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COCCIDIOSIS IN LAMBS ON THE SOUTH COAST

Outbreaks of coccidiosis among autumn-born lambs on the south coast have approached epidemic proportions this year. Similar outbreaks are likely among late winter-spring born lambs. This article describes the disease and suggests measures for prevention and treatment.

By A. J. HADLOW, Veterinary Surgeon, Albany

SINCE 1966 the disease coccidiosis has been observed frequently in lamb flocks in the south coastal region, in areas extending from Rocky Gully to Jerramungup.

This year outbreaks have approached epidemic proportions in autumn-born lamb flocks and present conditions suggest that late winter—spring born lambs on a number of properties will be similarly affected.

The disease
Coccidiosis is a contagious intestinal disease resulting from infection with coccida—microscopic parasites belonging to a very large group of organisms known as Protozoa.

The life cycles of the coccidia have some similarities to those of the common worm species and the clinical appearance of the disease is also similar. However, the coccidial parasites are not worms and worm drenches do not affect the course of the disease.

Many people associate the term coccidiosis with poultry but some may not be aware that the disease has been recorded in many domestic animal species. The various species of coccidia are host-specific and infection does not pass from one species of animal to another.

A number of species of coccidia have been identified as infecting lambs in this zone and usually more than one of the sheep species is present in any single outbreak of the disease in a lamb flock.

Recovery from infection is accompanied by the development of a strong immunity against the disease. However, the animal may remain a carrier of the organism and contribute towards future outbreaks.

The parasite
The source of coccidial infection is the droppings of either clinically affected or carrier animals. The parasites’ eggs (oocysts) are passed in the dung and need favourable weather conditions to become infective for sheep. Moist, mild or cold conditions favour this development of infectivity, whereas high temperatures and dryness impede it and may destroy many of the oocysts.

Infection is acquired from contaminated feed and water. On reaching the intestines the ingested oocysts release active forms of the parasites known as sporozoites which invade the intestinal wall and undergo a complicated series of divisions. The end result is an increased number of parasites, damaged or destroyed intestinal tissue and the production of more oocysts which pass out with the droppings and complete the cycle.

Samplings from local lambs affected by the disease give an indication of the manner in which pasture contamination can be increased once the disease is
triggered. Counts of up to 596,000 oocysts per gram of dung have been made. (This is roughly equivalent to 17 million oocysts per ounce of faecal material).

The disease in the Albany zone

For a number of years occasional outbreaks of coccidiosis have been observed in weaner flocks, usually associated with hand feeding. It is now more common to see young lambs affected and the incidence of the disease appears to be increasing.

Outbreaks can be roughly divided into two lambing groups, with factors common to both.

Late winter—spring born lambs

The disease tends to be seen on properties where the stocking rate is high relative to the pasture feed available.

Invariably there is a strong relationship between depressed body weights of ewes (and possibly depressed lactation) and outbreaks of coccidiosis in the lambs.

The moist paddock conditions at this time favour the survival and development of infectivity of oocysts shed onto the pastures by carrier ewes.

Autumn—early winter lambs

In the more normal type of season outbreaks are less common in autumn-early winter lamb flocks but the 1968-69 extended dry season in the Green Range-Jerramungup areas produced conditions favourable for the appearance of the disease on a large scale.

Many of the ewes in this area fell to a backward store condition, or worse, and the lactation rates were markedly depressed.

Equally important, supplementary feeding of the ewes over an extended period was necessary and allowed patches of ground to become heavily contaminated with oocysts by carrier ewes.

The factors common to both situations are:

- The ewes are in backward store condition. This may predispose the lamb to coccidial infection by two methods: The lamb tends to start grazing pasture at an earlier age and to a greater degree than normal in an effort to supplement its reduced milk intake, thus increasing its exposure to pasture contamination. Secondly, the reduced milk intake may correspondingly reduce the lamb's ability to combat any disease it is exposed to.

Symptoms

Coccidiosis is often seen in lambs 2½ to 12 weeks old, but most frequently lambs 2½ to 8 weeks old are affected. The number of obviously-affected animals can vary from 5 to 90 per cent. of the flock.

The most specific feature is a scour, which can vary from blackish-green to orange-yellow. It is often distinctively sticky or "tacky" in nature with a marked offensive odour.

Some droppings may contain blood streakings but in local outbreaks this feature is rarely observed.

Not all affected lambs scour. Some show only general unthriftiness and close examination often reveals varying degrees of anaemia.

The mortality rate is not high—usually from 1 to 5 per cent. of affected lambs.

In a typical outbreak 85 to 95 per cent. of the affected lambs cure themselves within two to three weeks of the onset of symptoms, with only a resultant moderate setback to their growth. From 1 to 5 per cent. may die from the disease and 4 to 10 per cent. take many weeks to recover and then often suffer a marked setback to their growth.

The high rate of "self-cure" explains the apparently satisfactory responses when the disease is incorrectly diagnosed as caused by scour worms and the lambs are given a worm drench.

Dangers of the disease

There are three main dangers from coccidiosis:

- Lamb losses and induced ill-thrift on some properties can reach significant proportions.

- The disease tends to affect lambs already labouring under the burdens of reduced milk intakes and decreased ewe interest.
Lambs affected by coccidiosis, showing the scouring which is the most specific feature of the disease. The lambs most commonly affected are 2½ to eight weeks old. The mortality rate is usually only from 1 to 5 per cent, but others suffer a marked setback in growth.

- Because the symptoms are similar to those produced by scour worms, ewes and lambs already struggling may be submitted to an unwarranted yarding, and cash is wasted by drenching.

Because the "self-cure" phenomenon may appear to be a response to drenching it often becomes standard practice to submit lambs two to six weeks old to anthelmintic drenching at marking time.

**Diagnosis**

A tentative diagnosis of coccidiosis can often be made on the basis of the time of the year, the age of the animals affected and an accurate description of the types of scour seen in the lamb flock.

A positive diagnosis involves post mortem examination of a typical specimen and, equally important, the microscopic examination of scour samples taken from a number of lambs.

The time of the year gives some indication of whether worms may be involved in the trouble. Scour worms tend to build up in flocks in this zone in late June and July and clinical symptoms usually appear in late July, August and September.

The age of the lambs can be a valuable guide. I have not yet seen significant burdens of scour worms in lambs two to five weeks old.

In older lambs (six to 12 weeks old) particularly during the late winter-spring months, the disease can be difficult to distinguish from scour worm infestations. At times the clinical symptoms may result from the combination of both these diseases. (The condition of the ewes also gives a rough guide—with poor body condition their resistance to worm infestations will be reduced and indications will be seen in some of them if scour worms are present in the paddock.)

Positive diagnosis in these cases invariably depends on post-mortem examination and/or laboratory examination of scour material.

**Treatment**

In average seasons one should first look to the condition and behaviour of the ewes in an effort to determine the basic reason for the outbreak.

Often a marked improvement in the lambs can be obtained merely by moving the flock into a better-pastured paddock. This response probably results from a combination of the improved nutritional status of the ewes (perhaps hastening the "self-cure" phenomenon) and the reduced rate of re-infection among the lambs on the clean paddock.

Similarly a check should be made to ensure that the ewes are not infested with
significant burdens of worm species common to this area, especially the barber's pole worm.

If significant numbers of lambs are severely affected it is worth considering treating them with a sulpha preparation. A well-known example is sulphadimidine (sulphamezathine) at the rate of 1 gram per 15 lb. of body weight daily for three days. The drug is given as a subcutaneous injection and can conveniently be administered through most farm vaccinating syringes. The cost is from 6 to 10 cents per head for a full course of treatment, plus time and labour.

If the consensus of opinion is that yarding and drug treatments are warranted then it is sound policy to treat all lambs in the flock. Many lambs may be developing the disease and not showing symptoms at the time of yarding.

The outbreaks this winter and any that might occur in very young lambs this spring present additional problems. The extended dry season has left many ewes suffering from advanced malnutrition and extra yardings of the mob can constitute major crises. Certainly in many cases there would be no better pastured paddocks to move the flock into. Properties which have extended lambing periods have the additional problem of whether or not to disturb recently lambed and heavily pregnant ewes.

Under these conditions the approach on each property must differ. In one case it may pay to allow the disease to run its course and attempt to modify it only by increasing the supplementary feeding rates of the ewes and altering the areas in which feed-outs are made.

In the next case a system of "spotting" might be used, with severely affected lambs being identified and treated in the paddock.

Elsewhere, the erection of temporary yards in the paddock may allow treatment, followed by movement of the flock to an adjacent paddock less contaminated by oocysts.

Prevention

To a great extent the appearance of this disease on a property in the average season suggests that we should critically examine either the grazing pressure on the paddock involved, the method of pasture management or the rates and method of feed supplementation.

It is my opinion that the appearance of this disease on a number of properties is a fair indication that many ewes in this zone are not in a position to do justice to their lambs and possibly the adult productive potential of many lambs is being affected.

There appears to be a positive relationship between supplementary feeding and observed outbreaks of coccidiosis in lambs. Benefits will be obtain by feeding out onto areas away from sheep camps and by frequent alteration of the site of distribution of the feed supplement.
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