



Research

Improved BVD Vaccine

“Novel vaccination strategies for induction of long-term immune memory and protection to bovine viral diarrhea virus”

Project No. 0007-113

Research Institution: Vaccine and Infectious Disease Organization (VIDO)

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Objectives: The objective of this project is to develop a vaccine delivery method that will lead to stronger, longer lasting immune responses to bovine viral diarrhea virus (BVDV).

Background: Bovine viral diarrhea virus can be a problem for both cow-calf and feedlot operations. There are two types of BVD infections that are caused by different strains of the BVD virus. Type 1 BVD causes a brief, mild disease that causes diarrhea, fever and increased respiration rate. At the same time, it weakens the immune system so that calves are more likely to develop secondary bacterial pneumonia, leading to Bovine Respiratory Disease (BRD) in the feedlot. Type 2 BVD causes a more severe form of the disease and can be fatal. Pregnant cows that are infected can give birth to persistently infected calves. Persistently infected calves do not get sick, but

can pass the disease to others. BVDV can also impair fertility, cause abortion, or produce calves with congenital defects.

The researchers want to develop and compare traditional antigen-based and DNA-based BVD vaccines that will deal with both types of BVD in one shot. They are also examining alternative vaccination methods that will reduce needle use and lead to longer lasting immune responses. This project is scheduled to be completed in 2010.

Implications of the Research: A vaccine that will result in long-term duration of immunity against BVDV may also lead to reduced treatment costs and antibiotic use and improved animal health and welfare.

