

# Comparison of an alternative diagnostic sampling technique for *Tritrichomonas foetus* in cattle

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## Introduction

Bovine trichomoniasis is emerging as a major concern in the beef industry. Standard breeding soundness exams may not include evaluation for venereal diseases. Recent advancements in PCR diagnostics have increased the ability to detect the disease in asymptomatic bulls. However, the greatest limitation is proper collection of an adequate sample. Furthermore, the low repeatability of most sample collection techniques can cause confusion and misdiagnosis. The aim of the study was to identify a technique that increased sensitivity and could easily be used during breeding soundness exams.

## Materials and Methods

Eighty commercial bulls of unknown infection status were sampled for detection of *Tritrichomonas foetus* (TF) using 2 different collection methods: 1) traditional preputial/penile scraping with a dry insemination pipette (TPS) and 2) preputial/penile swabbing (PPS). TPS samples were taken by vigorously scraping preputial/penile mucosa using a rigid

insemination pipette while applying negative pressure. PPS samples were obtained by briskly swabbing the preputial/penile mucosa with gauze during full extension of the penis. All samples were processed using InPouch™ TF media and submitted under similar conditions for PCR testing at the ISU Veterinary Diagnostic Laboratory.

## Results

Positive PCR results were observed in 28/80 (35%) of bulls using TPS technique, however 31/80 (39%) were positive using PPS technique. Sensitivity was determined with web based application utilizing R software. The Newton-Raphson algorithm predicted the sensitivity of the TPS method was 0.897 (CI 0.637-0.978) and the sensitivity of the PPS was 0.962 (CI 0.774-0.995).

## Significance

This data indicates that the PPS technique may be a more reliable alternative to the TPS method.

# Assessment of colostrum quality in dairy cattle using digital and optical Brix refractometers

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## Introduction

Colostrum contains a high concentration of immunoglobulins (particularly IgG1) that is an important source of immunity for newborn calves. Insufficient ingestion and absorption of colostrum IgG results in failure of transfer of passive immunity (FTPI). FTPI increases the calf's risk of infection, morbidity and mortality. Therefore, measuring IgG concentration in colostrum prior to feeding and storage is a useful colostrum management tool. Brix refractometers, either digital or optical have been used to estimate the colostrum IgG concentration. The objectives of this study were to evaluate the performance of both digital and optical Brix refractometers for assessing colostrum quality in dairy cows,

and to evaluate the agreement between the 2 types of Brix refractometers.

## Materials and Methods

A cross-sectional study was designed to measure colostrum IgG concentration by radial immunodiffusion (RID) assay and the digital and optical Brix refractometers. Colostrum samples (n=251) were collected from Holstein dairy cows on 7 commercial dairy farms. Of these, 168 samples were collected between June and October 2013, while the remaining 83 samples were collected between May and August 2014. The correlation between the 2 refractometers were plotted against each other and against the RID IgG concentrations.