SPECIAL PAMPHLET



No. 44

THE PREVENTION OF LOSSES IN SHEEP FLOCKS

THE renewed interest in sheep husbandry, due to the increased value of wool and meat, makes it important that the breeder should recognize the causes of losses in his flock and should be prepared to prevent them. Although the conditions in many parts of the Dominion are not suitable for large-scale sheep production, the present low population of these animals can be considerably increased. Land unsuitable for the production of other stock can often be used for sheep raising, thus producing a profitable cash crop of wool and other by-products which are now so urgently needed.

The Canadian sheep breeder is in the fortunate position of not having to contend with any of the major diseases which frequently scourge flocks in other parts of the world.

The diseases considered of greatest importance in the Dominion' are stomach-worm disease, nodular disease, black scours, goitre of lambs, pregnancy disease, shipping fever, sore-mouth (contagious ecthyma), and plant poisoning. In Eastern Canada the major problems are the diseases due to internal parasites, and pregnancy disease. In range sheep in the Western provinces, goitre, shipping fever, sore-mouth, and intestinal parasites may cause losses.

Stomach-worm Disease

In all areas having a high summer rainfall combined with high temperatures, the wire-worm is a major pest, particularly in young stock. However, the infection does not appear to survive on pastures over the winter months and has to be started again each spring by the worms that have remained in the stomachs of breeding stock.

The symptoms of this disease are constipation and paleness of the membranes under the eyelids; these may be noticed in lambs in Eastern Canada in July, August, and September.

There is no excuse for continued losses due to this parasite in Canada, because the worms can be killed in the stomach of the sheep by simple drenches. The treatment with a drench of copper sulphate and nicotine sulphate is simple, cheap, and very effective. The drench is prepared as follows:—

Ingredients	
Crystals of copper sulphate (Bluestone)	3 oz.
40 per cent nicotine sulphate	2 fluid oz.
Soft (rain) or distilled water	1 Imperial gallon

Authority of Hon. J. G. GAEDINEE, Minister of Agriculture, Ottawa, 1940.

630.4 C212 WPS SP Use an enamel, wooden or earthenware vessel. Measure the water into it; then hang the bluestone in a cloth bag in the water until it has completely dissolved. Add the nicotine just before using, and shake thoroughly.

Doses	Fluid ounces
Ewes and rams in good condition	2
Ewes and rams in poor condition	$1\frac{1}{2}$
Well grown lambs	1
Smaller lambs	$\frac{1}{2}$ to $\frac{3}{4}$

The dose should be administered slowly and carefully, the animal's head being held level. Dosing a struggling animal or one with its head held too high is dangerous.

The use of a dosing instrument that will reduce the danger of the solution entering the lungs is important. A simple outfit can be made from a piece of screen-door spring, a No. 9 rubber stopper, some friction tape, and one or more $\frac{1}{4}$ -pint cream bottles. A suitable hole is bored through the stopper, near the edge, by means of a drill or red-hot rod. A piece of spring, 8 inches long by $\frac{1}{2}$ -inch diameter, is inserted into the hole, preferably when the rubber is hot; the projecting 7 inches of spring is then firmly wrapped with friction tape to make it into a water-tight tube. The dose marks are then filed on one or more cream bottles. These bottles are easily filled to the appropriate marks, and the spring and stopper can be instantly fitted into the neck of a bottle as each sheep is ready for dosing.

A suggested routine is to drench the ewes in May, the lambs around July 1, the ewes and lambs around August 15, and the lambs at the end of September. Another general dosing as the animals go into winter quarters is good practice.

The important point is to avoid contamination of spring pastures by making sure that all adult animals have been properly treated before they go out. Drenching of ewes soon after lambing is not harmful, and it is not necessary to starve the animals before or after the treatment. Tapeworms, which do comparatively little harm, may occur at the same time, and many of them will be removed by the same treatment.

Nodular Disease or "Knotty Gut"

This disease is also caused by a worm and is confined in distribution to the agricultural regions from Winnipeg to the Atlantic coast. It chiefly affects the thriftiness of breeding stock, due to the large number of nodules that have accumulated on the intestines by the time an animal is three or four years old. These nodules do not always affect the health of the animal while it is on grass, but during the period of pregnancy, when ewes are on dry winter feed, the effects are frequently very serious. The animals scour, become very thin, and sometimes abort; the lamb crop from a badly affected flock is seldom thrifty.

Until very recently no effective treatment was known. Lately, however, a mixture of chemicals, used experimentally, appears to be efficient. This treatment is at present under rigid experimental trial, and the results will be available later.

The contamination does not live over the winter on the pastures but is carried over from season to season in the breeding stock.

Black Scours

This is another disease due to worms; the parasites responsible live in the small intestine and are so small they are only just visible to the naked eye. They occur in young animals in the autumn and winter, in almost any part of the Dominion; causing a diarrhoea with dark, foul-smelling dung, and rapid wasting. It is frequently associated with hookworm disease in the Eastern provinces. It is readily separated from stomach worm disease by the absence of pale eye membranes, by the presence of diarrhoea instead of constipation, and by its occurrence in autumn instead of summer.

This parasite infection is able to survive on the pastures over the winter to some extent, so that complete eradication is not practicable.

The new treatment for nodular disease can also be used to cure this disease in lambs in autumn; however, the copper sulphate-nicotine sulphate drench, followed in four weeks by capsules of tetrachlorethylene, is also fairly effective.

Although routine treatments are necessary for the control of the three diseases mentioned above, it must be understood that they cannot take the place of good husbandry, particularly correct stocking of pastures and good winter feed.

Goitre

This disease occurs in lambs in districts in which there is a deficiency of iodine. The lambs are born with enlarged thyroid glands, evidenced by a swelling in the neck just below the throat, and they frequently lack wool. Those that survive remain unthrifty.

The disease can be prevented by giving the pregnant ewe a source of iodine. In most districts a good mineral mixture will be sufficient, but where goitre commonly occurs the pregnant ewes should each be given one grain of potassium iodide in the drinking water each day, in addition to that which they get in the mineral mixture. A recommended mineral mixture is:—

Feed bone meal	40 lbs.
Ground limestone	30 lbs.
Salt	30 lbs.
Potassium or sodium iodide	3 oz.

Mix the first three ingredients, then dissolve the iodide in water and sprinkle it over the other mixture. Use this mixture as 2 or 3 per cent of the grain ration, or leave it in front of the animals at all times.

Pregnancy Disease

("Twin disease,"—"Fatty liver")

This is a continual source of loss to some sheep breeders, and in certain years has caused the deaths of as many as ten per cent of the ewes in a flock. The affected animals show symptoms usually about three weeks before lambing time; they show reluctance to move even when approached, and are partly blind. The disease progresses rapidly, and if the lambs are not born within two or three days the ewes will die. The livers of dead ewes are pale yellow in colour, due to an excess of fat. The best preventive is a good diet for pregnant ewes, complete with

The best preventive is a good diet for pregnant ewes, complete with clover hay, grain, and a mineral mixture. When animals show signs of the disease the owner should immediately call a veterinarian, who can frequently offset the serious effects of this disease by proper treatment.

Shipping Fever

(Haemorrhagic Septicaemia)

This disease rarely occurs under farm conditions. Microbes which live harmlessly in the lungs of sheep suddenly become capable of causing disease in animals that are weakened by hunger, fatigue and cold, particularly after a strenuous journey. The symptoms are those of a severe pneumonia and may appear within a week following exposure; some animals die within 24 hours after symptoms appear. The affected animals cough and sneeze, and there is a yellowish discharge from the nose and eyes. The temperature is high, and there is complete lack of appetite. Animals sent to feed-lots, to shows, or those bought from a public market are most often affected. In the case of an outbreak, the best means of control is prompt separation of sick animals and great care in making them comfortable in a well-bedded and well-ventilated building. Noses and eyes should be kept clean with a 1 per cent solution of potassium permanganate. The services of a veterinarian should be obtained as soon as possible in order to prevent serious loss. The vaccination, by a veterinarian, of show or breeding animals which have to be shipped by truck or rail is a good policy of prevention; however, this must be done at least 12 days before expected exposure. Animals en route must be well fed and must have plenty of opportunities for rest. Extremes of temperature are particularly dangerous and should be avoided.

Sore Mouth

(Contagious Ecthyma)

This disease sometimes breaks out in range flocks and in feeding lots and, unless checked, may cause severe loss in weight. Small blisters appear on the lips and gums of infected animals, and when they burst the disease will spread to the tongue and over the entire surface of the lips and nose. In severe cases the infection may spread to the stomach and lungs, causing serious disease.

As soon as the disease appears, all affected animals should be isolated. The scabs and blisters should be removed with a cloth soaked in a 1 per cent solution of potassium permanganate. Easily-consumed concentrates and fresh water must be provided.

Buyers of new stock should examine animals carefully and quarantine them for several days as an aid in preventing the introduction of the virus into their flocks.

Plant Poisoning

From time to time losses are caused by plant poisoning, particularly in the Western provinces.

The Death Camas appears to account for the majority of poisonings in the West, while the Water Hemlock is a danger in Eastern Canada. There are many other poisonous plants, too numerous to be listed here; each outbreak must be considered separately and may require a careful investigation.

The chief reason for plant poisoning in sheep is lack of grass. If sheep are turned out in the springtime before there is an adequate growth of grass, they will hunt for any available green feed. Keep them in, or supply supplementary feed until the growth of grass is well advanced. In times of drought a similar danger exists, and similar preventive measures may become necessary. The destruction of poisonous plants by hand pulling is a practicable and very effective control measure on most farms.

Miscellaneous Conditions

"Stiff-lamb disease" and lamb dysentery are brought about by insanitary conditions. Ewes lambing on manure instead of clean straw, particularly when no disinfectants are used, are exposed to infection. The lamb is even more seriously exposed if the navel cord is not swabbed with iodine, or if a dirty knife and no antiseptic is used at docking and castrating time. Keep the instruments in a solution of disinfectant, and use tincture of iodine freely. Docking by red-hot irons has proved to be advantageous in many flocks, and the use of Burdizzo forceps for castrating is to be recommended.

Insanitary conditions will cause losses in sheep flocks, as they will with other classes of stock.

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