

# Side of chute does not affect the sensitivity of *Tritrichomonas foetus* sample collection in bulls when using dominant hand for collection

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## Introduction

*Tritrichomonas foetus*, a sexually transmitted disease in cattle, continues to plague the cattle industry despite years of control programs. One reason for this continued prevalence throughout the U.S. and the world is that accurate diagnosis is complicated in the fact that retrieval of organisms for diagnosis and subsequent testing may be compromised by multiple factors including, but not limited to, how samples are collected.

A commonly used sampling technique for diagnosing *T. foetus* in bulls is scraping of the preputial and penile mucosa with either an artificial insemination pipette or specially designed *T. foetus* testing device such as the Pizzle Stick Trich Testing Device (Lane Manufacturing Denver, CO). Parker et al. noted that right-hand dominant practitioners were more commonly successful in retrieving *T. foetus* in known positive bulls when collecting from the right side of the bull compared to the left; however, the opposite was not investigated for left-hand dominant practitioners and only cultures were used to declare whether a sample was positive or not. The objective of this study was to determine if using current RT-qPCR testing if there is a difference in rate of positive tests pending side of chute and use of dominant hand for testing.

## Materials and methods

Eleven sexually mature bulls previously diagnosed as naturally infected with *T. foetus* as determined by a preputial smegma sample submitted for qPCR were purchased. Bulls ranged in age from 2-7 years old and were of both English and Continental breeding. All bulls were reconfirmed positive for *T. foetus* by qPCR upon arrival at the teaching facility. They were housed in a paddock and fed a balanced ration. The project was approved by IACUC 2022-1177.

The project was designed as 2-factor cross-over design. A right-hand dominant veterinarian and left-hand dominant veterinarian experienced in the collection of preputial sampling for the purpose of testing for *T. foetus* collected all samples with the Pizzle Stick testing device with a 20 ml syringe attached. The sampling device was held in their dominant hand regardless of

the side of the chute the sample was collected from. The first bull into the chute was randomly assigned to either the right-handed or left-handed veterinarian based on a flip of a coin. A second random assignment regarding initial side of collection was made with either the left or right side of the chute being chosen, and all successive bulls were collected by alternating veterinarians and alternating starting side. All preputial scrapings were collected and submitted for RT-qPCR testing. Once the testing device was introduced into the prepuce, negative pressure was applied to the syringe and 10 scraping motions were applied. Samples were placed in phosphate buffered saline for transportation to the laboratory. Bulls were sampled from the left then the right side at each time point. Each side was treated as a single sample. Bulls were sampled again 7 days following the first with the alternate veterinarian and the alternate side being sampled first for a total of 8 weeks.

## Results

Results were analyzed with Prism - GraphPad (GraphPad Software Boston, MA). Utilizing a two-way ANOVA, we found no significant difference in chance of acquiring a positive sample per bull ( $P = 0.8708$ ) regardless of whether the sample was taken from the right or left side of the chute and regardless of dominant hand. Similarly, we found no significant difference of acquiring a positive sample across the eight-week study ( $P = 0.0962$ ) also regardless of chute side or dominant hand.

## Significance

Using current RT-qPCR methods, the authors found no difference in chances of acquiring a positive sample per bull or across weeks regardless of chute side or dominance. The authors will note that from an ergonomic standpoint using the dominant hand on both sides of the chute did require some adjustment of the body and it may be more comfortable to use the non-dominant hand on one side or the other depending on handedness.

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