

1968

EC68-1905 Prevent Worms...to Increase Sheep Profits

Donald Ferguson

Crosby Howe

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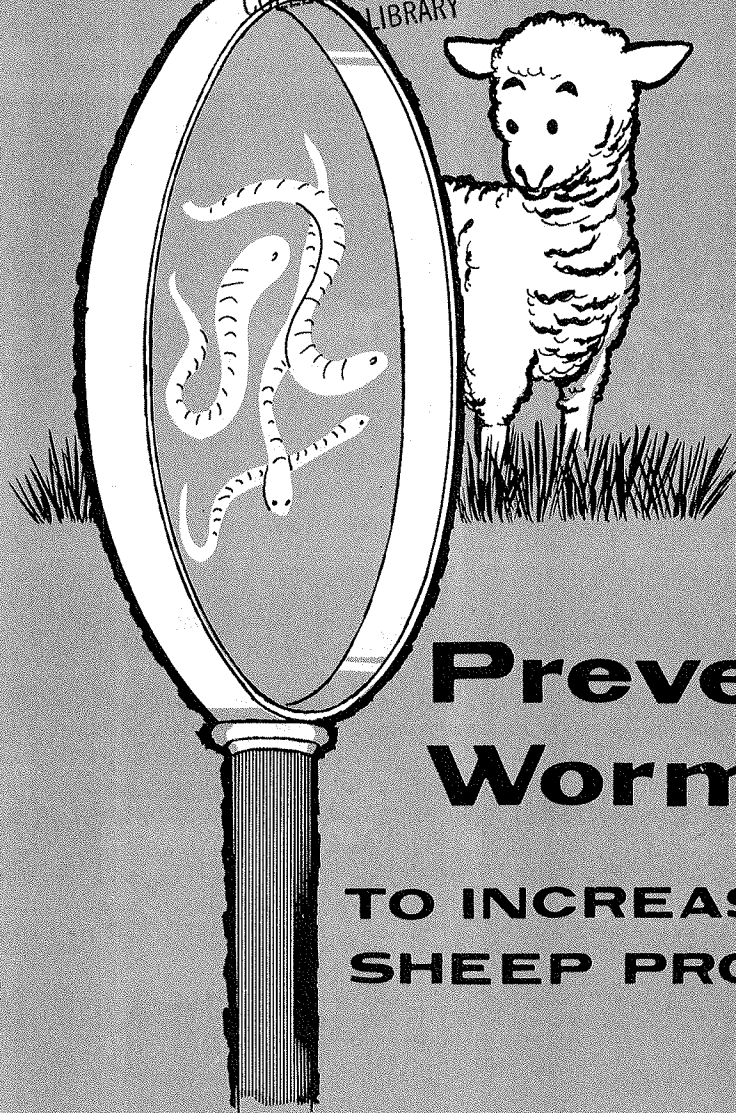
#68-1905

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Prevent Worms...

TO INCREASE SHEEP PROFITS

UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE AND HOME ECONOMICS
EXTENSION SERVICE
AND U. S. DEPARTMENT OF AGRICULTURE COOPERATING

E. F. FROLIK, DEAN

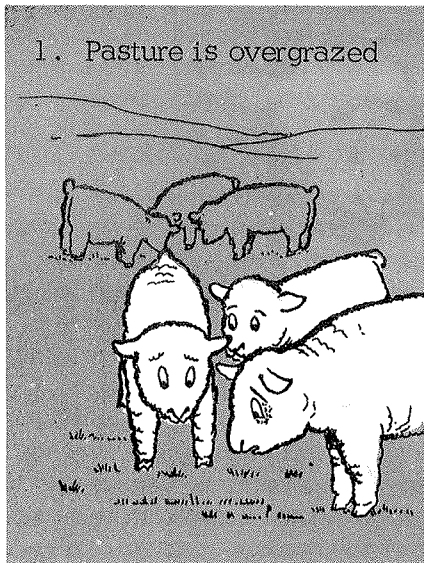
J. L. ADAMS, DIRECTOR

PREVENT WORMS....to increase sheep profits

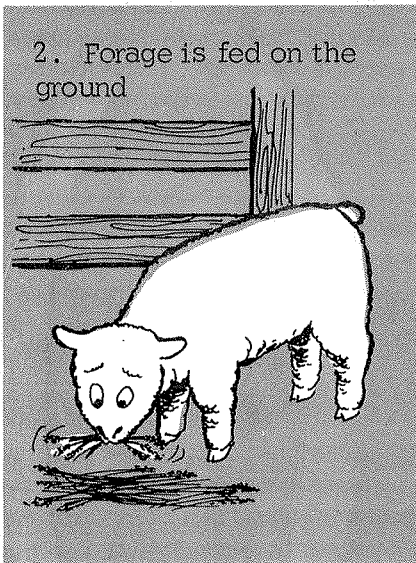
By Donald L. Ferguson and E. Crosby Howe 1/

WORMS BECOME PROBLEMS WHEN:

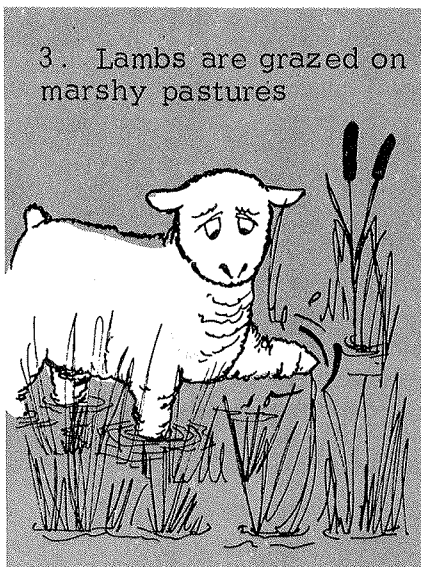
1. Pasture is overgrazed



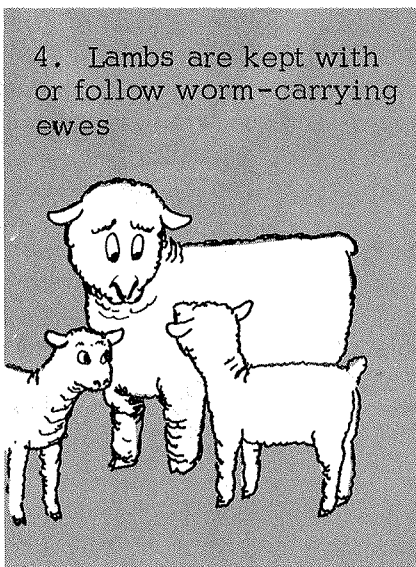
2. Forage is fed on the ground



3. Lambs are grazed on marshy pastures



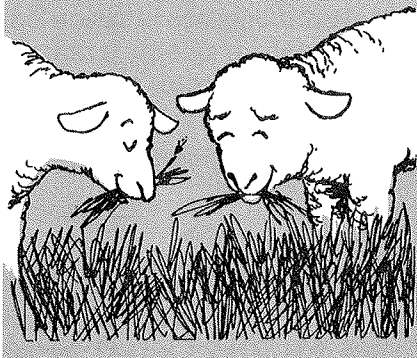
4. Lambs are kept with or follow worm-carrying ewes



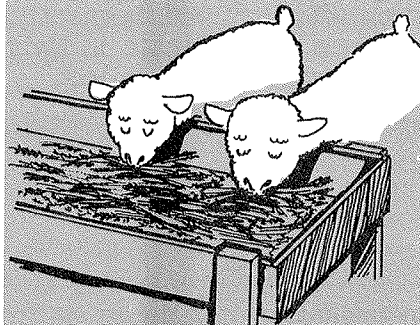
1/ D. L. Ferguson is Assistant Professor, Parasitology.
E. C. Howe is Agricultural Extension Animal Hygienist.

REMEDY THESE BY:

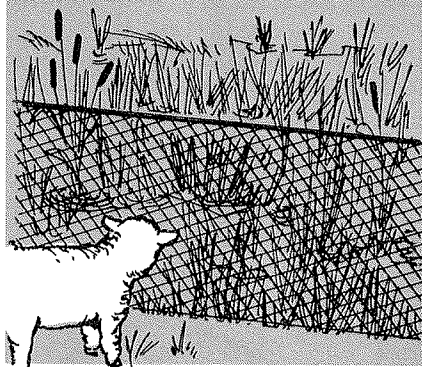
1. Frequent moving to uncropped pasture



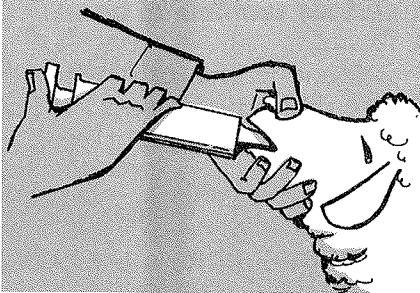
2. Feeding in bunks



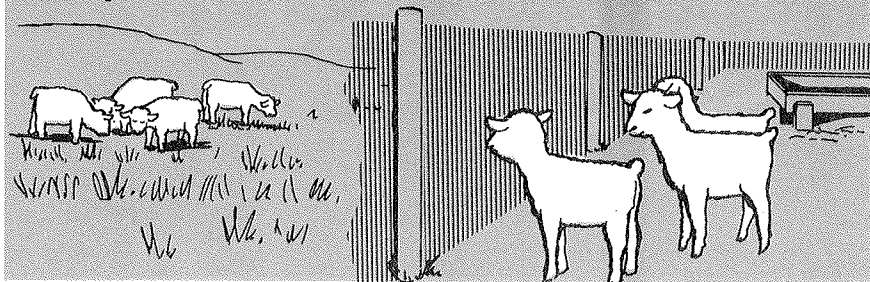
3. Fencing off marshes



4. Worming ewes prior to pasture season



5. Using pasture only for adult sheep, keeping lambs in dry lot



INTRODUCTION

Internal parasitism is one of the most important sheep problems in Nebraska. Every flock in the state is affected to some degree. These parasites reduce profits by retarding growth, lowering feed efficiency, reducing resistance to other diseases and frequently causing death. Sheep production can be profitable in Nebraska only if internal parasites are effectively controlled.

TYPES OF INTERNAL PARASITES

Stomach Worms

The three common stomach worms of sheep are Haemonchus contortus, Ostertagia circumcincta and Trichostrongylus axei. These worms have similar life cycles but produce different changes in the fourth stomach (abomasum).

The most costly roundworm in Nebraska farm flocks is the large stomach worm, also called the barberpole, wire worm and, technically, Haemonchus contortus. This worm affects both young and adult sheep. Since the adult worm consumes several drops of blood each day, anemia becomes a serious problem in heavily parasitized animals.

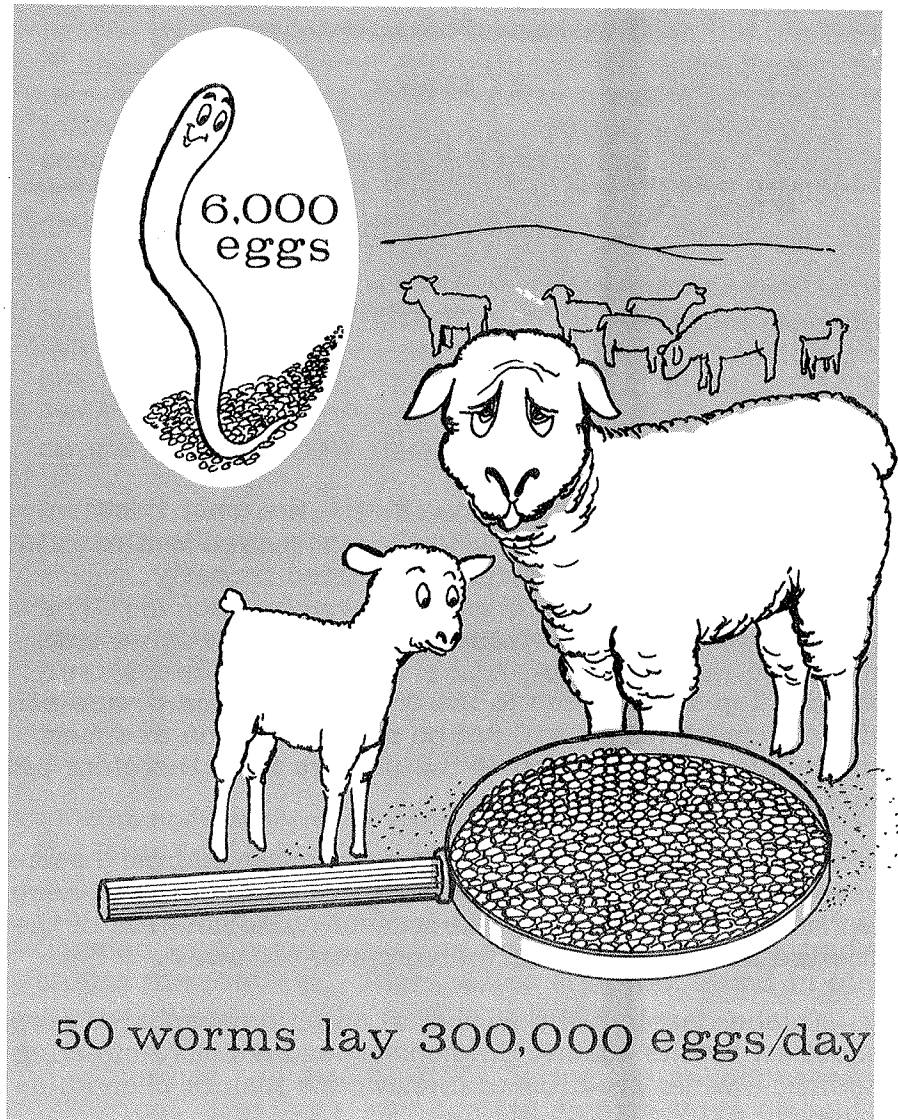
Young worms are quite active and heavy infections may cause digestive upsets. "Bottle jaw" or swelling under the lower jaw is frequently observed in severely parasitized sheep.

Wormy sheep have coarse stringy wool. They are poor doers and when severely parasitized have an accumulation of fluid under the jaw -- bottle jaw.

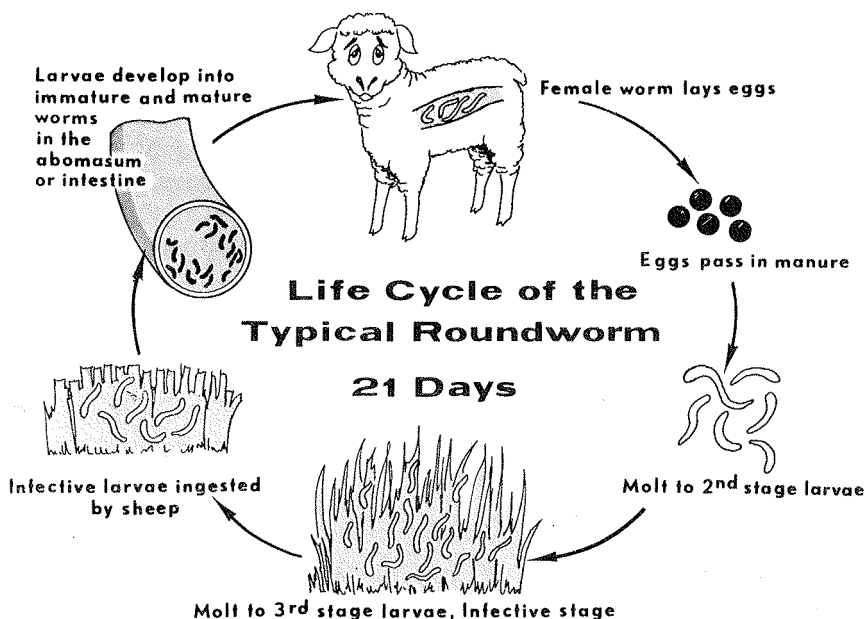


Each female worm lays approximately 6,000 eggs daily. If environmental conditions are favorable, large numbers of stomach worm larvae can develop quickly.

For example, assume that each ewe carries 50 worms. If 10 such ewes with their suckling lambs are grazing a 10-acre pasture, the ewes can spread 3,000,000 eggs each day over the pasture, or about 60 eggs per square yard.



50 worms lay 300,000 eggs/day



Control of Stomach Worms

Micronized phenothiazine is still the most commonly used wormer in sheep. It usually gives excellent results against adult stomach worms when used properly.

However, it has been demonstrated that the large stomach worm, Haemonchus, and probably other roundworms, can develop a resistance to the drug. When this occurs all of the stomach worms will not be removed by the treatment. Viable egg contamination of the pasture must therefore be prevented.

Low level phenothiazine treatment consumed from a salt-box containing 1 part phenothiazine to 9 parts salt will keep worm eggs from hatching and prevent contamination of the pasture from the reservoir of worms in old ewes.

Thiabendazole and a number of organic phosphates give excellent results against Haemonchus and are more effective against a wider spectrum of roundworms than is phenothiazine.

INTESTINAL WORMS

The thread-necked gut worm, Nematodirus, causes considerable damage in Nebraska farm sheep flocks. Nematodirus lives in the small intestine with its head deeply buried in the intestinal wall. This worm is more common in young lambs 6 to 12 weeks old.

In areas where clinical infections are common, the disease has a characteristic pattern. Many of the eggs passed by infected lambs lie dormant through the remainder of the grazing season and winter with large numbers of larvae appearing during the early grazing period of the following year. It is only when susceptible lambs are exposed to grossly contaminated pasture and have a heavy intake of these infective larvae that problems of parasitism develop.

Control Nematodirus by rotating pastures so that spring lambs do not graze pastures used by lambs the preceding fall. Spring lambs can safely graze pastures which were occupied by old ewes the preceding fall because the old ewes are immune to Nematodirus and do not shed Nematodirus eggs.

For treatment, thiabendazole is the drug of choice. Organic phosphates are also effective in removing adult worms. Phenothiazine is not generally recommended. Low level phenothiazine administration will give some control since when taken in this manner it stops the development of a few of the worm eggs and will cut down on pasture contamination.

The Nodular Worm

The nodular worm of sheep, Oesophagostomum, lives in the large intestine. The worm eggs pass out in the feces and develop on the pasture. After being ingested by sheep, the larvae burrow into the gut wall. Many of the larvae are trapped in the gut wall and scar tissue forms a nodule around the parasite. The nodules are often found in other organs, especially the liver and lungs.

Diarrhea usually develops during the second week of infection. The feces may contain an excessive amount of

mucus as well as streaks of blood. The animals become weak, lose weight despite a good appetite and have intermittent periods of diarrhea and constipation.

Phenothiazine, thiabendazole, piperazine and several organic phosphates are effective in removing adult nodular worms.

The Intestinal Threadworm

The intestinal threadworm, Strongyloides, has an unusual life cycle. Only female worms occur in the parasitic phase of the cycle. These are embedded in the wall of the upper portion of the small intestine.

Small eggs containing live larvae are passed in the feces, hatch rapidly and may develop directly into infective larvae or into free-living adults. Sheep are infected by penetration of the skin or ingestion of larvae.

Heavy infections with adult worms cause a severe diarrhea. Damage to the skin between the claws produced by skin-penetrating larvae resembles the early stages of foot rot.

Thiabendazole and rulex are effective in removing adult Strongyloides.

Whipworms

The whipworm, Trichuris, lives in the large intestine and cecum. Heavy infections cause edema, congestion and a yellowish discoloration of the cecum, accompanied by diarrhea and unthriftiness.

Phenothiazine and thiabendazole are not effective against whipworms. Repeated use of these two wormers in farm flocks may result in a rapid build-up of whipworms, especially in young animals.

Certain organic phosphates are effective in removing whipworms.

Tapeworms

The double-pored tapeworm, Moniezia expansa, is a common parasite of native sheep in Nebraska. Adult tapeworms live in the small intestine and reach a length of 20 feet. Heavy infections in lambs are often fatal.

Large number of tapeworms may cause mechanical blockage of the intestine. Tapeworms also absorb nutrients from the intestinal tract and thus deprive the sheep of nourishment.

The fringed tapeworm, Thysanosoma actinioides, is a common parasite of sheep in the west. It is a small worm (10 inches long) which lives in the gall bladder and bile ducts of the liver and in the small intestine.

Lambs imported from ranges west of Nebraska are often parasitized by this tapeworm. This tapeworm may block the bile ducts in the liver, causing bile to be spread throughout the flesh of the animal. Losses result from condemnation of livers for food.

Life Cycle of Moniezia expansa

Tapeworm segments containing worm eggs pass to the pasture in feces of infected sheep. On pasture the sacs containing the tapeworm eggs rupture, spreading the eggs onto the soil. The eggs must then be ingested by tiny soil mites which thrive in great numbers in all pastures.

Development of the young tapeworms inside of the mite requires 2-5 months. Infected soil mites are ingested in the grazing sheep and the young tapeworms are released in the small intestine. In about 30 days after ingesting infected mites, sheep begin to pass tapeworm eggs in the feces.

Signs and Diagnosis

Signs attributed to severe tapeworm infections in lambs are diarrhea, loss of weight and acute convulsions ending in death. These signs are rare in older sheep because they

seldom harbor more than 3 or 4 tapeworms. Diagnosis is based on the presence of tapeworm segments or the identification of the characteristically shaped eggs in the feces.

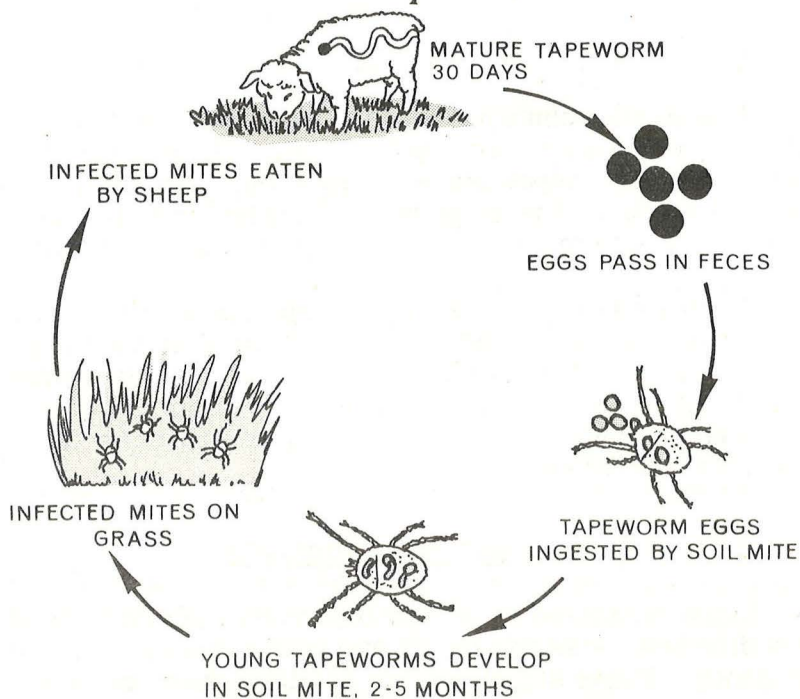
Control of Tapeworms

Control of tapeworms in sheep is difficult because an effective method for controlling soil mites has not been developed. Mites are in abundance on pasture at all times of the year. Treated animals are reinfected when placed back on soil contaminated with tapeworm infected mites.

The drug used for treatment of tapeworm infections is lead arsenate. Phenothiazine and thiabendazole are not effective against tapeworms. Lead arsenate is frequently combined with phenothiazine, however, so that roundworms and tapeworms are treated simultaneously. Two treatments a year will normally reduce the number of tapeworms in a flock.

LIFE CYCLE OF TAPEWORM

Moniezia expansa



SUMMARY

Eliminate adult worms by periodic worming

The drug, dose and frequency of use are determined by the type and number of roundworms affecting the flock, climatic conditions and the effectiveness of other control measures. Your veterinarian can make microscopic studies of fecal samples, evaluate his findings and suggest an effective worming program.

Under Nebraska conditions, sheep should be wormed four times a year. Generally, it is necessary to treat much more frequently during the pasture season. Follow the advice of your veterinarian or county Extension agent as to frequency of dosing.

Prevent egg laying and larval development

Feeding a phenothiazine-salt mixture inhibits egg laying by adult female worms and interferes with larval development. Mix 1 lb. of NF grade (not drench grade) phenothiazine with 9 lbs. salt. Feed this mixture free-choice continually throughout the year in an easily accessible salt box protected from the weather.

Because phenothiazine loses its potency when exposed to air, it is necessary to provide a fresh supply of this mixture every 3 or 4 days.

Prevent reinfection

1. Rotate pastures so that each area is free of sheep for at least 2 to 3 months.

2. Prevent overgrazing and overstocking in order to reduce the concentration of roundworm eggs deposited on the pasture.

3. Feed hay and grain only in mangers and never on the ground.

4. Separate lambs from ewes as soon as it is practical. Parasitized ewes shed roundworm eggs on the pasture and the lambs become infected by ingesting infective larvae.

5. Fence off marshy areas of the pasture. Larvae thrive in a moist environment.

6. Raise lambs with ewes on slatted floors. The manure drops between the slats and the lambs will not come in contact with infective larvae.

7. Follow recommended feeding practices. The effects of parasites are less severe in well-nourished animals.