

# Assessment of gastrointestinal nematode parasitism in dairy calves housed in calf hutches

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## Introduction

Gastrointestinal nematodes (GIN) are an important cause of morbidity and production losses in cattle. Clinical infection with GIN can cause diarrhea and hypoalbuminemia, but subclinical infections are more prevalent, harder to recognize, and a greater threat to productivity. Emphasis in the dairy industry has been placed on management strategies to mitigate disease and productive losses caused by GIN infections in grazing heifers and adult cattle, but hutch calves have largely been left out of this discussion. Milk-fed dairy calves housed in hutches are presumed not to acquire GIN infection because transmission of GIN is thought to require exposure to a pasture environment and subsequent ingestion of contaminated forage. However, a recent assessment of fecal egg counts (FEC) in hutch calves for another research project revealed calves raised in hutches with unexpectedly high FEC. The objective of this study was to estimate the prevalence and magnitude of GIN in hutch calves on two calf ranches and to evaluate factors associated with the probability for calves to be parasitized.

## Materials and Methods

We performed a cross-sectional observational study to determine the prevalence of GIN in hutch dairy calves on two calf ranches in Florida to test the hypothesis that calf or group-level factors are associated with presence or magnitude of GIN parasitism. Ninety-five calves from each of two calf rearing operations were sampled in June 2016. Calves had not been treated with an anthelmintic prior to sampling. Information regarding management practices on each calf ranch was collected by interviews of staff members at both locations. Individual fecal samples were collected from 30-90 day old calves and calf weight was estimated by weight tape. Calf sex, breed, and farm of origin were also

recorded. The Mini-FLOTAC method was used to quantitate the FEC of strongyle-type eggs. Factors associated with the odds for calves to be parasitized were modeled using multi-level multivariable logistic regression, (SAS 9.4). Statistical significance was set at  $\alpha = 0.05$ .

## Results

Strongyle-type eggs were found in 9 of 95 (9.5%) samples collected from ranch A and in 28 of 92 (30.4%) samples from ranch B. There was a range of 0-10 EPG in the fecal samples collected at Ranch A, with a mean of 0.6 EPG. At Ranch B, the range was 0-180 EPG, with a mean of 8.6 EPG. Calf ranch was the only significant factor associated with the probability of parasitism in a multivariable analysis ( $P = 0.0005$ ). Odds of parasitism in calves from ranch B were 4.4 times as great as calves from ranch A. We were unable to test herd-level factors related to parasitism levels because we had data from only two rearing facilities; however, factors that differed between the two facilities included the proximity of grazing heifers to hutches, the gender of calves present, and the number of farms the facility served. There was no significant difference ( $P = 0.464$ ) in GIN parasitism based on calf farm of origin, and no significant differences were found for any other calf-level variables ( $P \geq 0.121$ ).

## Significance

Our results indicate that GIN parasitism does occur in hutch calves and there can be a difference in prevalence of infection and magnitude of FEC levels at different rearing facilities. Further evaluation of the prevalence and impact of GIN parasitism in hutch calves, and assessment of factors that contribute to GIN parasitism, is warranted.