

LUNGWORM DISEASE OF SHEEP

By

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Lungworm disease of sheep in North Dakota appears to be due entirely to a single species, *Dictyocaulus filaria*. There are several other species of lung worms but they have not been found in this area. Studies on methods of control and elimination of lungworms in sheep have been underway in this laboratory for the past 3½ years.

The disease appears to be present in all parts of the state but in many cases both the owners and veterinarians are unaware of the presence of these parasites in the flocks. Approximately 18% of the sheep and lambs submitted for examination at the North Dakota Agricultural College diagnostic laboratory have been found to harbor these parasites.

Mild lungworm infestations do not cause the sheep to develop any characteristic symptoms. There is usually a "soft" cough, later unthriftiness, loss of appetite and weakness develops. The breathing becomes faster and the sheep stands with its head lowered and extended. There may or may not be a copious discharge from the nose. Deaths are commonly due to pneumonia.

Sheep and lambs shipped into eastern North Dakota for feeding may exhibit many of the symptoms of lungworm disease but on post-mortem examination are found to be suffering from head infestations with the nose bot, *Oestrus ovis*, and the "lunger" disease of the west. In some cases there appear to be pneumonias develop from either a virus or from *Pasteurella* infections.

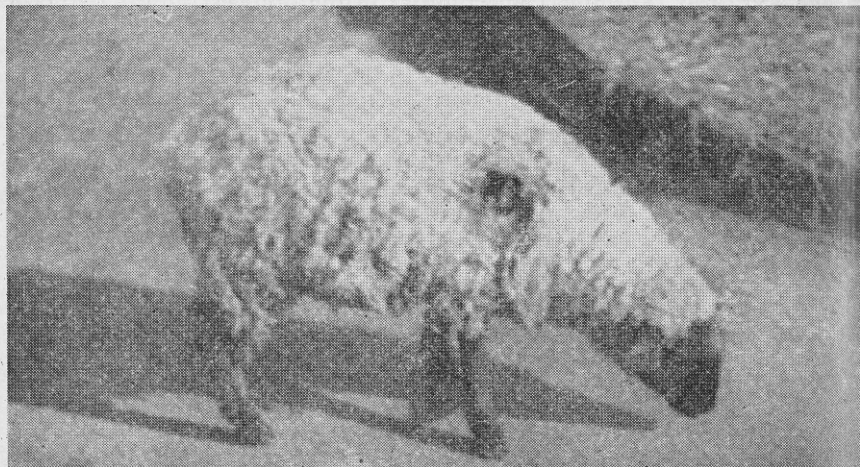


Figure 1.—Head held low and extended. A common symptom of severe lung worm infestation.

Our observations agree with those of Freeborn and Stewart³ who state "Animals with adequate food and shelter frequently harbor many lungworms, but they seldom show any symptoms of this parasitism until their general resistance is lowered by other causes." Two flocks which have been under careful observation for the last three years may be used to illustrate how this disease can be eliminated from a premise.

One flock of approximately 1200 sheep is maintained under semi-range conditions. In 1944 and 1945 numerous animals were brought to the laboratory for examination. In all cases there were heavy infestations of gastrointestinal parasites and numerous lung worms. The owner started a plan of treating all of the ewes in the spring and fall with anthelmintics designed for use against both round worms and tapeworms; and the use of protein supplement for the ewes in winter. During the grazing season he used a phenothiazine salt lick. In the fall of 1946 he submitted 22 cull lambs for observation and postmortem examination. The stunting had been due to erysipelas infection, gastrointestinal parasites and malnutrition of several orphan lambs. In no case was evidence of lung worm infestation found.

The other was a small farm flock maintained in the Red River Valley. The owner requested help during the fall of 1944. The sheep were dying of a combination of gastrointestinal parasites, lung worms, and malnutrition. Intra-tracheal injections of clinical cases with phenothiazine suspension (2) treatment of all sheep with the alkaline anthelmintic (1) and the addition of grain and a better grade of hay to the ration was followed by marked improvement in the flock.



Figure 2.—Extreme emaciation associated with lung worm disease.

The same general plan was followed for the following years with liberal use of the phenothiazine salt lick. Sheep suffering from listerellosis were examined in 1947 from this flock and frequent fecal examinations have been made (1946) with no diagnosis of lung worms.

The value of phenothiazine as an agent for the killing of lung worms has been repeatedly questioned. Experiments conducted here in the laboratory have shown that if the ordinary phenothiazine is suspended in tap water and lung worms placed in the suspension they will live as long in the phenothiazine water as they will in plain water. However, if a wetting agent is used the lung worms are killed much more quickly in a phenothiazine containing water than they are in ordinary water.

The value of phenothiazine in lung worm control appears to be in its ova inhibiting and larvicidal actions. Ordinary phenothiazine appears to be entirely without effect on lung worm larvae in vitro, however it appears to kill them in the animal.

The information which we have obtained shows rather clearly that under the environment of North Dakota that lung worms can be eliminated as a factor in sheep production by use of liberal amounts of feed, control of gastrointestinal parasites and use of the phenothiazine salt mixture.

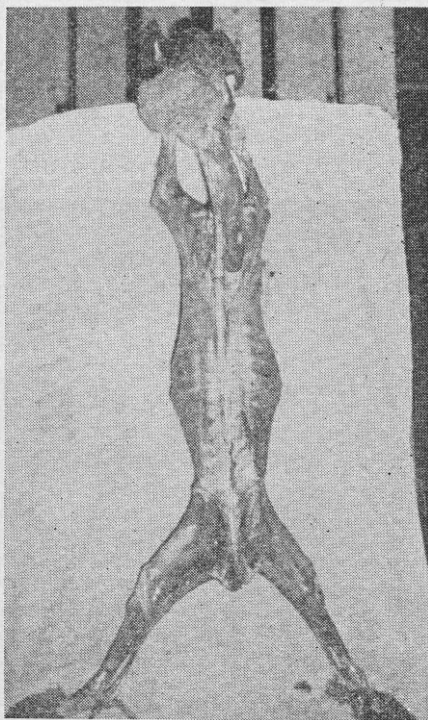


Figure 3.—Lunger disease. This sheep was emaciated, coughed, and had difficulty breathing. No lung worms were found at necropsy.

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"MUSHY" CHICK OR POULT DISEASE

By

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"Mushy" chick or poult disease is a term used to describe chicks and poults that fail to eliminate water so that fluid accumulates in the tissues. These birds often appear to be the largest in the brood. They are apparently healthy until just before they die. When the skin is opened there is often a jelly-like material just under the skin and when the abdomen is opened free fluid flows out. Another name for this disease is "water belly". The accumulation of fluid in tissue is an "edema" and an excess of fluid in the abdomen is called "ascites". Ascites can be produced by any chemical or disease that will prevent the normal function of the kidney. We find ascites as a frequent symptom of navel infections in chicks and poults, but in many cases of ascites there is no evidence of an infection.

Avoid Salt or Salty Waters

Trials by numerous research workers have shown that a high salt content of the ration is often the cause of ascites in poults and chicks. The "salt" may be the common salt, sodium chloride, or any one of the series of other "salts". The "salt" causing the damage may either be in the mash or the water.

Use Rain or Snow Water

Several poultry producers have repeatedly submitted chicks and poults with ascites. Some of them changed their water supplies by discontinuing the use of well water for small chicks and poults and used either rain water or melted snow. In all cases where we received reports the owners stated that when soft water was used there was a decrease in losses due to ascites.

Present evidence indicates that where ascites in chicks and poults is common a cistern should be built so that rain water or snow water may be used for the first four weeks of brooding. If it is impossible to provide soft water a special mash should be used. This mash should contain no salt (sodium chloride) and a minimum of bonemeal or limestone. Extra quantities of vitamin D must be included in the ration in order that the birds will be able to use all of the calcium and phosphorus available.

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