

Fusogard®

Fusobacterium Necrophorum Bacterin

For use in healthy cattle 6 months of age or older as an aid in the reduction of clinical signs of footrot and the number and size of liver abscesses caused by *Fusobacterium necrophorum*.

Product Numbers

Fusogard®

- 341 - 20 mL - 10 doses
- 342 - 100 mL - 50 doses
- 359 - 500 mL - 250 doses

- **Combats Two Diseases** — Effective against footrot **and** liver abscesses caused by *Fusobacterium necrophorum*.
- **Prevention Not Treatment** — Both footrot and liver abscesses cause lower average daily gains and increased treatment costs. Minimizing these effects by vaccinating with **Fusogard** is the economic alternative over antibiotic treatment.
- **“Natural” Solution** — Because it’s not an antibiotic, **Fusogard** is a prevention alternative for natural and organic beef or milk producers.
- **BQA Friendly** — Small 2 mL dose and a SubQ-only route of administration help all operators comply with Beef Quality Assurance standards.
- **Convenient** — Revaccination for liver abscess control is 60 days, coinciding with reimplanting of feedlot animals.

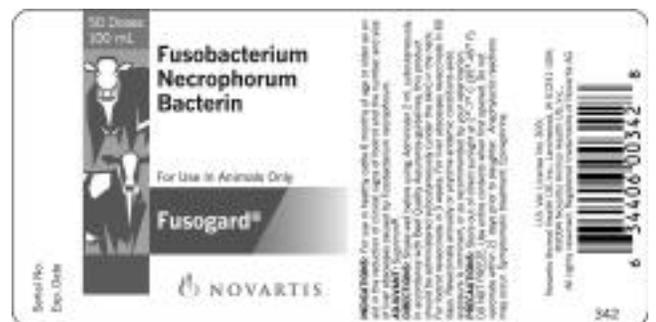


Fusogard®

ADJUVANT: SuprImm®

DIRECTIONS: Shake well before using. Administer 2 mL subcutaneously. In accordance with Beef Quality Assurance guidelines, this product should be administered subcutaneously (under the skin) in the neck. For footrot revaccinate in 3 weeks. For liver abscesses revaccinate in 60 days. Revaccinate annually or anytime endemic conditions exist, exposure is imminent, 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 21 days prior to slaughter. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine.



Customer Service
(800) 843-3386

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Technical disease information

Fusobacterium necrophorum

Fusobacterium necrophorum, a natural inhabitant of the rumen, is the primary causative agent of both liver abscesses and footrot in cattle. Feeding high-concentrate diets can result in ruminal acidosis, which impairs the integrity of the rumen wall, allowing the *F. necrophorum* bacteria to enter the liver via the blood and cause abscessation.

Fusobacterium necrophorum bacteria are shed from the feces. When they come in contact with a foot abrasion or puncture wound, they enter the soft tissue of the damaged foot. There they produce toxins and cause tissue damage, inflammation and foot abscesses.

Footrot

Footrot is an infectious cattle disease that causes swelling and lameness in one or more feet. Although the disease is rarely fatal, the economic loss from treatment and the decrease in weight gains and production potential are substantial.

The pathogenic agent identified as the primary cause of footrot is *Fusobacterium necrophorum*. Although it cannot penetrate intact, healthy skin, the organism takes advantage of abrasions or puncture wounds in the foot region. It enters through the abrasion or puncture wound and causes damage which results in clinical footrot.

If treatment of footrot is delayed, the disease can easily become chronic with a low prognosis for recovery. Delay in treatment also allows for deeper structures of the foot to become infected.

Once footrot strikes, productivity is lost. In cow-calf operations, calves lose weight as they fail to graze, and reproductive performance can wane as lame bulls fail to breed. In feedlots, lame cattle usually become "realizers" and can lead to losses of \$100 or more per head. Lameness (of which footrot is considered a major factor) costs dairy producers through more days open, premature culling, and lost milk production.

Footrot Prevention with Fusogard

A group of 30 commingled calves, 20 vaccinated with **Fusogard** and 10 non-vaccinated controls, were challenged with a virulent *F. necrophorum* and clinically evaluated for the presence of lameness, joint/tissue swelling, and abscessation. Results (as shown in Figures 1-3) clearly indicate protection as evidenced by significantly reduced levels of all three parameters. In addition, the non-vaccinated group showed chronic, severe infections that remained throughout the duration of the trial. These animals required antibiotic treatment following the end of the trial.

Liver Abscesses

Liver abscesses are a significant liability to the producer and packer, causing an estimated condemnation of 3 million livers and losses of \$15 million annually in the U.S. The greatest economic effect of liver abscesses is related to reduced animal performance and carcass yield. Cattle with abscessed livers have reduced feed intake, reduced weight gain, decreased feed efficiency, and decreased carcass-dressing percentages. The effect of abscesses on performance has been reported as high as an 11 percent decrease in average daily gains and a decrease in feed efficiency of as much as 9.7 percent¹.

Liver Abscess Prevention with Fusogard

Trials were conducted on a total of 768 animals from four different feedlots with groups evenly divided between vaccinated and non-vaccinated (control) animals. All animals weighed approximately 800-850 pounds at the start of the trial and remained on feed for approximately 150 days prior to slaughter. The vaccinated group received one dose of **Fusogard** at the start of the trial and another dose 60 days later. All animals were fed typical feedlot diets containing Rumensin®/Tylan® feed additives. At slaughter, all livers were inspected, and all liver abscesses were graded (see below for description). As shown in Figure 4, vaccinated animals in all four groups showed a significant reduction in both the number of total abscesses ($p=0.0479$) and in the number of A+ abscesses ($p=0.0380$), the most severe type and the most likely to cause adverse effects on feedlot economics.

Figure 1: Footrot Study Lameness Score

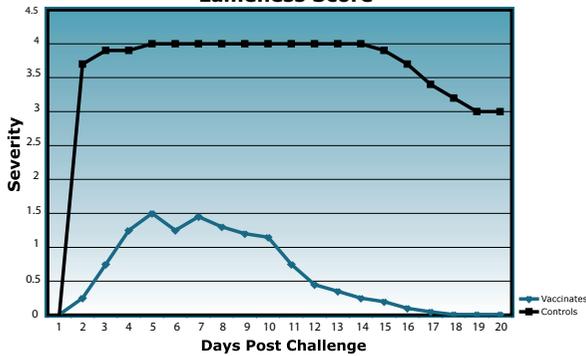


Figure 3: Footrot Study Abscessation Score

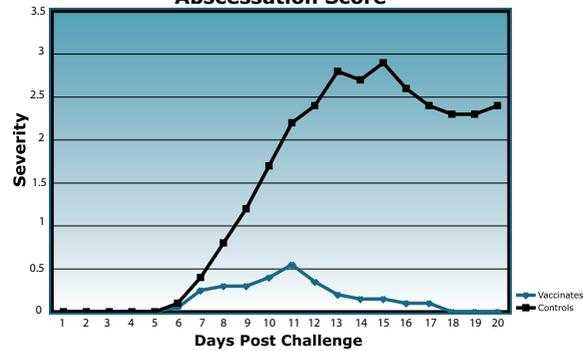


Figure 2: Footrot Study Joint/Tissue Swelling Score

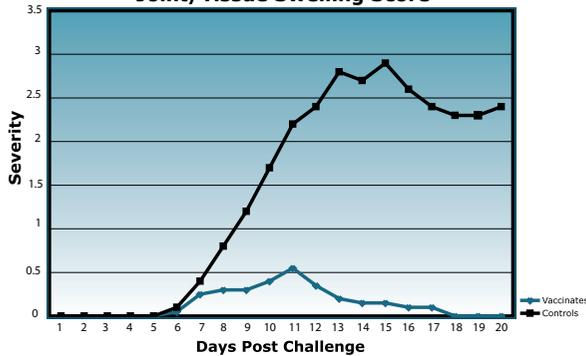


Figure 4 - Incidence of Liver Abscesses in Fed Cattle Vaccinated with Fusogard

Trial #	Treatment	No.	Total Abscesses	A+	A	A-
1	Controls	150	47	22	10	15
	Vaccinates	150	35	6	10	19
2	Controls	103	26	14	2	10
	Vaccinates	103	12	5	2	5
3	Controls	100	36	4	21	11
	Vaccinates	100	21	2	12	7
4	Controls	31	17	7	6	4
	Vaccinates	31	7	1	4	2

Liver Abscess Scoring System:

- A- = One or two small abscesses or abscess scars are present
- A = Two to four well-organized abscesses are present, generally under one inch in diameter
- A+ = One or more large active abscesses are present along with inflammation of liver tissue surrounding the abscess.

0= None 1= Mild 2= Moderate 3= Severe 4= Holds foot up

Footnote:

1. Nagaraja TG, Laudert BS, Parrott JC: *Liver abscesses in feedlot cattle. Part II - Incidence, economic importance and prevention. The Compendium*, October 1996: S264-S273
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