

# Bovine Torovirus and Other Enteric Microorganisms in Feces from Clinical Cases of Gastroenteritis in Cattle

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## Introduction

Bovine Torovirus (BoTV or bredavirus) is an uncultivable, enveloped, single-stranded RNA virus that causes diarrhea in calves. Our objective was to determine the prevalence of BoTV in bovine fecal samples from clinical cases of gastroenteritis sent to the Ohio Department of Agriculture, Animal Disease Diagnostic Laboratory (ADDL), and its rate of detection with other enteric pathogens.

## Materials and Methods

During the year 1999-2000, 185 specimens [39 calves ( $\leq 6$ -month-old), 32 young adults ( $< 2$  years), 84 adults ( $\geq 2$  years), 30 of unknown age] were examined by an enzyme-linked immunosorbent assay (ELISA) test developed in our lab to detect BoTV antigen. Testing for other enteric pathogens was performed by ADDL, and the results were recorded and analyzed together with the BoTV data.

## Results and Discussion

BoTV was detected in 6/185 (3.2%) of the clinical samples, two in calves and four in adult cattle. In 3/6 ELISA-positive specimens, BoTV was the only pathogen detected among those examined. Other enteric microorganisms detected alone or in combination were: hemolytic *Escherichia coli*, 2/42 (4.8%); mucoid *E. coli*, 15/42 (35.7%); *Klebsiella spp*, 2/42 (4.8%); *Proteus spp*, 2/42 (4.8%); *Pseudomonas spp*, 1/42 (2.4%); *Salmonella spp*, 21/166 (12.7%); *Clostridium perfringens*, 12/42 (28.6%); *Mycobacterium paratuberculosis*, 6/11 (54.5%); *Giardia spp*, 6/16 (37.5%); *Cryptosporidium spp*, 9/22 (40.9%); rotavirus, 4/28 (14.3%); coronavirus, 2/28 (7.1%); bovine viral diarrhea virus, 10/45 (22.2%); and coccidia, 1/1. No consistent associations between BoTV and other microorganisms were observed.

In summary, BoTV was detected in several samples from clinical cases of gastroenteritis in cattle of various ages. Future investigations of infectious diarrhea in cattle may need to include assays to detect this etiologic agent.

# Economic Assessment of Twinning in a Dairy Herd in Tehran, Iran

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## Introduction

Detrimental effects of twinning have been reported in dairy herds. Dystocia, premature calving, retained placenta, abortion and delivery of freemartins, and their

subsequent effects on reproductive indices and milk production, have been studied extensively.<sup>1</sup> In the present report, negative effects and losses of twinning on reproductive indices, postpartum conditions and milk production were studied retrospectively in a large dairy herd.

## Materials and Methods

The study compared 180 twinnings and eight twin abortions with normal single pregnancies from 4,052 calvings and 77 abortions during a three-year study (1997- 2000) in a Holstein dairy farm (1,350 milking cows). Postpartum conditions, such as retained placenta, reproductive indices (days to first service, days open, first-service pregnancy rate and services per pregnancy) and average 305-day milk production were compared, using chi-square and student t tests.

## Results

Length of pregnancy period (272 vs 279 days), abortion rate (4.45% vs 1.86%), retained placenta (49.3% vs 12.7%), calf mortality due to dystocia (9.2% vs 3.8%), and immature calves (3.8% vs 1.1%) were significantly different between twinnings and single pregnancies, respectively ( $P < 0.001$ ). First-service pregnancy rate (17% vs 28%), average days open (130 days vs 113 days) and culling rate (32.9% vs 16.4%) were also significantly different between the two groups,

respectively ( $P < 0.001$ ). However, there was no significant difference in services per pregnancy (2.5 vs 2.25), respectively. Average milk production was 7,134 kg (15,695 lb) and 8,124 kg (17,873 lb) per lactation, respectively ( $P < 0.05$ ). Total cost for each twinning was estimated at \$120/cow in a lactation period.

## Discussion

A deficit of 13.75% was shown in twin pregnancies, compared to singles. Postpartum conditions, dystocia and retained placenta due to twinning significantly affected reproductive indices and milk production, reducing reproductive and productive potentials of such animals. Freemartins are also of concern and should not be overlooked. The dairy industry needs to work on reducing incidence of twin pregnancies to decrease these losses.

## Reference

1. Eddy RG, Davies O, David C: An economic assessment of twin births in British dairy herds. *Vet Rec* 129: 24, 526- 529, 1991.

# Titer Response in Cows Vaccinated with a *Neospora caninum* Vaccine

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## Introduction

In a 65-cow herd located north of Ithaca, 12 abortions had occurred during 1999; four between mid-January and mid-February, one in March and one more in July. The remaining six abortions had occurred between the beginning of September and mid-October, three of them within one week during mid-October. Submission of a blood sample from the last aborting cow revealed a positive *Neospora caninum* titer. Upon screening 15 cows including most of the cows that had previously aborted, nine animals were found positive to *Neospora caninum*. It was decided to try and controlling the problem by vaccinating with a *Neospora caninum* vaccine.

## Materials and Methods

A total of 28 cows were randomly chosen to receive either 5cc of a *Neospora caninum* vaccine, or 5cc of sterile saline, four weeks apart. Serum samples were taken at time of the first vaccination and one month after the second dose.

The number of animals that seroconverted between the first and second vaccination was compared using Fisher's exact test. The difference in pre- and postvaccination titers between the vaccinated and control groups was evaluated with the Rank-Sum test.