

hour for PV. By 48 hours post incubation, there was < 8% chance of recovery from either group.

Characterization of survival in water demonstrated a 98% chance that BVDV would be recovered at one hour for MV and an 82% chance that BVDV would be recovered at one hour for PV. At 48 hours post incubation, there was a 16% chance that BVDV would be recovered in MV compared to 2% in PV.

### Significance

Under the conditions of this study, a NCP, type 1b, BVDV was capable of surviving after application to various materials used in livestock production. When in the presence of mucus, BVDV was protected from degradation for longer periods of time than when not in the presence of mucus.

## Diagnosis of Congenital Bovine Viral Diarrhea Infection in Beef Cow-Calf Herd from Fence-Line Contact

**P.B. Scharko<sup>1</sup>, DVM; R.C. Giles<sup>2</sup>, DVM; M.L. Vickers<sup>2</sup>, PhD; M.H. McCoy<sup>3</sup>, MD, PhD**

<sup>1</sup>*Clemson University, Livestock Poultry Health, Columbia, SC 29224*

<sup>2</sup>*University of Kentucky, Livestock Disease Diagnostic Center, Lexington, KY 40512 (retired)*

<sup>3</sup>*Indiana University, Department of Pathology and Laboratory Medicine, Indianapolis, IN 46202*

### Introduction

A closed herd of 76 head of Angus and Gelbvieh X commercial cows experienced a series of late gestation abortions, congenital deformities, and weak calves in replacement heifers. History included fence-line contact with a neighboring farm from day 76 to 165 after the beginning of breeding season. The neighbor grazed feeder steers purchased from livestock markets.

### Materials and Methods

The herd was comprised of 65 mature cows and 11 bred heifers (case group). Calves were only vaccinated with a 7-way clostridial bacterin toxoid. On June 14, 2004, a bull was turned out with the heifers for 60 days. Heifers were combined with the cow herd and bulls in August and September. During this time, the breeding herd had fence-line contact with feeder steers that the neighbor had purchased from livestock markets. During November and December, the pregnant cattle were turned into another pasture with fence-line contact with another neighbor's cow-calf herd which were of livestock market origin. Abortions began in March, about 3 to 4 weeks prior to the expected calving time.

In the 11 bred heifers, there were two aborted fetuses, three weak calves (died 2-6 days of age), two congenital defects (spina bifida), one open heifer, and three normal calves. Myodegeneration was noted in cardiac

and tongue musculature of two calves. Liver selenium levels were evaluated by the University of Kentucky Livestock Disease Diagnostic Center Toxicology Section.

### Results

Bovine viral diarrhea was diagnosed in one aborted fetus and all three weak calves by virus isolation. The three normal calves were identified as persistently infected with positive ELISA on ear notch samples. FA and MAP-leptospirosis, FA-infectious bovine rhinotracheitis, and ELISA neospora were negative.

No abortions occurred in the cows. Seven of the 54 calves born to mature cows were identified as persistently infected with BVD on ear notch samples. The University of Nebraska Veterinary Diagnostic Laboratory performed immunohistochemistry on skin samples from nine calves to verify that they were positive. One aborted fetus and one weak calf had deficient levels of selenium.

### Significance

Natural infection of heifers or cows is most common source of BVD-PI animals. This was a closed herd with fence-line contact with neighbors' cattle. Heifers are most susceptible, especially in non-vaccinated herds. Pre-breeding BVD vaccination of heifers should be included in the herd health program.