NOVARTIS
ANIMAL HEALTH

Bovine Ecolizer®

Escherichia Coli Antibody Equine Origin

For use in newborn calves as an aid in the prevention of colibacillosis caused by K99 piliated *Escherichia coli*.

Bovine Ecolizer® + C20

Clostridium Perfringens Type C Antitoxin-Escherichia Coli Antibody
Equine Origin

For use in newborn calves as an aid in the prevention of disease caused by *Clostridium perfringens* Type C and K99 piliated *Escherichia coli*.

Product Numbers

Bovine Ecolizer®
#209 - 10 mL - 1 dose syringe
#211 - 100 mL - 10 doses

Bovine Ecolizer® + C20
#409 - 100 mL - 5 doses
#410 - 20 mL - 1 dose syringe

- **Broad-spectrum protection —** Both products contain polyclonal antibodies against *E. coli*, with proven protection against *E. coli* containing the K99 pilus (attachment) antigen. In addition, **Bovine Ecolizer + C20** contains antibody against the Beta toxin produced by *Clostridium perfringens* Type C.
- **Proven protection —** Both are based on time-tested antiserum technology and are proven to protect calves against severe and lethal challenges of K99 *E. coli* or *Clostridium perfringens* Type C. See Tables 1 and 2 on back page.
- **Immediate protection —** Both products go to work immediately, providing supplemental antibodies to calves that are at high risk for scours. Highly susceptible calves to consider are those with unknown immunoglobulin levels, those that have survived a difficult birth and those from first-calf heifers.
- **No needles —** Both products are administered orally to newborn calves for less stress and Beef Quality Assurance compliance.
- **Convenient and versatile packaging —** Available in single-dose presentations to reduce potential animal-to-animal transmission of disease, or 100 mL, multi-dose vials for a more economical solution.

Bovine Ecolizer®

DIRECTIONS: Shake well before using. Administer 10 mL orally to calves less than 12 hours old. Slowly syringe toward the back of the calf's mouth. Colostrum should be fed to each calf.

PRECAUTIONS: Store out of direct sunlight at 2°-7°C (35°-45°F). DO NOT FREEZE. Use entire contents when first opened. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine. Contains oxytetracycline, phenol and thimerosal as preservatives.

Bovine Ecolizer® + C20

DIRECTIONS: Shake well before using. Administer 20 mL orally to calves less than 4 hours old. Slowly syringe toward the back of the calf's mouth. Colostrum should be fed to each calf.

PRECAUTIONS: Store out of direct sunlight at 2°-7°C (35°-45°F). DO NOT FREEZE. Use entire contents when first opened. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine. Contains oxytetracycline, phenol and thimerosal as preservatives.

Customer Service
(800) 843-3386

www.livestock.novartis.com

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Technical disease information

Escherichia coli
Despite advances in sanitation, vaccination and antibiotics, baby calf scours caused by *Escherichia coli* (colibacillosis) is still a primary killer of newborn calves.

The K99 pilus is a primary virulence factor found on enterotoxigenic strains of *E. coli* (ETEC) that are isolated from calves. The pilus are an attachment mechanism which allows the ETEC to colonize on the microvilli in the lower small intestine. Colonization and irritation interfere with absorption of fluids from the gut, producing hypermotility and diarrhea. The production of enterotoxins contributes to the diarrhea by causing hypersecretion of fluids from the intestinal cells.

***Clostridium perfringens* Type C**
Type C enterotoxemia is caused by an intestinal overgrowth of *Clostridium perfringens* Type C, which produces primarily beta and some alpha exotoxins. *Clostridium perfringens* Type C is widely distributed in the soil and is a common inhabitant of the intestinal tract.

Calves may be found dead without previously showing symptoms. If seen, symptoms include abdominal pain, diarrhea (sometimes blood-tinged) and depression.

Engorgement with milk or grain is considered a predisposing factor for enterotoxemia. It is believed that a large intake of milk may slow the digestive processes, allowing the clostridial bacteria time to multiply. In addition, the enzyme trypsin, which can inactivate the beta toxin, may not be present in adequate concentrations under these circumstances.

It is usually the healthy, vigorous offspring of high-producing dams which are affected by the disease.

Postmortem lesions vary according to the predominating type of exotoxin. If alpha toxin predominates there can be extensive hemorrhage in the jejunum and ileum as well as the mesenteric and intestinal lymph nodes. There may be blood-stained contents in the lower intestine and the colon. If beta toxin predominates there can be necrosis of the jejunum and ileum and peritonitis. Petechial hemorrhages may be found on the spleen, heart, thymus and serosal surfaces.

Prevention
Preventing baby calf scours requires careful management of the cow, the environment and the calf. Ensuring good passive immunity in calves is essential and will be aided by vaccinating their dams with a product like **Scour Bos® 9**. However, some dams such as first-calf heifers may not provide adequate calf protection through colostrum and milk antibodies. The treatment of calves with scours is costly and may be too late.

Bovine Ecolizer and **Bovine Ecolizer + C20** are specific antibody supplements to the colostrum to aid in the prevention of scours in calves. These antibodies, when administered orally to newborn calves, help prevent the colonization of the *E. coli* bacteria in the small intestine and help prevent *Clostridium perfringens* Type C toxins from causing damage. The effectiveness of these products is best when administered as soon after birth as possible. Effectiveness was measured in challenge studies and is summarized in Tables 1[1] and 2[2] below.

Table 1.
***Escherichia coli* challenge[1]**

Group	Number of Calves	Number Dead	% Mortality
Non-Treated Calves	10	9	90
Treated Calves	20	5	25

7-day study

Table 2.
***Clostridium perfringens* Type C challenge[2]**

Group	Number of Calves	Number Dead	% Mortality
Non-Treated Calves	9	5	56
Treated Calves	7	1	14

14-day study

Reference:
1. Data on file, Novartis Animal Health US, Inc.
2. Data on file, Novartis Animal Health US, Inc.

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