



# Amplimune®

An antibiotic alternative for calf scours.

Amplimune is a USDA-approved immunotherapeutic agent for bovine infectious disease.

Amplimune is recommended as a one-time immunotherapeutic treatment for the reduction of clinical signs and mortality associated with *E. coli* K99 diarrhea in neonatal calves.

Studies have shown that a single, 1mL dose of Amplimune can induce an immediate innate immune response in the neonatal calf.

Amplimune is a low volume, single-dose therapy. It is available in 5-dose, 20-dose, and 100-dose vials.

Protect your client's investment without antibiotics.



**NovaVive**  
An immunobiology company

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# Amplimune®

An antibiotic alternative for calf scours.



Amplimune, mycobacterium cell wall fraction immunostimulant (MCWF), is an immunomodulator licensed in the U.S. for bovine infectious disease therapy.

Amplimune is approved for use as a single-dose immunotherapeutic treatment for the reduction of clinical signs and mortality associated with enterotoxigenic *Escherichia coli* (ETEC) K99 diarrhea.

## The Immune System of a Neonatal Calf

While a newborn calf's immune system is functional, it is still immature. Even the passive immunity received through colostrum does not exempt the calf from a high susceptibility to disease. To add to the calf's disadvantage, if it receives little or no colostrum in the 24 hours following birth, disease challenges can attack and overwhelm it before the immune system can respond. This failure of passive transfer (FPT) further increases the mortality in affected calves.

## The Pathogenesis of Enterotoxigenic *Escherichia coli* (ETEC) Diarrhea

Colibacillosis caused by enterotoxigenic K99<sup>+ve</sup> *Escherichia coli* is one of the principal causes of neonatal calf diarrhea. ETEC infection occurs most frequently in the first week of life, before the calf can become resistant to the disease.

The adhesion of the *E. coli* organisms to intestinal mucosa allows the production of enterotoxins which are then easily absorbed by intestinal epithelial cells. Once bound to epithelial cell

receptors, the toxins induce a trans-mucosal hypersecretion that results in the loss of electrolytes, bicarbonate and fluids from the circulation. Death results from dehydration and metabolic acidosis. The morbidity from ETEC infection in calves varies from 10% to 75% but is usually near 30%. The mortality rate varies from 5% to 25%.

## When to use Amplimune

Early treatment of colibacillosis must be directed toward the control of the bacteria in the intestinal tract. Studies indicate that the optimum times at which to administer Amplimune are:

- (1) early in the disease process, and
- (2) on farms with persistent *E. coli* scours, treating all calves immediately, one day after birth.

A single intravenous (IV) administration of Amplimune (1 mL), early in the disease process, stimulates non-antigen related defense mechanisms and enhances a calf's innate immune defense system to minimize and control the damage caused by pathogenic *E. coli*. Therefore, the calf's ability to overcome the disease challenge is greatly enhanced.

A large number of *E. coli* isolates are showing resistance to many of the traditional antibiotics available to the livestock industry.

As an alternative to antibiotics, Amplimune, with or without fluid therapy, is effective against colibacillosis. Amplimune stimulates a non-specific immune response against a bacterial infection in the neonatal calf.

