

## SWINE HEALTH

**Title:** Investigating the pathogenicity of pestiviruses or pesti-like viruses isolated from recent swine epidemics – NPB #05-023

**Investigator:** Kelly M. Lager, DVM, PhD;

**Institution:** National Animal Disease Center USDA-ARS, Ames, Iowa

**Co-Investigator(s) and Institutions(s)**

Julia Ridpath, Amy Vincent, Susan Brockmeier, NADC, Ames, Iowa.  
Sagar Goyal, Kurt Rossow, and Jerry Torrison; University of Minnesota

**Date Received:** November 1, 2006

### Abstract

Bovine viral diarrhea virus (BVDV) is a virus usually found in domestic and wild ruminants. However, a BVDV was recently isolated from a case of severe mortality (about 55%) in finishing swine. This finding raised a question about what role this virus might have played in the field case. In addition to the BVDV, other agents were detected in affected pigs from this case. One of these was a bacteria that is not commonly found in pigs, *Haemophilus parasuis* serotype 13. Although different serotypes of *H. parasuis* can cause significant illness and death in pigs, the bacteria are not typically associated with severe mortality as in the field case. One idea to explain the high mortality observed in this case is that there was an interaction between the BVDV and the *H. parasuis* resulting in the high mortality.

A series of studies were conducted to 1) characterize the BVDV isolate, 2) test the clinical effects of the BVDV on pigs, and 3) test the potential interaction between the BVDV and the *H. parasuis* isolates from this field case. At the genetic level the BVDV isolate is most similar to the cattle BVDV type 1b strains. In contrast to type 1b strains, the swine BVDV isolate grows very well in porcine cell lines suggesting it has adapted to swine. Experimental infection of pigs with the BVDV isolate had no negative clinical effect. Experimental infection of pigs with the *H. parasuis* isolate made them very sick and 4 of the 12 pigs were euthanized for humane reasons. Pigs infected with the BVDV and *H. parasuis* isolate responded similarly. Collectively, the results of these studies suggest the BVDV isolate did not have a direct role in the high mortality field case, and a significant amount of the mortality could be attributed to infection with this serotype 13 *H. parasuis*.

*These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed*

**For more information contact:**

**National Pork Board, P.O. Box 9114, Des Moines, Iowa USA**

800-456-7675, **Fax:** 515-223-2646, **E-Mail:** [porkboard@porkboard.org](mailto:porkboard@porkboard.org), **Web:** <http://www.porkboard.org/>