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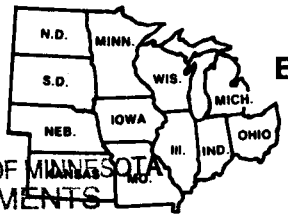
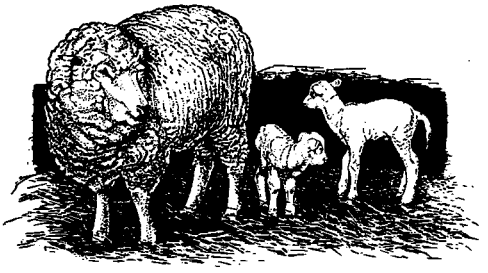


North Central Regional
Extension Publication 379

Sheep Diseases



R. M. Jordan

Sheep do get sick, but fewer would die if producers recognized that a problem existed, made the correct diagnosis, and treated sheep in the most effective manner. Correct diagnosis is most difficult. It requires experience, and the only way to get that experience is to make the effort. Consulting with your veterinarian can be most helpful.

The following brief comments are intended to provide some help in diagnosing, treating, and preventing some of the more prevalent health problems of sheep.

Ten Lessons on Antibiotics

1) Consult with your veterinarian about diagnosis. As a producer, know what diseases are prevalent at particular production stages or seasons and remember that some bacteria are only sensitive to certain antibiotics.
2) Take the sheep's temperature. Normal is 101°-103°F. If there is no temperature, there's no infection, so you shouldn't use an antibiotic. Fever may precede other signs.
3) Treat early. Organisms become more resistant after they are well established. An antibiotic will not remove scar tissue from lungs. Prevent the scar tissue by early and adequate treatment.
4) Maintain drug dosage for two-five days. Identify lambs previously treated.
5) Prevent problems. Don't rely on drugs to replace good management.
6) Check for management shortcomings as a cause of the problem before using drugs.
7) Vary antibiotics. Bacteria do develop resistance.
8) Take care of drugs. Refrigerate them, keep them out of the sun, and don't freeze them. READ DIRECTIONS!
9) Recognize the limitations of antibiotics. They won't bring an abscess to a head and are ineffective in treating for diseases caused by a virus.
10) Administer antibiotics correctly. (a) Remember that sick animals usually don't eat. Mixing an antibiotic in feed may prevent further attacks but won't help those too sick to eat. (b) If sick animals will drink, you can administer sulfa treatment by adding sulfa to the water. (c) Use an effective injection method. Intravenous (IV) injections result in a high drug level in the blood rapidly, but antibiotics injected intravenously also are eliminated more rapidly. Intramuscular (IM) or subcutaneous (SQ) injections require the least skill and last longer. (d) Remember that drenching requires a high drug dosage. Not all drugs are readily absorbed.

Common Diseases or Problems

Abortion

Campylobacter or vibrio may cause 10 to 60 percent of the abortions in a flock. The ewe usually is not sick. The fetus and placenta are aborted during the last three to four weeks of gestation. The placenta is thickened and brown. Some ewes infected with vibrio may not abort but will produce weak lambs, most of which die.

The vibrio organism is taken in orally. It is not a venereal disease. Too high concentrations of sheep and feeding contaminated feeds increase the chance of an outbreak. New sheep that carry the organism will bring it to your flock.

Vaccinate with killed vaccine at breeding and mid-gestation if abortion has been a problem. The second year, use a booster at mid-gestation. Vaccination cost is 40 cents per ewe per year.

If ewes have not been vaccinated and an abortion outbreak occurs, feeding 250-400 mg tetracycline (Aureomycin or Terramycin) per ewe daily for 30 days usually is an effective preventive measure.

Chlamydia, or enzootic abortion, affects two-five percent of ewes. This disease has become more prevalent in the Midwest since 1970. The ewe usually is sick and won't eat for two or three days. The placenta is retained and is brown in color. The ewe usually has a vaginal discharge. Abortion occurs during the last four weeks of gestation. There is now a vaccine (killed bacterin) that costs about $1 per ewe. In case of an outbreak, antibiotics help, but the low incidence lessens its practicability.

Toxoplasmosis is caused by the protozoan parasite *Toxoplasma gondi,* which occurs in humans, several other mammals, and birds. In sheep it causes abortion, en-

cephalitis, and pneumonitis. It was first isolated in sheep in 1942 and has become the most frequently diagnosed cause of abortion in sheep since then. Abortion occurs during the last month of gestation, although some infected ewes produce dead or weak lambs at term. Excrement on hay and grain from cats is a major source of infection.

Since the protozoa that causes toxoplasmosis has some similarities to coccidiosis, Rumensin (not approved for sheep but available through a veterinarian's prescription) and Bovatec have been fed to ewes during late gestation to successfully control the disease. The dosage is Rumensin, 15-20 mg or 35-40 mg of Bovatec/ewe daily. If a nonpregnant ewe becomes infected with toxoplasmosis and builds up an immunity against the disease before becoming pregnant, abortion is normally avoided.

Idiopathic abortions are abortions for which there is no explanation. The majority of abortions are idiopathic.

Ovine progressive pneumonia (OPP, Mpedi or Lunger disease)

This disease was once restricted to the western states, but is now very prevalent in the Midwest. It's usually a disease of older sheep. Lung infection causes sheep to waste away. In younger sheep it may express itself as mastitis and hard meaty udders that produce little or no milk. Since it can be passed from sheep to sheep by contact and via colostrum, culling of infected sheep is recommended.

Pregnancy Disease

Pregnancy disease is an upset or interference in the metabolism cycle of carbohydrates; it is **not** related in any way to the amount of exercise the ewe gets. In converting fatty acids and particularly body fat to glucose, ketones accumulate in the bloodstream and blood glucose levels decline. The ketones are very toxic to the ewe, resulting in death within two-five days.

Pregnancy disease occurs only among ewes carrying multiple fetuses and usually only during the last four-five weeks of gestation. The ewe stops eating, which reduces her source of carbohydrate. She separates from the flock, often wanders aimlessly, and may press her head against the barn or feedbunk.

Unless a ewe is treated very soon after the first signs are noticed, little can be done. Separate her from the flock, drench her with 1/2 pint propylene glycol twice a day until she eats, and offer her grain and hay. Drenching with glucose, honey, or molasses or injecting 40-50 cc of 5-10 percent glucose under the skin also may be used with reasonable success. If the ewe is not treated the first day, however, the prognosis is poor.

To prevent pregnancy disease, keep ewes gaining weight during the last four weeks of gestation. Increase the energy intake by feeding, in addition to hay, .5-1.0 pound grain per ewe daily. **Fat ewes may be more susceptible,** because they have difficulty increasing in weight, have limited feed capacity in relation to their size, and have an abundant amount of fat to convert to energy.

Caseous Lymphadenitis

Caseous lymphadenitis, which is caused by *Corynebacterium pseudotuberculosis*, is a widely spread disease of mature sheep and a major reason for condemnation of ewe carcasses. The abscesses occur in the lymph nodes and may affect the lungs, liver, kidneys, and spleen. Shearing wounds are the major cause and means of spreading the disease. To minimize spreading the disease, shear lambs first and disinfect shearing clippers.

Entropion

Entropion, or turned under eyelids, occurs most frequently in and is most damaging to lambs. It is an inherited condition and appears in most breeds. One treatment is to remove a small section of the skin about 3/8 inch below the bottom eyelid, which will draw down the eyelid when the skin heals. The eyelid also can be clipped or drawn down with thread. Failure to correct the condition will lead to an unthrifty lamb that may remain blind.

Polyarthritis

Polyarthritis is arthritis involving one or more leg joints. It may or may not produce pus about the joint. The bacteria causing it are *Corynebacterium pseudotuberculosis* (the same bacteria that cause caseous lymphadenitis in ewes) and *Erysipelothrix insidiosa* (swine erysipelas). The organism enters the body through the umbilicus or through docking or castrating wounds. To prevent polyarthritis, disinfect the navel cord and docking and castrating wounds. Treatment with antibiotics is only moderately successful.

Feedlot Rectal Prolapse

Feedlot rectal prolapse occurs in 0-10 percent of sheep. The condition is caused by high grain rations, high feed intake, overweight, coughing, or a short dock. There is no particularly effective cure. Procedures usually include suturing the rectum partially shut or inserting a plastic tube or short piece of hose and clamping off the protruding position of the rectum with an elastrator ring.

Urinary Calculi

Urinary calculi occurs in feedlot wether lambs and rams on high grain rations and in creep-fed wether lambs. Mortality is 80-90 percent of those affected. The usual cause is an improper calcium: phosphorus ratio. High grain rations result in a Ca:P ratio of 1:2 or 1:3. The ratio of Ca:P should be 1.5:1 or 2:1; thus, you must add limestone (**not** Dical) to fattening lamb rations. The addition of .5 percent ammonium chloride to the grain ration also is an effective preventive measure.

Mastitis

Mastitis (acute pasturella) is the major reason producers cull ewes. Mastitis is associated with lambs with sore mouth and incorrect "drying up" of the ewe at weaning. Minimize reinfection by isolating the infected ewe and her lambs. Palpate udders in the fall and cull ewes with indications of scar tissue. Mark infected ewes at lambing time. Avoid udder injury, and cull ewes with pendulous udders. Treatment includes giving sulfamethazine at one grain per pound of body weight (two bolus), intramammary infusion of the udder (by a teat tube), or intramusular injection of 8-10 cc of tetracycline.

Ewe Prolapse

Prolapse is a major cause of ewe mortality. Ewes, and

especially ewe lambs, that are fat and aren't getting exercise seem prone. Moldy feed that contains estrogen may upset hormone balance sufficiently to cause expulsion of the vagina or uterus.

Vaginal prolapse occurs before lambing and may be inherited. It may be due to too bulky feed, natural estrogens in the feed or those produced by molds, short tail dock, or injury. To correct it, clean the protruding tissue, elevate the rear quarters of the ewe, and reinsert the tissue. To keep the tissue in, you can suture the vulva partially, insert a plastic ewe retainer, or fasten a rope hitch around the ewe in a manner that permits tying three knots over the vulva. Use an antibiotic to arrest infection and cull the ewe.

Uterine prolapse occurs after lambing and may be due to a parturition accident. It may never occur again. If uterine infection develops, treat it with sulfa bolus or an antibiotic. Use a ewe retainer, feed a low roughage diet, elevate the ewe's rear quarters, and use a rope hitch as described above.

Footrot

Footrot is a grievous disease that almost defies curing. For a small flock of grade ewes, selling out and starting over is the wisest decision.

Footrot is caused by two bacteria—*Fusobacterium necrophorum* and *Bacteroides nodosus*—that act synergistically. *F. necrophorum* is common in most manure; it is very hardy and can live for years in manure. It contributes to footrot in cattle and causes thrush in horses. *B. nodosus* apparently lives only in sheep hooves. It dies out in soil in two weeks. It grows very slowly, so the incubation period may be long. Foot abscesses may be caused by *B. nodosus*, but footrot requires the presence of both *B. nodosus* and *F. necrophorum*. Moist soil conditions contribute greatly to the cause and spread of footrot.

To control and treat footrot:

- Trim the hoof wall to the quick in all sheep.
- Soak affected hooves for five minutes in a foot bath containing 90 percent water and 10 percent formalin (37 percent formaldehyde) or 10 percent zinc sulfate. Zinc sulfate is as effective as formalin and is safer to use.
- Isolate limpers and repeat one week later. Turn apparently cured sheep into an uncontaminated area. Doing so does create a problem, however, because some sheep thought to be clean actually still are infected. With time and moist conditions, they will reinfect other sheep.
- Reexamine **all** sheep and remove any limpers you initially thought were clean. Force sheep to move through a 10 percent zinc sulfate solution daily for 30 days. This has become the most successful treatment scheme.
- Sell persistent limpers.
- If you sell **all** sheep, wait three weeks before bringing in new sheep.

Sore Mouth

Sore mouth (contagious ecthyma) is caused by a virus. Herpes ulcers develop on the lip and tongue of the lamb and on the udder of the ewe. An abrasion on the lips seems to contribute to its incidence. It is more prevalent in lambs raised on rubber nipples. Vaccinate if you have infected sheep running with susceptible sheep (young lambs). If you show sheep, vaccination is a must. For most sheep it is of little concern. Other than with baby lambs, let it run its course. It is a virus, so antibiotics are ineffective. Vaccinate at two-three days **if** you have had previous problems and have brought in unexposed sheep.

Scrapie

Scrapie (wasting disease) has a two-five year incubation period. Suffolk and North Country Cheviot appear to be most susceptible. An infected sheep rubs its head and rump against buildings or fences, becomes nervous, and develops muscular tremors and convulsions that result in death. Only a small percentage of flocks are afflicted with this rare disease.

Pinkeye

About 15 percent of flockowners surveyed reported pinkeye as a problem. Use tender loving care that includes darkening loafing areas to minimize eye stress, and let it run its course. In two or three weeks it usually cures itself.

Lamb Starvation

Lamb starvation, the **number one killer of lambs,** often is associated with lack of shepherding. Contributing causes are:

- The lamb doesn't get started (gets no colostrum). Seventy-five percent of lambs that don't get colostrum die for one reason or another.
- The ewe won't claim the lamb.
- Mastitis.
- The teat is too big or is too near the ground and the lamb doesn't find it.
- Sore mouth.
- The ewe can't feed two lambs (mastitis, too little feed, etc.).
- Joint injury or illness.
- Pneumonia, which often is associated with lambs that received no colostrum and thereby lack immune bodies.
- Difficult parturition.
- A "genetic will to die." Actually, the majority of lambs die for no apparent reason. A genetically caused lack of vitality may well be the cause.

Pneumonia

Pneumonia, the number one lamb disease, occurs because of a lack of colostrum, because of "mastitis milk," or because ewes are heavily infected with pasturella (99 percent are infected, so the organism is always present). A lamb contracts pneumonia because it can't stand such stresses as too little milk, draft, dampness, and ammonia off a manure pack.

Diagnosis of sick, unthrifty young lambs is relatively simple, because 90 percent of the time they are either starving or have pneumonia. Strive for early detection and start antibiotic treatment before the lungs have been permanently damaged.

Treatment for pneumonia is to inject the lamb with antibiotics (tetracycline, penicillin, or streptomycin) plus one grain sulfamethazine per pound of body

weight. Adequate selenium and vitamin E help the lamb withstand pneumonia. Keep the lamb strong!

Baby Lamb Scours

Scours are due to one of many bacteria. To minimize the problem, an adequate intake of colostrum (eight to 12 ounces of either ewe or cow colostrum) is absolutely essential. Scours may hit the lamb the first day of life. The lamb succumbs due to added stress (draft, ammonia, poor ventilation). *Clostridium perfringens* type C may be the cause of baby lamb scours. Vaccinate the ewe four weeks prelambing to prevent it.

Treat scours with a 250 mg tetracycline capsule orally, injection of 1 cc penicillin or tetracycline (IM). *E. coli salmonella* often is the cause.

Coccidiosis

Coccidiosis usually occurs in lambs four weeks or older. It is caused by protozoa. Treat it with amprolin or sulfamethazine (one grain per pound of body weight). (Rumensin, 15 grams per ton, in feed prevents it. Rumensin is approved for cattle but not for sheep.) Bovatec, 40 g per ton of feed, is also effective. Electrolyte-baking soda or consommé soup are supportive treatments. Lambs usually show blackish, bloodtinged diarrhea and are reluctant to eat.

White Muscle Disease

The cause of white muscle disease (muscular dystrophy) is a lack of selenium or vitamin E or both. In Minnesota, a lack of vitamin E is more likely to be the cause. Signs are lambs born dead or weak, or lambs that are unable to rise or walk or that do so stiffly. It may affect six- to eight-week-old lambs. Very often the fastest gaining lambs are affected.

To prevent white muscle disease, feed salt containing 90 ppm selenium, feed salt fortified with 100,000 I.U. vitamin E per 100 pounds salt, or inject young lambs with selenium and vitamin E on day 1 and day 10.

Enterotoxemia

Enterotoxemia can kill sheep of all ages but usually kills only those that consume high levels of carbohydrates. Feedlot mortality for vaccinated lambs is .5 percent; for unvaccinated lambs it is 5-10 percent. Vaccination costs about 15 cents per lamb.

Clostridium perfringens type D, one type of bacteria that causes enterotoxemia, is most prevalent in feedlot or in creep-fed lambs. Symptoms are sudden death, occasional pushing and staggering, and apparent blindness.

For an **outbreak,** vaccinate with type D toxoid on day 1 and again 12-14 days later, deworm, and reduce grain until the vaccine takes effect.

C. perfringens type C causes a type of enterotoxemia that usually is accompanied by bloody scours. Mortality may be high. It usually occurs among fast gaining lambs during the first three weeks. Ewes vaccinated three-four weeks prelambing provide antibody protection in their milk. Normally, vaccine won't "take" on young (3- to 10-day) lambs that are nursing.

Acidosis High grain intake lowers the rumen pH from about 7.2 to 5.2-5.8 causing lambs to discontinue eating, pain and if sufficiently severe, death. Purging with mineral oil or a bicarbonate drench is effective.

Neurological Diseases

1) **Bacterial meningitis:** The lamb can't stand and its rear quarter is weak. The brain is infected. Antibiotics may help but the **prognosis is guarded.**

2) **Polioencephalomalacia:** The disease occurs in feedlot lambs on high grain rations and is caused by a bacteria in the rumen that deprives the lamb of thiamine. In contrast to enterotoxemia, the lamb lives one-three days. Infected lambs flex back their heads and peddle their legs. Thiamine **injection** may produce a dramatic response if lambs are treated early.

3) **Listerosis:** An aerobic bacteria, listeria, which frequently occurs in silage, causes this disease. The sheep circle around. Antibiotic treatment may save a small percentage of infected sheep. Feeding high quality, mold-free silage will not cause the disease.

4) **Rabies:** Skunks transmit rabies to sheep.

5) **Tetanus:** Tetanus is caused by *Clostridium tetani,* which persists in the soil of most farms. Next to horses, sheep are the most susceptible farm animal. The bacteria are anaerobic, so wounds in which air contact is limited are most susceptible to tetanus. Docking and castrating with rubber rings increase the incidence of infection. Disinfecting docking and castrating wounds will minimize it. Infected sheep become stiff, move with a straddled gait, and usually die. Vaccinating with tetanus toxoid and anti-toxin prior to docking is effective.

R. M. Jordan is an extension animal scientist—horses/sheep, Minnesota Extension Service, and a professor emeritus, Department of Animal Science.

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