



## MEDIA RELEASE

**CONTACT:** Joseph Burkett  
(336) 387-1006  
[joseph.burkett@novartis.com](mailto:joseph.burkett@novartis.com)

### **BVD: Why Biotype Matters**

GREENSBORO, N.C. (December 5, 2006) – When veterinarians discuss bovine viral diarrhea (BVD) virus with producers, they often talk about the two different genotypes – BVD Type 1 and BVD Type 2. The two BVD biotypes – noncytopathic (NCP) and cytopathic (CP) – are seldom mentioned. Yet, the NCP biotype causes greater than 90 percent of BVD outbreaks.

“According to research, NCP BVD is always the cause of persistently infected (PI) animals,” says Gary Bosch, DVM, director of research and development at Novartis Animal Health US, Inc. “NCP is not something that we can ignore.”

If there is a PI animal in the herd, it is constantly shedding the BVD virus and exposing the herd to disease every day. The animals’ immune systems are constantly being primed to fight off disease, resulting in reduced performance. There may not be clinical signs of infection, but economic loss is likely in the form of a variety of illnesses.

BVD viruses fall into two different genotypes known as BVD Type 1 and BVD Type 2. Viral strains are also classified by biotype according to behavior in cell culture. A strain is cytopathic (CP) if it kills cells in tissue culture or NCP if it does not kill cells.

“The main difference between the two biotypes is that CP infects cells in the gut lymphoid tissues,” explains Bosch, “while NCP infects a wider range of cells, including the respiratory tract, blood cells and lymphoid tissue. NCP also persists longer in the animal.”

Producers can eliminate PI calves, the main source of BVD infection, by:

- Screening to detect PIs
- Culling positive animals
- Quarantining new animals until they are determined PI-negative
- Incorporating biosecurity measures
- Vaccinating with a broad-spectrum vaccine that provides protection against BVD Types 1 and 2

Because NCP and CP biotypes distribute through the body differently, research shows that the immune system responds differently to them, as well. In a research paper published in the

*Journal of General Virology*, Lambot et al. investigated immune response differences of calves infected with a pair of CP and NCP BVD. Results found that the NCP biotype produced a higher and more rapid antibody response than the CP virus.

In a different research trial, Arsenal<sup>®</sup> 4.1, a modified-live vaccine containing NCP and manufactured by Novartis Animal Health US, Inc., found that it had a larger, faster antibody response than a vaccine containing only CP Type 1.

Bosch recommends consulting with your veterinarian to determine the best way to control BVD.

Novartis Animal Health researches, develops and commercializes leading animal treatments that meet the needs of pet owners, farmers and veterinarians. Headquartered in Basel, Switzerland, and present in almost 40 countries, Novartis Animal Health employs about 2,300 people worldwide. For more information, please consult [www.livestock.novartis.com](http://www.livestock.novartis.com).

Novartis AG (NYSE: NVS) is a world leader in pharmaceuticals and consumer health. In 2005, the Group's businesses achieved net sales of USD 32.2 billion and net income of USD 6.1 billion. Approximately USD 4.8 billion was invested in R&D. Headquartered in Basel, Switzerland, Novartis Group companies employ about 97,000 people and operate in over 140 countries around the world. For further information, please consult <http://www.novartis.com>.

###