

Vira Shield® 3

Bovine Rhinotracheitis-Virus Diarrhea Vaccine, Killed Virus

For use in healthy cattle as an aid in the prevention of disease caused by infectious bovine rhinotracheitis (IBR), cytopathic and noncytopathic bovine virus diarrhea (BVD) Type 1, and noncytopathic bovine virus diarrhea (BVD) Type 2 viruses.

Vira Shield® 3+VL5

Bovine Rhinotracheitis-Virus Diarrhea Vaccine, Killed Virus Campylobacter Fetus-Leptospira Canicola-Grippotyphosa-Hardjo-Icterohaemorrhagiae-Pomona Bacterin

For use in healthy breeding cattle as an aid in the prevention of disease caused by infectious bovine rhinotracheitis (IBR), cytopathic and noncytopathic bovine virus diarrhea (BVD) Type 1, and noncytopathic bovine virus diarrhea (BVD) Type 2 viruses and *Campylobacter fetus*, *Leptospira canicola*, *grippotyphosa*, *hardjo*, *icterohaemorrhagiae* and *pomona*.

- **First to offer 3-way BVD protection** — Both feature 3-way BVD protection, containing NCP Type 1, NCP Type 2 and CP Type 1.
- **Built with brood cows in mind** — In addition to IBR and BVD protection, **Vira Shield 3 + VL5** incorporates *Campylobacter (Vibrio) fetus* and 5-way leptos to protect against reproductive diseases. Each component takes on pathogens that have been implicated in reproductive failure.
- **Reliable and Safe** — **Vira Shield 3** is an inactivated and ready-to-use product. It can be used in pregnant cows, bulls and calves nursing pregnant cows, regardless of previous vaccination history.
- **Long-lasting protection** — With long-lasting Type 2 BVD immunity, **Vira Shield** provides powerful protection for your herd.¹ **Vira Shield 3** contains the Xtend® SP adjuvant to increase the animal's immune response through prolonged stimulation of the immune system.

Product Numbers

- Vira Shield® 3**
144 - 250 mL - 50 doses
- Vira Shield® 3+VL5**
129 - 50 mL - 10 doses
- 152 - 250 mL - 50 doses



Vira Shield® 3

ADJUVANT: Xtend® SP

DIRECTIONS: Shake well before using. Administer 5 mL subcutaneously. In accordance with Beef Quality Assurance guidelines, this product should be administered subcutaneously (under the skin) in the neck. Revaccinate in 4-5 weeks. This vaccine may be administered to pregnant animals at any stage of gestation. Vaccinate dairy cows at dry-off. Revaccinate annually or as recommended by your veterinarian.

PRECAUTIONS: Store out of direct sunlight at 2°-7° C (35°-45° F). DO NOT FREEZE. Use entire contents when first opened. Do not vaccinate within 60 days prior to slaughter. Transient swelling may occur at the site of injection. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine. Contains amphotericin B, gentamicin and thimerosal as preservatives.

Vira Shield® 3+ VL5

ADJUVANT: Xtend® SP

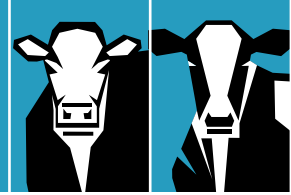
DIRECTIONS: Shake well before using. Administer 5 mL subcutaneously 2-4 weeks prior to breeding. In accordance with Beef Quality Assurance guidelines, this product should be administered subcutaneously (under the skin) in the neck. Revaccinate with Vira Shield® 3 in 4-5 weeks. Revaccinate annually or as recommended by your veterinarian.

PRECAUTIONS: Store out of direct sunlight at 2°-7° C (35°-45° F). DO NOT FREEZE. Use entire contents when first opened. Do not vaccinate within 60 days prior to slaughter. Transient swelling may occur at the site of injection. Milk reduction and transient depression may be observed in lactating dairy cows for 3-6 days following vaccination. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine. Contains amphotericin B, gentamicin and thimerosal as preservatives.



Customer Service (800) 843-3386

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Technical disease information

Bovine Virus Diarrhea (BVD)

BVD virus is one of the most prevalent and challenging bovine viral pathogens in the world. There are literally hundreds of BVD viral strains, and the number continues to increase due to the mutating nature of the virus.

The BVD virus suppresses the immune system, which leads to secondary infections from other pathogens. The virus manifests itself in numerous ways including:

- Bovine respiratory disease
- Hemorrhagic (bleeding) syndrome
- Reproductive disorders, including infertility, abortion and neonatal defects
- Persistently infected (PI) calves that shed enormous amounts of infective virus throughout their lives
- Gastrointestinal disorders
- Mucosal disease in persistently infected calves

BVD viral strains fall into two genotype categories - BVD Type 1 and BVD Type 2. BVD viral strains are further classified according to biotype. They can be cytopathic (CP) or noncytopathic (NCP). Researchers have determined that NCP BVD is the more prevalent biotype. In fact, NCP biotypes have been found to cause up to 95 percent of BVD outbreaks.²

Vira Shield 3 and **Vira Shield 3+VL5** contain NCP Type 1 and NCP Type 2, as well as CP Type 1, for 3-way BVD protection. In addition, a recent study shows that adding a third BVD strain improves immune responses against these biotypes and genotypes. See Figure 1.

Figure 1: Immune response measured via titers 28 days post-second vaccination.

	CP Type 1	NCP Type 1	NCP Type 2
Vira Shield® 2 (with 2-way BVD)	1:394	1:38	1:72
New BVD Shield™ 3 (with 3-way BVD)	1:508	1:77	1:236

Infectious Bovine Rhinotracheitis (IBR)

IBR, sometimes referred to as “red nose,” is caused by Bovine Herpesvirus 1. Prior to the advent of large feedlots and dairy complexes, the primary manifestation of IBR was in a reproductive form called IPV (infectious pustular vulvovaginitis). Today, the IBR virus is associated with:

- Upper respiratory tract infections
- Bovine respiratory disease
- Eye disorders like conjunctivitis
- Reproductive disorders, such as IPV, abortion and neonatal death

Campylobacteriosis

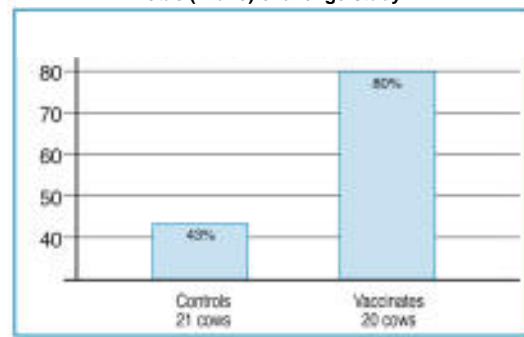
Bovine genital campylobacteriosis, previously known as vibriosis, is a venereal disease of cattle caused by *Campylobacter (Vibrio) fetus*. This disease is spread from bull to cow and cow to bull during breeding. It can also be spread through artificial insemination if pipettes or semen are contaminated.

Infection with *Campylobacter* is subclinical and restricted to the reproductive mucous membranes of breeding bulls and cows. Uterine infections usually destroy the embryo at

its earliest stages. However, in some instances the embryo survives, becomes infected and is aborted in the second trimester of pregnancy. The presence of the disease should be suspected when conception rates for a herd drop below 90 percent. Definite diagnosis can be made by identifying the organism in the mucus from the cow’s reproductive tract or in preputial fluid from the infected bull.

Research shows that vaccination with the vibrio component of **Vira Shield 3+VL5** can significantly improve conception rates. See Figure 2 below.

Figure 2: Results from *Campylobacter fetus* (Vibrio) challenge study



In a severe pre-breeding challenge, nearly twice as many cows became pregnant in the vaccinated group. These animals were challenged with two different strains of *Campylobacter fetus*. This demonstrates protection against varied challenges most likely to occur in your herd.

Leptospirosis

Due to better and more utilized diagnostics, leptospirosis is gaining renewed notoriety as a reproductive pathogen. The most significant serovars of lepto associated with reproductive problems in U.S. cattle include *Lepto. pomona* and the *hardjo* serovar. *Hardjo* is further classified as *Leptospira interrogans* serovar *hardjo* (type: *hardjo-prajitno*) or *Leptospira borgpetersenii* serovar *hardjo* (type: *hardjo-bovis*). Clinical signs can include infertility, abortion of fetuses at four months or older and weak calves at birth. Low rates of abortion that often go unnoticed are seen with the *hardjo* serovars. High abortion rates of 50 percent or more are sometimes seen when *Lepto. pomona* hits in the last trimester of gestation.³

References:

1. Chase C. Protection with an inactivated vaccine against IBR, BRSV and BVDV. Paper presented at: Annual Meeting of the American Association of Bovine Practitioners; 1995. San Antonio, Texas. Vira Shield has no approved claim for duration of immunity for Type 2 BVD.
2. Chase CCL. Department of Veterinary Science, South Dakota State University, Brookings, SD.
3. Anderson M. Diagnosis of infectious causes of bovine abortion. 37th Annual Convention Proceedings of American Association of Bovine Practitioners. 2004; 90-94.