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Repeated testing by use of culture and PCR assay to detect Tritrichomonas foetus carrier bulls in an infected Nebraska herd.

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Abstract

OBJECTIVE: To compare methods for identification of bulls that were carriers for Tritrichomonas foetus during an outbreak on a large beef ranch and determine whether the percentage of nonpregnant cows was associated with the percentage of bulls infected with T foetus.

DESIGN: Epidemiological study.

ANIMALS: 121 Angus and Hereford bulls (1.5 to 6 years old) and 2,960 Angus-cross cows (2.5 to 14 years old) managed as 5 herds on a Nebraska beef ranch.

PROCEDURES: 3 sequential preputial scrapings collected from the bulls at 12- to 27-day intervals were cultured, and cultures were examined for live T foetus daily for 5 days. On day 5, aliquots of the culture fluid were tested by means of T foetus-specific gel and real-time PCR assays. Cows were tested for pregnancy by means of rectal palpation.

RESULTS: For 361 preputial scrapings obtained from 121 bulls, results of culture and gel PCR assay were in close agreement. The real-time PCR assay had similar sensitivity to culture and the gel PCR assay but generated more false-positive results. Twenty-four of the 121 (19.8%) bulls were identified as infected with T foetus. For the 5 ranch herds, there was a positive linear correlation between percentage of infected bulls (range, 0% to 40%) and percentage of nonpregnant cows (range, 8.3% to 19.2%).

CONCLUSIONS AND CLINICAL RELEVANCE: Results suggested that a combination of culture and the gel PCR assay performed on 3 sequential preputial scrapings was the best method for identifying bulls that were carriers for T foetus during this herd outbreak.