

SHEEP HEALTH

Fact Sheet . . . No. 4



ENTEROTOXEMIA (OVEREATING DISEASE) OF LAMBS

Enterotoxemia, or overeating disease, is a major killer of lambs from shortly after birth through the entire feeding period. It is characterized by acute indigestion, convulsions and other nervous system signs, colic, and sudden death. It most commonly affects single lambs, nursing ewes that are heavy milk producers, and feeder lambs on high energy diets. With proper feeding, management, and immunization, the disease can be controlled.

Enterotoxemia is caused by a bacterium called *Clostridium perfringens*. This organism is universally present in soil and manure and is a common inhabitant of the digestive tract of all animals. It normally inhabits the lower digestive tract and causes no harm to the animal. *Clostridium perfringens* thrives on starch and sugars that are normally digested and metabolized higher in the digestive tract. When a lamb overeats, undigested starch and other carbohydrates provide a medium that allows the *Clostridium perfringens* organism to grow and proliferate. It also enhances the organism's ability to produce several very potent toxins that are released into the intestinal tract and absorbed into the animal's system. The result is the sudden death associated with this disease. Vigorous, healthy, rapidly growing lambs are particularly susceptible to enterotoxemia.

Diagnosis of the disease is accomplished by careful evaluation of the affected population, management, post mortem examination of dead lambs, and submission of tissue specimens to a diagnostic laboratory. It is very important to call a veterinarian whenever sudden death occurs in lambs of any age. It is a common error to assume that all causes of sudden death in lambs are due to enterotoxemia. There are several causes of sudden death including white muscle disease (selenium deficiency), acute

pneumonia, and many others. So, a careful diagnostic effort should be made. Enterotoxemia rarely causes death in adult sheep.

Prevention of the disease is directed toward avoiding rapid proliferation of the organism in the intestinal tract and neutralization of the toxin when it is produced. This is accomplished in several ways.

The most effective method of preventing enterotoxemia in lambs is to maintain a steady intake of feed or milk. This is a tall order, but it can avoid some causes of overeating. Gradually adjust feeder lambs to rations containing more than 50 percent concentrate. Avoid sudden changes in ration ingredients, especially those affecting palatability. Prolonged periods of hot weather often adversely affect the lambs' appetites. When weather suddenly cools, the lambs may eat heavily with some suddenly dying. Water deprivation will drastically reduce feed intake. When water is reintroduced to the lambs, they will often overeat and have problems. So, a steady source of clean water is very important in preventing this disease. Chilling and its effect on feed intake can also cause problems.

Sheep producers have long known that wet bedding is conducive to the onset of an enterotoxemia outbreak. Chilling and stress cause a variable feed intake and problems with the disease. This is especially true for heavy-milking ewes nursing single lambs.

Enterotoxemia vaccines are available and are an important aspect of controlling the disease. To prevent the disease in nursing lambs, vaccinate ewes at 6 and 2 weeks prior to lambing. In succeeding years, vaccinate the ewes once at about 2 to 3 weeks prior to lambing. Use the multivalent *Clostridium perfringens* C-D bacterin/toxoid. This procedure protects the lambs through a steady intake of

colostrum. Late in the nursing period, vaccinate the lambs with the same type of vaccine. Repeat this procedure in 2 to 3 weeks. When early weaning (40 days), give the first vaccination about 10 days prior to weaning, the second about 10 days after weaning. Give late-weaned lambs both vaccinations prior to weaning.

In addition to vaccination and feedbunk management, incorporating chlortetracycline (Aureomycin®) at a continuous low level in the feed provides additional protection against enterotoxemia.

When an outbreak occurs in feeder lambs, it is usually advisable to increase the amount of roughage in the ration for several days and also the level of chlortetracycline in the feed to about 200 grams per ton for several days. Do this with the direction of a veterinarian. In nursing lambs, injection of all susceptible lambs with enterotoxemia antiserum may be necessary. This will provide protection for about 14 to 21 days, at which time the lambs can be vaccinated.

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