

# Sheep Diseases

## Health problems encountered in middle west

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**I**N CONSIDERING the field of sheep diseases we can roughly divide them into three general groups: (1) infectious, (2) non-infectious, and (3) parasitic.

In Iowa most of our conditions are concerned with problems of parasitism and/or nutrition. For the most part they will be found not too difficult to diagnose and amenable to therapy.

The parasites most noted in Iowa sheep are the "barber-pole stomach worm," *Haemonchus contortus*, and the nodule worm, *Oesophagostomum columbianum*. Tapeworms, flukes, and other of the nematodes are less frequently encountered.

Inasmuch as a great deal has been written concerning these parasites but little will be added here. It should be noted, however, that in treatment of stomach worms the capsule of copper sulfate and nicotine is not as beneficial as the "Cunic" drench. The capsule remains in the rumen too long before being liberated, thus the drug concentration in the abomasum doesn't reach its effective capacity. If properly administered (esophageal groove having been closed with a "primer" dose) the drench has the action of increased concentration. It is advisable to repeat this therapy as indicated.

Phenothiazine has been strongly recommended as effective against the nodule worm. Granting that it has some merit and is a valuable adjunct to our armamentarium of vermifuges, it is my opinion that this drug is not of as much value under Iowa

feedlot conditions as it may be elsewhere under different environmental factors. The picture offered at the post-mortem table stands as mute evidence of the inadequacy of phenothiazine to answer our Iowa nodule worm problem. Sanitation and pasture rotation are of much more value and less expensive. I am considering results of phenothiazine as administered in powdered form, salt-mixture, 1-12, and in suspension.

### Coccidiosis

Coccidiosis is one of the most troublesome problems encountered. Accompanying wet weather and insanitary lots it is readily understood that the problem is much easier to describe here than to treat in the field. However, adequate control can be achieved by moving to dry premises, following a careful feeding program and instituting treatment along the line of astringents, catechu, krameria, tannic acid, or iron salts are most often used. Sulfa-guanidine is now being tried. The secondary intestinal infection and resulting absorptive toxemia often accompanying coccidiosis is a problem in itself. This condition is handled as in any of the enteric disorders.

Liver flukes cause terrific losses in certain areas, especially those that are irrigated. Not only in actual deaths, but also in lack of gain this parasitic trematode causes loss. Liver losses as high as 90 percent are seen on meat inspection in affected areas. Eradication of the intermediate snail is the best method of attacking the

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problem. Copper sulfate solutions in great dilution are most effective for this. The crystals of "bluestone" can be placed at the headwater and permitted to filter through the area. Also, drainage, if feasible, does the job well. Treatment of the affected animal is carried on by administration of certain selected higher hydrocarbons. Care must be used to avoid toxicity reactions or side reactions due to lack of available calcium in the blood stream. Losses as high as 1500 due to this fluke on one ranch have been reported from the Pacific coast. The Oregon station has done good work with this parasite and has aided in improving the relationship of liver flukes to the occurrence of black disease.

The fringed tapeworm cannot be forgotten, but work is not completed which is adequate to answer the problems which we encounter here. The Colorado station is contributing nicely to a solution of the problem.

Regarding nutrition, few of our Iowa sheep are underfed; rather they find themselves forced on diets high in legumes, corn and other grains. Too often they have not been conditioned to this heavy feeding, with the result that digestive embarrassment, plus the action of clostridial organisms and their products couple to give us the condition of enterotoxemia. This condition causes large numbers of losses in the early fall during the period of "lambing down" corn as well as the early feedlot period. Careful and experienced feeders do not encounter this condition often. The post-mortem lesions are highly suggestive of hemorrhagic septicemia, thus these conditions have been and are being confused too often. Treatment calls for drastic reduction in feed with a slow "build-up period" following. Certain of the intestinal antiseptics and anti-fermentives have been used. A capsule 000 containing 8 mg. of acriflavine and the rest bismuth subgallate has been recommended and used with success. Prevention is the best cure here. However, once the condition appears it is not impossible to avoid large losses by reasonable feeding. In the event that acriflavine is used in sheep, it is to be borne in mind that some individuals manifest an idiosyncrasy towards the

product and develop marked swellings of the head region, which is suggestive of "big head."

Fortunately the condition known as pregnancy disease is not too common here. And yet the etiology of the condition is obscure. Perhaps it is a combination of endogenous metabolism (fetal and maternal) dietetics, and endocrinology. We recognize that feeding does play some part in its development, yet we must explain why only certain individuals of a given flock develop the condition. Twinning is considered to be a factor with abortion, either spontaneous or induced, alleviating the condition. This would indicate the possibility of a toxemic reaction due perhaps to trans-placental permeability of a toxic principle. The post-mortem picture is one of an acute toxemia. Dextrose solutions and those of calcium salts are partially successful in the line of treatment. Hormonal therapy has yet to be proved both pro and con.

### **Pasteurellosis**

Of the truly infectious diseases we must, of course, consider pasteurellosis. This condition is definitely seen in sheep. Rarely do we find it, however, without the predisposition of extremes of feeding, transportation, temperature changes, or a devitalizing parasitism. Under such conditions the results of therapy are variable. Immune serum is always indicated in an outbreak if it is financially sound to administer it. The value of the sheep as such per unit varies greatly, and because of this the practitioner must especially consider this factor. For example, a flock of 1,000 sheep cannot be treated in the same economic criterion with a herd of 50 registered cattle or fewer yet registered horses. This part of practice is also important to know.

Before administering a mixed bacterin, or the hemorrhagic septicemia bacterin, to sheep indiscriminately, it would be well to consider the work done at the Kansas station by Scott. His work and results are interesting, important, and accessible to those interested. Sulfonamide therapy is used in conjunction with the immune serum in affected flocks.

Enteritis in lambs is common in areas. The work of Tunncliffe and Marsh indicate the importance of sanitation and dryness in avoiding the condition. Lambs so affected soon weaken and die. The coliform organisms responsible for this condition are many and, I suspect, not all incriminated as yet. Phenolsulfonates and the newer sulfa drugs are valuable in therapy. Sulfaguanidine should offer real promise. Biologics other than some immune serums are apparently valueless. The word *serums* is used advisedly here, as in some areas the etiology differs as to specific organisms. Thus, the immune serum should, of necessity, vary accordingly.

### Blackleg Treatment

In some areas, blackleg is a problem. This condition is controllable through the use of a bacterin administered prophylactically. Treatment of the affected individual with immune serum is often not successful and apt to be too expensive unless an outstanding individual is stricken.

Black disease is not seen in this region. It is similar to blackleg as regards post-mortem lesions. The liver abscesses seen are important in differentiating the condition from blackleg, anthrax, and sweet-clover poisoning. An alum precipitated toxoid is used successfully for prophylactic immunization for black disease.

Listerellosis has recently become recognized as important in certain areas. Its prevalence is not completely appreciated. The reader is directed to the recent publication of the Illinois station for information on this disease. Prophylactically bacterins seem to afford little protection against the disease.

It would not be possible to consider this subject of sheep diseases without a consideration of infectious foot rot. This condition is one of the most severe infections encountered in the feedlot as well as on the range. Not to be confused with foot abscess or lip or leg ulceration, the condition has a complex etiology. *Actinomyces necrophorus* plus other of the necrobiotic group and even certain of the spirochaete group have been incriminated. The essential lesion noted is a complete and total

undermining of the horny hoof. Necrosis is often well developed before the noted lameness calls attention to the condition. Surgery in the manner of drastic trimming away of the hoof plus heroic debridement of necrotic tissue is indicated and essential. Extreme care must be used in this condition not to sever the vessels forming the plexus of the interdigital space for the resulting hemorrhage is sometimes difficult to control. After the trimming has been completed the foot is soaked in a warm aqueous copper sulfate solution (30%) for from 1 to 5 minutes. The sheep is then driven through a "splash tank" of a cold copper sulfate (saturated) solution. This tank is often about 20 feet long and wide enough for one animal. Next the sheep are to be placed in clean quarters on dry pasture. Isolation and quarantine are essential to control and cure the disease. Sulfathiazole in bland oil has been injected into the parts, after surgery, with good results. Treatment of this entity is an undesirable and dirty job but of absolute necessity. Treatment can be repeated as indicated.

Contagious ecthyma is becoming more easily handled since the development of a prophylactic vaccine by Texas workers. It is rarely seen at this laboratory. No consideration of sheep problems could be complete without a thought toward the poisonous plants encountered. This merits more space than can be offered here and so will not be incorporated. It must not be passed over lightly or thought to be unimportant for experience will teach a far different story.

### Survey of Problem

The treatment of sheep diseases involves a practical application of good husbandry. With experience will come more accurate diagnoses and, thus, rational therapy. Every practicing veterinarian in Iowa should be cognizant of the sheep problem. As of January 1, 1944, there were over 696,000 western feeder lambs in the state and over 1,219,000 stock sheep. Over 45,000 Iowa farms have sheep. They last year marketed over 2,000,000 head. This phase of practice must not be neglected.