

# SHEEP HEALTH

Fact Sheet . . . No. 5



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## PNEUMONIA

Pneumonia may occur in all ages of sheep, but causes the most economic loss in lambs. In older sheep, it is often a secondary condition to other causes of debilitation such as anemia due to parasitism and nutritional problems. Special causes of pneumonia such as lungworm and chronic progressive pneumonia of ewes will be discussed under separate headings.

### **Pneumonia of Nursing Lambs**

Pneumonia of nursing lambs is one of the most serious health problems in the nursery, and in severe outbreaks may cause death losses as high as 30 percent or more. A bacterial organism called *Pasteurella hemolytica* is the primary cause. Many "normal" ewes carry this organism without contracting the disease. However, ewes are felt to be the major source of this organism for their nursing lambs. Usually, healthy lambs can resist infection of the lungs by this organism. Producers should assume that lambs are going to be exposed to this organism and take preventive measures aimed at the contributing factors that allow the organism to establish itself in the lung tissue and cause actual disease.

Improper ventilation is the most important factor that contributes to the development of lamb pneumonia. Buildup of high levels of ammonia and other noxious gases in the lambing quarters causes a primary irritation of the trachea and bronchi that then allows the *Pasteurella* organism to invade the lung tissue and produce pneumonia. Lambing in inclement weather forces most producers to lamb in tightly confined barns and buildings. Inadequate ventilation is common in such management systems and many regard this as the "true" cause of lamb pneumonia.

Several other management factors also contribute to the incidence and severity of lamb pneumonia. One is an inadequate intake of colostrum during the first few hours of life. Colostrum is the only source of antibodies against infectious disease for the newborn lamb. Specific colostrum antibody against *Pasteurella*

*hemolytica* is very helpful in preventing the onset of pneumonia in the nursing lamb. In addition, inadequate colostrum intake usually means that a lamb is deprived of energy, protein, vitamin, mineral, electrolyte, and fluid intake. The body's natural immune mechanisms against infectious diseases such as pneumonia are thus compromised and disease results.

Other infectious organisms may play a role in the development of lamb pneumonia. One of these, the parainfluenza-3 virus, is common in sheep and commonly affects young lambs. The virus itself does not cause major illness but compromises the lamb's natural resistance to bacterial organisms such as *Pasteurella hemolytica*, allowing pneumonia to develop. Other bacterial and viral organisms may cause significant problems in some flocks. Much more research is needed in this area.

Lamb pneumonia may be a subtle disease and result in considerable losses before a diagnosis is made. Young lambs affected with the disease often do not show typical signs of pneumonia such as rapid and difficult breathing. More commonly, they appear thin, weak, and reluctant to nurse. Even "sudden" death may occur. Mild nasal discharge and an elevated temperature are usually found upon close clinical examination of the animal. Diagnosis is best achieved by necropsy (post-mortem) examination. Laboratory culture may be advisable to determine which antibiotics will be most effective in treating the disease. Unfortunately, the mortality rate of lambs that have developed the disease is quite high, even with rigorous treatment. Early professional examination and diagnostic efforts by a veterinarian should be employed. Whenever mortality occurs in the lambing facility, call in a veterinarian early to make examination and diagnostic efforts.

Because lambs affected by disease respond poorly to treatment, prevention is much more

rewarding. Prevention of the disease involves a multi-faceted approach. Currently there is no effective vaccine and no "one-shot" cure. For the long term, the most important aspect of lamb pneumonia prevention is to correct improper ventilation. Lambing quarters need to be dry and relatively draft free but they do not need to be warm. Newborn lambs can withstand cold or cool conditions very well once they are dried off and nurse properly. Most lambing quarters need a large increase in the amount of natural air movement through the building or air changes per hour if mechanical ventilation is employed.

When contemplating renovation and improvement of lambing facility ventilation, contact experienced engineers who work with livestock ventilation systems. Facilities do not need to be elaborate or expensive to be properly ventilated. Lambing sheds with low ceilings and no provision for ventilation are a recipe for disaster for winter and early spring lambing.

Routine supplementation of all newborn lambs with 1.5 to 2.5 ounces of ewe's colostrum within the first few hours of life may increase antibody levels to lamb pneumonia and other diseases as well as provide supplemental nutrition that helps increase general disease resistance.

### **Pneumonia of Feeder Lambs**

Shipping fever/pneumonia complex of feeder lambs is much like that of beef cattle. It is a complex relationship of stress and resulting decrease in disease resistance that allows bacterial and viral infections to cause septicemia (infection in the bloodstream) and fibrinous pneumonia. *Pasteurella hemolytica* is also a major pathogen in the pneumonia complex of feeder lambs. Fatigue, deprivation of feed and water during transit to market, rapid changes in the ration and environment, processing, sorting, chronic diseases such as worms, ticks, and lice, and general stress will reduce natural immune mechanisms and will probably result in severe respiratory disease problems. Feeder lambs that previously had pneumonia during the nursing period are particularly susceptible to pneumonia when entering the feedlot. Small areas of damaged lung tissue harbor bacterial organisms that proliferate when stress occurs, resulting in pneumonia.

Feeder lambs with pneumonia are depressed, have a nasal discharge, refuse feed, and often have a body temperature of 104 degrees F. or higher. Sudden death of lambs may be the first indication of pneumonia problems in feeder lambs. A veterinarian

should diagnose the condition by careful clinical examination of the flock, post-mortem examination of dead lambs, and laboratory diagnostic support when needed. When the condition is diagnosed in feeder lambs, therapy of the entire flock to prevent further cases is often indicated. Treatment levels of antibiotics or sulfonamides are usually added to the drinking water or feed to prevent new cases in the group of lambs. Treatment of sick lambs should be intensive and specifically directed against the organism encountered.

Routinely carry out preventive measures based on the experience in a given feedlot and with lambs from a specific source or area. Provide ample shade in an open, well-ventilated building. Do not put feeder lambs in a tightly closed barn or shed, especially after they have been transported long distances and in warm weather. Improper ventilation also contributes significantly to respiratory disease in the feedlot. Clean, fresh water that is easily accessible to feeder lambs is important. Switch feeder lambs to high levels of concentrate feed gradually if possible. Rumen acidosis caused by a rapid switch to high concentrate rations not only leads to enterotoxemia and other digestive problems, but is felt to also reduce natural resistance to infectious disease. Antibiotics, such as oxytetracycline or chlortetracycline, in the feed at levels that will help prevent respiratory disease are often cost effective.

Vaccinate lambs for enterotoxemia on arrival and treat for internal parasites (worms). Heavy lice and tick infestations reduce resistance to pneumonia, so treat lambs for this on or shortly after arrival as necessary, based on a careful examination of the lambs. *Pasteurella bacterins* given by injection were once widely used to help prevent pneumonia problems in feeder lambs. The value of these bacterins in the prevention of feeder lamb pneumonia is doubtful.

### **Lungworms**

Lungworm infection occasionally causes a condition called verminous pneumonia. Lungworms occur in sheep that graze low-lying, wet pastures and cause a dry husk-like cough, weight loss, and poor performance. It is easily overlooked unless careful post-mortem examinations are performed on lambs that die of unknown causes. It is not a common disease in the Midwest, but can be very costly when it occurs. Move infected lambs to a pasture not contaminated with lungworm larvae and treat them with levamisol (Tramisol®). Ivermectin is also an effective treatment for lungworms of sheep.

## **Chronic Progressive Pneumonia**

Chronic progressive pneumonia of sheep is a common disease of older ewes and rams caused by a virus that infects the young lamb, but usually does not cause symptoms for several years. The virus slowly causes progressive lung damage that makes the lungs very heavy and "meaty." The lungs lose their ability to expand properly and respiratory efficiency becomes greatly diminished. Affected ewes gradually lose stamina and body weight and lag behind the flock as "lungers" when exercise is forced. Chronic progressive pneumonia is a major cause of culling of ewes in many flocks.

The disease is diagnosed by shown symptoms and post-mortem examination of affected individuals. A blood test is available at some diagnostic laboratories that helps producers identify and cull infected individuals that do not yet show disease symptoms.

There is no treatment for chronic progressive pneumonia of sheep. Control and prevention of the disease is based on identification of infected individuals and immediate culling from the flock. The disease can usually be eliminated from the flock or at least controlled to acceptable levels within a year or two when these methods are employed.

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