at 1:2 dilution using IDEXX Herdchek™ were similar to sera using the same test. Colostrum may prove to be superior to milk due to concentration of maternal antibodies. This is an appealing sample as most ewes and does are handled at or near parturition and samples could be collected by the owner. Colostrum may result in increased pellet culture positives in a decreased culture time due to increased numbers of macrophages present. A larger project to begin late January 2008 involving 400 to 500 ewes is planned to test these hypotheses.

Key words: Johne's, MAP, sheep, goats, milk