

Milk Fever & Pregnancy Toxaemia in Ewes

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Introduction

Milk fever and pregnancy toxaemia are two of the most serious and common diseases of breeding ewes with which the farmer has to contend. A certain degree of similarity in respect of symptoms, time of occurrence in relation to lambing, and weather conditions associated with outbreaks, often leads to difficulties in differential diagnosis. Correct diagnosis is very important, in that milk fever can be treated easily and effectively, whereas pregnancy toxaemia requires a different kind of treatment, which, at the best of times, is difficult and in many cases quite hopeless. It is the object of this bulletin to describe each disease, to indicate how the farmer may distinguish between them, and to outline appropriate methods of treatment and prevention.

MILK FEVER

This is a bad name, firstly because there is no fever, and secondly because the disease may occur many weeks before lambing when milk production proper has not yet commenced, and, occasionally, dry sheep are affected. Lambing sickness, another common name, has little more to recommend it. The technical term, acute hypocalcaemia, is much more explicit because it describes a state of affairs invariably associated with the disease. This term indicates that there is a drop in the level of Calcium (lime) in the blood stream and that this drop occurs suddenly. Confusion often arises concerning this point. It is important to remember that there is no deficiency of lime in the bones which act as the storehouse of minerals in the body and there is no deficiency of lime in the food. What causes the sudden lowering of the blood calcium is not

known, although it is usually attributed to some kind of a disturbance of the glandular system.

Milk fever may occur at any time from six weeks before lambing to ten weeks after lambing. In this respect it differs from the disease of the same name in cows, where the great majority of cases occur within three days after calving. The disease is decidedly seasonal in occurrence; in some years being more common before lambing, in others, after lambing. Its incidence is highest in the older and more prolific ewes. In serious outbreaks, 30 to 40 per cent of the flock may be affected but about 10 per cent is a more usual figure.

When Outbreaks Occur

Although the exact cause of the disease is, as yet, unknown, the circumstances under which large outbreaks occur have been fairly accurately described. Ewes in both good and poor condition are affected, the latter particularly after they have been allowed access to an abundance of feed, such as greenfeed oats. Gross irregularities in feed supply appear to make sheep more susceptible. The great majority of outbreaks are associated with sudden changes in diet, or with the short intervals of fasting during shearing, road or rail journeys, etc. and particularly does this seem to be the case during periods of inclement weather. Most cases in an outbreak occur within one to two days.

Symptoms

The first symptoms to develop are excitement and a curiously stiff gait of the hind legs. Later the animals stagger about, ultimately going down, frequently with the hind legs stretched stiffly out behind; often there is an obvious twitching of the muscles. Drowsiness soon

sets in, breathing becomes very shallow and there may be a discharge from the nose. This stage passes into one of insensibility and unconsciousness where the eyes are glassy, the skin and lining of the mouth are purple in colour, and breathing is almost imperceptible. This is followed by death which usually takes place from 12 to 24 hours after the first appearance of symptoms. Some cases may linger for 48 hours.

All these symptoms are due to the sudden drop in the blood calcium. As already stated, what causes this drop is not known, but two very effective methods of raising it to normal again are known. Their application leads to remarkably dramatic recoveries with the disappearance of all symptoms, frequently in less than an hour.

Treatment

(a) **By udder inflation.** This may be done with a pump and teat syphon, especially designed for this purpose. Before use, sterilise both pump and syphon by boiling in water for twenty minutes. In emergency cases—and most are emergency cases—a bicycle pump and the valve of a bicycle tube with the rubber sleeve removed are quite satisfactory. Sterilise the valve by boiling. Draw off excess milk from the udder and after cleaning the end of the teat with methylated spirits, introduce the valve into the teat canal and inflate the udder. Gentle massage during inflation helps to distribute the air in the udder tissue. Do not over-inflate the udder; when the valve is withdrawn some air will escape, but pinching the end of the teat with the fingers is sufficient to arrest this escape. It is unnecessary to tie the ends of the teats with tape. Complete recovery usually takes place in an hour or two. In a few cases treatment must be repeated in eight to twelve hours. Just how this procedure restores the level of blood calcium to normal is not known.

(b) **By injection of a Calcium gluconate solution.** This white powder is only sparingly soluble in water. If, however, it is dissolved in a boric acid solution, a much more concentrated solution can be made which will remain stable for an indefinite period. The strength of fluid used is a 20 per cent solution of Calcium gluconate in 5 per

cent boric acid solution. Enough fluid to treat ten sheep can be made up by the farmer as follows:—Mix eight ounces by weight of Calcium gluconate and two ounces by weight of boracic (boric) acid in two pints of water and boil in order to dissolve the salts and sterilise the mixture. After such a solution has been kept for several weeks, a mould growth frequently develops. If, however, it is strained through a very fine cloth and then boiled before use, it is just as good as a freshly prepared one.

Three to four ounces of this fluid warmed to blood temperature (100 deg.F.) is injected under the skin. The injection outfit consists of a metal syringe holding 3 to 4 ounces and a stout hypodermic needle attached to the syringe with a short piece of rubber tubing. Such an outfit may be obtained at a cost of about 20/- to 30/-. Boil the outfit in water for twenty minutes, fill it with the Calcium gluconate solution and make the injection as follows:—Turn the ewe on her side, lift a fold of the loose skin low down behind the shoulder, introduce the point of the needle under it and inject half the quantity of solution. After withdrawing the needle, massage the area gently with the palm of the hand. Repeat on the other side. The swelling caused by the bulk of the solution under the skin will go down in a few hours and the treatment is such that no animal can be harmed by it. The injection may be made into the jugular vein, but this is a more difficult procedure and for the farmer has little to recommend it. Recovery takes place in half to three quarters of an hour. In a few cases it is necessary to repeat the treatment in three hours.

Treatment by injection of Calcium gluconate is usually more effective before lambing than udder inflation, particularly if the ewes are showing little udder development. In urgent cases, however, farmers should remember that udder inflation is a very satisfactory method of treatment both before and after lambing. The danger of causing mastitis is small provided reasonable antiseptic precautions are taken. Sheep that fail to respond to this treatment before lambing should be treated by the injection method. All advanced cases should be handled

carefully lest they die of heart failure, and on no account should an attempt be made to administer a drench to an unconscious animal. Cases that are slow to recover should be turned from side to side every three hours.

Prevention

This is chiefly a matter of avoiding, as far as possible, those circumstances which have been described as being associated with outbreaks. To prevent these circumstances, provide suitable supplementary feed before lambing; avoid sudden changes in diet; introduce sheep gradually to green succulent feed, and reduce to a minimum necessary periods of fasting.

PREGNANCY TOXAEMIA

The disease is also called pregnancy disease, twin-lamb disease, ante-partum paralysis, sleepy sickness, acidosis of pregnancy, turnip sickness and dopiness. The condition may develop at any time during the last six weeks of pregnancy. As with milk fever, the exact nature of the disease is not known but, here again, a considerable amount of information is available regarding the circumstances in which large outbreaks occur. Since treatment for this disease, even in the early stages, is difficult, and in the later stages practically hopeless, it is essential for the farmer to have a clear understanding of the conditions likely to predispose to outbreaks so that all possible preventive measures may be taken to reduce losses to a minimum.

As one name for the disease indicates, the great majority of cases develops in ewes that are carrying two or more lambs. Furthermore, before the disease makes its appearance in a flock, the ewes are usually in what has been aptly described as the "susceptible state"; that is, a condition in which the various body processes are only just managing to function normally, or in which the natural functional reserve of the organs is at a minimum. Thus, adverse environmental conditions that would have no effect on normal stock will precipitate disease in animals in the susceptible state. As a rule, the circumstances which cause this state have been operating for a considerable time.

Besides the general run-down condition associated with old age and poor teeth, and the debilitating

effects of such secondary ailments as footrot and worm parasites, the chief factor causing the development of the susceptible state is faulty feeding for weeks or even months prior to lambing. Under such circumstances the ewes are allowed to slip back in condition as lambing approaches. To prevent this is no easy matter when the latter half of pregnancy in ewes coincides with the lean winter months. It is made the more difficult if the ewes are allowed to become too heavy in condition at mating time. The last five or six weeks of pregnancy is a critical period. It is during this time that the lamb or lambs are making their most rapid growth. Consequently the food must be sufficient not only for the needs of the ewe herself, but also for those of the developing lambs. Obviously, therefore, special care must be taken to provide nourishing food during this critical period.

When the susceptible state has been reached, the actual disease itself is readily brought on by sudden changes in diet, by short periods of fasting, particularly during cold, wet weather when sheep are shifted from their normal grazing, or when they are transported by rail, and by fatigue during long road journeys.

Symptoms

The first symptoms of dullness and loss of vigour are often overlooked by the farmer. If the sheep are driven round the paddock, those showing these symptoms will be found to lag behind. As the disease progresses, there is a gradual loss of appetite, vision is impaired and varying degrees of lameness may develop. Affected animals become isolated from the flock, wander aimlessly about falling into drains and walking into fences. Sometimes they stand for hours in one place with the head near the ground. Constipation, grinding of the teeth and spasms of rapid breathing are common symptoms. Finally, the animal goes down, shows a few convulsive seizures and passes through a fairly long unconscious period to death. Five to seven days usually elapse from the appearance of the first symptoms until death.

Treatment

For the average farmer, treatment, except in the very early stages, is practically impossible. Hence the importance of keeping a close watch on the flock at times

when the disease can reasonably be expected to appear. The flock should be driven round the paddock and all those that lag behind should be regarded as suspects and should be put on to green feed. Those showing early symptoms should be drenched immediately with half to one pound of molasses or treacle prior to putting on to green feed. Ewes that have lost their appetite must not be left in the hope that they will commence feeding again. From the very nature of the disease, they are certain to get worse if they are not forcibly fed. After the initial treatment with molasses, they should be given, at intervals of 3-4 hours, small quantities of easily assimilable food such as three tablespoonfuls of sugar or glucose in a pint of warm milk. Signs of returning appetite may be regarded as favourable. Where this form of treatment is impracticable, an attempt can be made to cause the ewe to slip her lambs by administering a purgative drench of two pounds of molasses and two packets of Epsom Salts in water. Dissolve the molasses in boiling water in order to reduce the quantity of water required. If this is done before the disease has progressed too far, the patient frequently recovers.

Prevention

The aim in prevention is either to avoid those circumstances which cause the development of the "susceptible state" or if this is impracticable, its existence should be accepted and appreciated and therefore all possible measures taken to prevent the operation of the precipitating causes.

Where possible, the flock should be kept on a gradually improving plane of nutrition from mating right up to lambing. Adequate quantity and variety in the ration during the last six weeks of pregnancy is specially important. It is advisable to make provision for some fresh green feed to be rationed to the ewes at this time. Serious outbreaks of pregnancy toxæmia are quite uncommon on farms that provide some green feed before lambing.

The following summary of recommendations may prove helpful:

1. During the last month of pregnancy draft off the ewes that appear to be carrying twins and the old ewes with poor teeth. Give them extra supplementary feed and whatever green feed is available.

2. Control footrot, parasitic infestation, contagious ophthalmia (pink-eye) etc., which tend to bring the ewes down in condition.
3. When stormy weather is encountered, provide extra dry feed and if possible a green "pick" even if it means a small amount of grazing on the green feed kept for the ewes and lambs.
4. Where possible, make arrangements for the provision of suitable feed for travelling stock.
5. Never fast low-conditioned sheep during advanced pregnancy.
6. Where losses are experienced regularly in average seasons, consider the possibility of lambing later. The prenatal stimulus to the lambs and to the milk production of the ewe occasioned by the early spring flush is frequently sufficient to allow the later born lambs to overtake the early ones in growth and development.

Differential Diagnosis

The following illustrations may assist in distinguishing between the two diseases and indicates the circumstances under which outbreaks of milk fever commonly occur. Because the weather is cold and wet, the farmer puts his sheep on a fresh break of greenfeed, or perhaps shifts them to a more sheltered paddock. On going round them next morning, he finds five, ten or even fifteen per cent of them down; some are dead, some are quite unconscious and breathing very slowly, some are conscious but unable to stand up, while others are staggering about with a characteristically stiff gait of the hind legs. He would suspect immediately that the sheep are not suffering from pregnancy toxæmia because they have gone down very suddenly, many have become unconscious in a few hours, a few dying in less than 24 hours, and furthermore they have been receiving an abundance of green feed.

With typical pregnancy toxæmia, the picture is quite different. There is almost invariably an absence of green feed, the symptoms develop slowly with a loss of appetite and a gradual onset of drowsiness, the ewes finally going down and dying in about a week. Pregnancy toxæmia cannot, of course, be confused with milk fever after lambing.

Occasionally, outbreaks of pregnancy toxæmia occur in which there is also a hypocalcaemia, but these are definitely exceptional.

Copies of this Bulletin may be obtained from the Secretary, Canterbury Chamber of Commerce, P.O. Box 187, Christchurch.