

Somnu Shield®

Histophilus somni Bacterin

Effective Protection Against *H. somni*

BROAD PROTECTION

Somnu Shield is formulated from multiple isolates of highly pathogenic bacteria isolated from brain tissue, aborted fetal tissue and respiratory tracts of infected cattle involved in field cases.

SAFETY AND EFFICACY

The *H. somni* isolates are inactivated using a special process that retains their potency. The bacterin is adjuvanted with a highly refined aluminum hydroxide for maximum antigenicity and syringeability.

CONVENIENCE

The low volume 2mL dose provides ease of administration in animals. Elanco also produces multiple combinations of Vira Shield® with *H. somni* and other bacterins to provide additional convenience in animal health programs.

SOMNU SHIELD

INDICATIONS: This product has been shown to be effective for the vaccination of healthy cattle, 3 months of age or older, against disease caused by *Histophilus somni* (formerly known as *Haemophilus somnus*). The duration of immunity for this product has not been established. For more information regarding efficacy and safety, go to productdata.aphis.usda.gov. This product is safe for use in pregnant animals.

ADJUVANT: Aluminum hydroxide

DIRECTIONS: Shake well before using. Administer 2 mL intramuscularly or subcutaneously. In accordance with Beef Quality Assurance guidelines, the recommended route of administration is subcutaneously (under the skin) in the neck. Repeat in 2 to 3 weeks. Historically, annual revaccination with a single dose has been recommended for this product. The need for this booster has not been established. The presence of maternal antibody is known to interfere with the development of active immunity in calves and additional boosters will be required in most young animals. For advice on revaccination frequency, in general or in the face of maternal antibody, consultation with a veterinarian is recommended.

PRECAUTIONS: Store out of direct sunlight at 2° to 8° C (35° to 46° F). DO NOT FREEZE. Use entire contents when first opened. Do not mix with other products, except as specified on this label. In case of human exposure, contact a physician. Do not vaccinate within 21 days prior to slaughter. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine.

VLN/PCN 196/2659.00

TECHNICAL DISEASE INFORMATION¹⁻³

INTRODUCTION

Histophilus somni, formerly known as *Haemophilus somnus*, is the causative organism associated with several clinical disease presentations collectively known as histophilosis. *H. somni* is a gram-negative bacterium of the Pasteurellaceae family related to *Mannheimia haemolytica* and *Pasteurella multocida*. *H. somni* is a non-encapsulated bacterium with common surface antigens for all strains of the organism that provide effective targets for vaccination. Disease associated with *H. somni* occurs in the cow-calf, stocker and feedlot segments of the U.S. beef industry and in dairy cattle of all ages. Histophilosis often manifests in a septicemic form with acute mortality and is increasingly recognized as a cause of acute myocarditis and a more significant component of Bovine Respiratory Disease (BRD) bronchopneumonia. In septicemic form, it is common to see pleuritis (respiratory), poly arthritis (joints), thromboembolic meningoencephalitis (TME, brain) and myocarditis (heart) involvement either individually or concurrently. Other clinical presentations such as reproductive failure, otitis media (middle ear infections), conjunctivitis and laryngeal necrosis are not uncommon in cattle.

OCCURRENCE

H. somni infections occur most commonly in stressful situations such as when cattle transition between production segments or are grouped closely together in management systems such as feedlots and confinement dairies. It is also common in stocker cattle and young dairy calves. Risk of disease is increased by weather events, dietary changes, weaning or commingling. Histophilosis is more prevalent in fall and winter but can occur in cattle of all ages at any time or stage of production. Many cattle herds contain animals that are asymptomatic carriers for *H. somni*, providing a reservoir that may emerge under stressful conditions. Studies show that 3.2% to 8.0% of arriving feedlot cattle are non-clinical carriers of *H. somni*.²

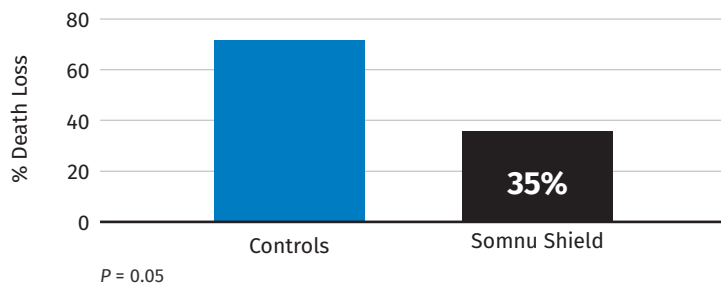
The clinical manifestations of histophilosis may be delayed by up to 90 days after the stressful event. In BRD it is frequently associated along with *Mycoplasma bovis* in "late breaking" BRD presentations, although it is also common

in polymicrobial infections closer to the stressful event. Cattle with the neurological form (TME) may show signs of blindness, staggering or convulsions with the classic presentation being the “sleeper syndrome” with closed or semi-closed eyes which provides the species name. Without prompt antimicrobial treatment most animals with neurological involvement will die. The brain damage caused by *H. somni* is irreversible, and treated animals that survive may still have to be culled. Similarly, animals with myocarditis and polyarthritis have a poor prognosis and are often culled even when they are treated and survive.

DIAGNOSIS

BRD (or pneumonia) associated with *H. somni* is indistinguishable from other viral or bacterial causes and may be misdiagnosed. Additionally, it is also frequently present in mixed infections with other bacteria. When not accompanied by lesions in other organ systems, *H. somni* is often missed in acute mortality associated with myocarditis or TME, both of which require a thorough postmortem necropsy for diagnosis. Compared to other bacterial pathogens, *H. somni* is relatively difficult to isolate and grow, especially from the lungs, resulting in underdiagnosis when isolation and culture (only) are relied upon. More sensitive diagnostic testing utilizing immunohistochemistry (IHC) or polymerase chain reaction (PCR) is indicated when lesions or clinical signs are suggestive of *H. somni* involvement. The wide variety of clinical presentations and difficulty in distinguishing *H. somni* from other causes of illness, combined with the difficulty in locating pathognomonic lesions and interpreting test results, indicate that a herd health veterinarian should be consulted for diagnosis when *H. somni* is suspected. Due to its ubiquitous presence in many cattle production systems, *H. somni* is often considered as a rule out when morbidity and/or mortality occur.

FIGURE 1. RESULTS OF *H. SOMNI* CHALLENGE STUDY⁴



Following a severe intravenous challenge 2 weeks after the second vaccination, death loss in vaccinates was less than ½ of that observed in unvaccinated controls.

PREVENTION

The poor prognosis, debilitation and economic losses associated with *H. somni* infections suggest prevention should be emphasized in the animal health program. Somnu Shield® from Elanco is indicated for disease caused by *H. somni*. Cattle producers should discuss with their herd health veterinarian using Somnu Shield as part of an animal health program to reduce losses to histophilosis. As noted in Figure 1, death losses from *H. somni* infection can be greatly reduced by vaccinating cattle with Somnu Shield before the stress of shipping and exposure.⁴ Since *H. somni* is often a component of BRD complex associated with multiple pathogens, a comprehensive preventative vaccination program for BRD pathogens including NUPLURA® for protection against *M. haemolytica*, along with either Titanium® or Vira Shield® products for viral protection, is often indicated. To reduce injections and increase flexibility, Vira Shield is available in combinations that provide protection from respiratory viruses and *H. somni* and are safe to use in calves nursing pregnant cows regardless of the cows vaccination status. Vira Shield combinations for the reproducing herd include protection against pathogens including Bovine Viral Diarrhea (BVD) Type 1 and 2, Infectious Bovine Rhinotracheitis (IBR), Parainfluenza₃ (PI₃), Bovine Respiratory Syncytial Virus (BRSV), leptospirosis including type Hardjo-bovis, *Campylobacter (Vibrio) fetus* and *H. somni* and are safe for all stages of production—including pre-breeding, pregnant cows, and animals with unknown vaccination or health history.

To learn more about Somnu Shield, contact your herd health veterinarian, Elanco sales representative or technical consultant, or visit Elanco.us

The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

¹ O'Toole DO and Sondergeroth KS. Histophilosis as a natural disease. *Current Topics in Microbiology and Immunology* (2016) 396: 15–48.

² Clark T. *Histophilus somni*—Unique features, pathogenesis and lesions update. *The AABP Proceedings* (2005) 28: 68-71.

³ Ahlemeyer N. *Histophilus somni* complex in cattle. Available at <https://addl.purdue.edu/newsletters/2010/spring/histophilus.htm>

⁴ Elanco Animal Health. Data on file.

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