

Factors Affecting Tritrichomonas Foetus Culture and PCR Test Performance

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Trichomoniasis is a costly venereal disease of cattle and the target of many state import regulations. Current methods for the detection of the protozoan organism *Tritrichomonas foetus* may be ineffective in preventing the introduction of infected bulls into non-infected herds. The objective of these studies was to evaluate factors affecting *T. foetus* diagnostic test performance. For the first study, 600 pouches of selective enrichment media (InPouch TF®) were inoculated with bacteria from the prepuce of four healthy bulls and 30 *T. foetus* were randomly inoculated into 300 pouches by random assignment. Pouches were randomly assigned to 20C pre-incubation treatments of 0, 2 and 4 days. After holding, samples were incubated 37C 5 days. Cultures were examined microscopically (100x) on days 1, 3, and 5. One *T. foetus* inoculated sample was culture positive. PCR testing was more sensitive than culture, with sensitivity and specificity decreasing with increased holding times.

For the second study, 40 pouches were randomly assigned to 4 levels of *T. foetus* inoculation (67, 670, 6,700, or 67,000 organisms/pouch) and 2 levels of bacteria (inoculated or not with preputial bacteria passaged twice in selective enrichment media). Pouches were incubated at 37C and examined microscopically (100x) daily for 7 days. Sensitivity was affected by the presence of bacteria ($p < 0.0001$). All pouches inoculated with bacteria were culture negative; however, *T. foetus* was detected at least once from all pouches without bacteria. For pouches without bacteria, sensitivity increased daily (OR= 4.5, $p = 0.02$), but did not differ by reader ($p = 0.39$). In the third study, 4 10-fold dilutions of *T. foetus* were incubated 37C for 7 days. The lower inoculums peaked in concentration later. The results of this study indicate that both bacterial contamination of sample and day of testing may adversely affect test sensitivity. PCR may have advantages over culture when bacterial contamination exists.