



# Cattle Producer's Handbook

Animal Health Section

653

## Hemophilus Encephalitis (TEME) in Feeder Cattle

Stuart D. Lincoln, D.V.M., Caine Veterinary  
Teaching and Research Center, University of Idaho

Since 1956 when it was first described in Colorado, *Hemophilus encephalitis* has been recognized as one of the most prevalent diseases of the central nervous system in feeder cattle. Almost every confinement feeder operation has experienced outbreaks of this disease, often with significant economic losses. Also, pastured cattle occasionally will be affected although the incidence is generally not as high as that seen in confinement operations.

### Synonyms

*Hemophilus encephalitis* is commonly known as TEME, which is the abbreviation for the scientific name of the disease *thromboembolic meningoencephalitis*. An animal affected with the disease is also occasionally called a "brainer." Brainer is a feedlot generic term not necessarily limited to TEME but can also mean any disease that produces central nervous system signs such as polio, listeriosis, etc.

### Occurrence

TEME occurs in all breeds and sexes of feeder cattle 6 months to 2 years of age. The disease is widespread in the western and midwestern United States. It usually occurs during the fall and winter months since predisposing factors such as stress associated with weaning, shipping, and processing often tend to increase susceptibility. Incidence of disease has been reported as high as 30 percent, but most outbreaks are sporadic and involve less than 1 percent of any one group of cattle.

### Etiology and Transmission

TEME is caused by the bacteria *Haemophilus somnus*. The organism is opportunistic and may act as a primary or secondary pathogen. Disease of the CNS is only one of several disease syndromes in cattle that have been associated with *H. somnus*. Other disease forms include pneumonia, heart disease, arthritis, abortion, and infertility.

Transmission is unknown but is thought to be by direct contact with infective respiratory secretions. The organism is frequently found in the respiratory tract of normal cattle and the existence of a carrier state is known. However, the mechanisms by which *H. somnus* invades the body are basically unknown. Although the respiratory tract is a likely site of invasion, infections experimentally induced by that route rarely result in TEME. Having gained entry, *H. somnus* causes a bacteremia (blood infection) and selectively damages blood vessels in the brain producing blood clots (emboli) that causes focal death of nervous tissue.

### Clinical Signs

Clinical signs are the result of central nervous system damage that vary from mild depression to coma and death. The condition is usually rapid in onset. The victim may be found dead or down and unable to rise, with no previous signs of illness. Early in the course of the disease, affected animals will have temperatures of 105° to 107°F. However, the temperature often returns to the normal range as the condition progresses.