

## Bovine Pili Shield™

*Escherichia Coli* Bacterin

For use in healthy heifers and cows as an aid in the prevention of colibacillosis in calves caused by K99 piliated *Escherichia coli*.

## Bovine Pili Shield™ + C

*Clostridium Perfringens* Type C — *Escherichia Coli* Bacterin-Toxoid

For use in healthy pregnant cattle as an aid in the prevention of enterotoxemia in calves caused by *Clostridium perfringens* Type C and colibacillosis in calves caused by K99 piliated *Escherichia coli*.

- **1 mL Dose** — Both **Bovine Pili Shield** and **Bovine Pili Shield + C** are cleared to be given as a single 1 mL dose.
- **Convenient** — Because of the sustained duration of immunity with one dose, **Bovine Pili Shield** can be administered from 12 months to 8 weeks prior to calving. **Bovine Pili Shield + C** can be administered anytime within 8-16 weeks prior to calving. Both products only need to be administered once each year. This allows you the flexibility of timing your vaccination program to fit your schedule, and avoid stressing close-up cows. Dairy cows should be vaccinated at dry-off.
- **Exclusive Adjuvant** — Both **Bovine Pili Shield** and **Bovine Pili Shield + C** incorporate the exclusive Xtend® III adjuvant, which provides a sustained duration of immunity with a single annual 1 mL dose.
- **Excellent Passive Protection to the Calf** — **Bovine Pili Shield** and **Bovine Pili Shield + C** protect the calf by producing antibodies that are passed through the cow's colostrum to the calf at birth. To assure passive protection to the calf, it is vital that calves receive adequate volumes of colostrum from the dam within the first few hours after birth.

### Product Numbers

#### Bovine Pili Shield™

200 - 100 mL - 100 doses

201 - 20 mL - 20 doses

#### Bovine Pili Shield™ + C

246 - 20 mL - 20 doses

247 - 100 mL - 100 doses



## Bovine Pili Shield™

**ADJUVANT:** Xtend® III.

**DIRECTIONS:** Shake well before using. Administer 1 mL intramuscularly in the neck 8 weeks to 12 months prior to calving. Vaccinate dairy cows at dry-off. Revaccinate prior to each subsequent calving.

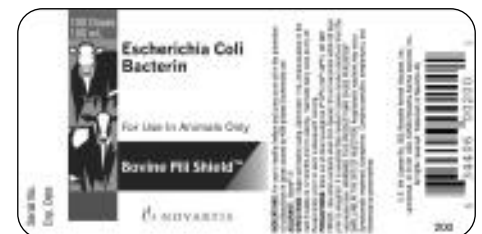
**PRECAUTIONS:** Store out of direct sunlight at (2°-7°C) 35°-45°F. DO NOT FREEZE. Use entire contents when first opened. Do not vaccinate within 60 days prior to slaughter. It is essential that newborn calves receive colostrum from the vaccinated dam. WARNING: THIS PRODUCT MAY CAUSE PERSISTENT SWELLING AT THE SITE OF INJECTION. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine. Contains penicillin, streptomycin and thimerosal as preservatives.

## Bovine Pili Shield™ + C

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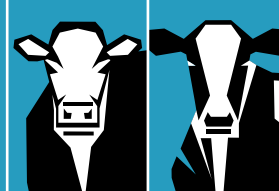
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**Customer Service**  
**(800) 843-3386**

[www.livestock.novartis.com](http://www.livestock.novartis.com)

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Bovine Pili Shield is a trademark of Novartis AG.  
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## Technical disease information

### *Escherichia coli*

Colibacillosis caused by *E. coli* is primarily an enteric disease of calves from birth to 7 days of age. It may cause a severe diarrhea. Pathogenic *E. coli* are commonly found in the manure of healthy cows, which results in most calves being exposed shortly after birth. Unless the calf has received some type of protection immediately following birth, it is very susceptible to developing colibacillosis. The bacteria attach to the lining cells of the intestine by means of projections called pili. After attachment, the bacteria produce toxins which cause the intestine to secrete large amounts of fluid which results in diarrhea, dehydration, and possible death.

### *Clostridium perfringens* Type C

*Clostridium perfringens* Type C is commonly found in soil. It is also a common inhabitant of the intestinal tract in healthy animals. Engorgement with milk is often a predisposing factor. Type C enterotoxemia is caused by an overgrowth of these

bacteria in the calf's intestine. This results in severe toxemia and high mortality rates. Calves may be found dead without showing any symptoms. They may show signs including bloating, abdominal pain, hemorrhagic diarrhea, or extreme weakness.

### Prevention

Maternal antibodies are an economical and effective method of preventing diarrheas caused by *E. coli* and *Clostridium perfringens* Type C. Cows and heifers are vaccinated once a year with a 1 mL dose of either **Bovine Pili Shield** or **Bovine Pili Shield + C**. This causes antibodies to be formed in the colostrum. When the calf receives colostrum, it receives these antibodies, which will act to prevent the bacteria from causing diarrhea. Therefore, the simple and economical prevention of scours can be achieved with a single, annual dose of either **Bovine Pili Shield** or **Bovine Pili Shield + C** to the dam, along with a calf-management program that makes sure calves receive adequate colostrum following birth.

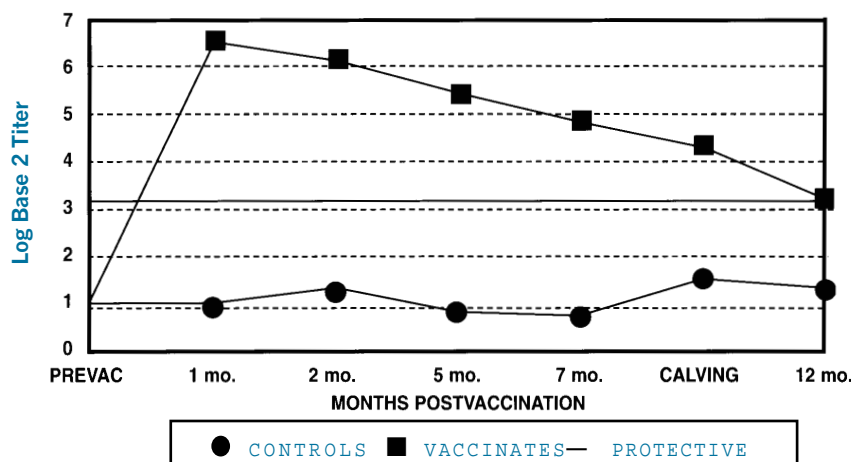
#### *Cl. perfringens* Type C Antitoxin Titers

Group (pooled samples)	Titer (IU/mL)
Dam's colostrum	≥ 50
Calf Serum (3 days of age)	≥ 10
Calf Serum (10 days of age)	≥ 10

#### *E. coli* Challenge

Group	% Mortality	Average Clinical Score
Vaccinates	0%	1.5
Controls	70%	82.9
	<b>p=0.0002</b>	<b>p=0.0000</b>
	STATISTICALLY SIGNIFICANT	

#### Bovine Pili Shield 1 mL Dose Titer Summary



TITER

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