

Canterbury Chamber of Commerce

Agricultural Bulletin

CASEOUS LYMPHADENITIS OR LYMPHO IN SHEEP

Prepared by Canterbury Agricultural College, Lincoln

BULLETIN

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Caseous Lymphadenitis, more commonly known as lympho, in sheep, is the subject of this month's agricultural bulletin, prepared by Canterbury Agricultural College, Lincoln, issued by the Canterbury Chamber of Commerce. The history of the disease and its causes are dealt with and the methods of prevention and control considered in detail. The bulletin states:—

Although statistics show that the incidence of caseous lymphadenitis in New Zealand flocks is much lower than in other countries in which the disease exists recent information from Canterbury and Otago shows that the disease is on the increase in certain localities. In view of the ease with which clean flocks may become infected and the effect a greater prevalence would have on the Dominion's export trade, the following information should prove of value to flockowners interested in the control and prevention of the disease.

History and Importance of the Disease

Caseous lymphadenitis has been recognised in New Zealand flocks for more than 30 years. The disease derived its name from the cheesy nature of the abscesses which are generally found in the lymphatic glands. Some time ago it was found to be confined to certain flocks and localities, but more recently there is evidence of the disease spreading to hitherto clean localities.

The importance of lympho to the sheep industry of the Dominion does not depend on the mortality from the disease but on the fact that affected carcasses are partly or wholly condemned and extra time is expended in examining carcasses during meat inspection. The Port of London Authorities insist on rigid inspection measures in the works to prevent export of lympho affected carcasses and rejection for export means a loss for the individual farmer and in the aggregate a heavy financial loss to the Dominion.

In New Zealand as a whole the percentage of rejections from lympho is small compared with other countries such as Australia and Argentina; but on certain infected properties the proportion of rejections reaches alarming totals and demonstrates how serious lympho may become.

The most important single cause of rejection at the works is lympho-adenitis, and, in the case of grown sheep this disease is the cause of more rejection at the works than all other diseases put together. The need for control measures to localise and reduce its incidence is therefore emphasised.

Cause of the Disease

The disease is caused by a specific organism, of which there are several strains. While in generalised cases practically any organ or tissue in the body may be affected, the organism tends to confine itself to the lymphatic glands, which develop abscesses containing greenish-yellow cheesy matter. These abscesses vary in size from a pinhead to a man's fist. Not infrequently they rupture naturally or are cut into accidentally during shearing. The organism is present in the discharge, and as will be seen later, may live for some time outside the body on wool, and in the soil. The glands most commonly affected are those in front of the shoulder, in the flank above the stifles, and less frequently those in the groin, throat, and limbs. Enlarged glands may be readily detected by palpation, i.e., feeling for the glands by the hands.

Animals Susceptible

Although the disease is essentially one of sheep, infection may be set up in other animals, including goats, guinea-pigs and rabbits. All breeds of sheep are susceptible. It is most commonly found in old ewes, wethers, and rams, and then in order, four-tooths, two-tooths, hoggets, and lambs. In New Zealand the incidence is highest in merinos, halfbreeds, and breeds of merino origin. Whether this is due to breed or to infection gaining access to shearing and crutching wounds so common in these breeds is not known. It is believed, however, that the greater number of cases in old sheep is due in part to the greater chances of infection following successive shearing and crutching, and in part possibly through eating food contaminated with the organism.

Methods and Spread of Infection

A knowledge of the methods and spread of infection is essential in any scheme of control and eradication. Experiments conducted in Australia and

New Zealand show that the disease may be readily set up by wound infection. Material from discharging abscesses or freshly-opened enlarged glands applied to shearing and crutching wounds has resulted in the production of the disease. Similar material applied to the unhealed cord of newborn lambs and tailing and marking wounds sets up the disease. Wounds due to shearing, crutching, tailing, marking, foot-rot, grass-seed, etc., must therefore be accepted as likely avenues for the infection gaining access to the body.

Recent work in South Australia shows, however, that a high incidence of lympho may be encountered in young unshorn sheep and that soil on the farm on which the disease is prevalent harbours the organism. It was found, also, that the dung of affected sheep may contain the organism of the disease. How long it will live in the open is not known. The possibility of a proportion of cases developing from food contamination must therefore be entertained.

The spread of infection is governed by the routes the organism may leave the bodies of affected animals. A common route appears to be from ruptured abscesses. The other and possibly less common route is in the dung of affected animals. From the above information it will be readily realised that spread of infection within a badly affected flock may take place in several ways, and fresh lympho areas may be set up by the introduction of affected sheep by unsuspecting buyers.

Symptoms

In many cases the first indication of lympho in a flock is discovered in the works during meat inspection. Badly affected animals may have well-nourished carcasses. The only symptom of diagnostic value to the farmer is enlargement of the superficial lymph glands if the diseased process has extended far enough. These glands may be felt during life, at the point of the shoulder, in the flank, and near the bag and udder. The gland between the hock and stifle in the fleshy part of the limb is less easy to feel. The shoulder glands are most frequently affected, and the left one oftener than the right. This is believed to be associated with greater chances of injury to the skin during opening up of the fleece at the commencement of shearing. As previously stated, a propor-

tion of glands rupture of their own accord; others are cut into accidentally during shearing. All gland abscesses are not due to the lympho organism, but it is wise to regard them as such until proved to the contrary.

Inspection of Carcases on the Farm

The reason for partial or complete condemnation of lympho carcases is not because of their danger to human health, but because they are not acceptable to the consumer. In the inspection of dressed carcases killed for human consumption on lympho infected farms, extra care should be exercised in the examination of lympho glands deeply embedded in groups of muscles and fat, as the disease may not be detected until the gland is exposed and cut into. The abscesses may be scarcely visible to the naked eye, but may reach the size of a man's fist.

In the dressed carcase the glands at the point of the shoulder, the flank, the groin, at the entrance to pelvis, and the chest should be examined, and, if necessary, incised. The group of glands in the fleshy part of the thigh will be found just above the middle of the back of it. The removal of isolated affected glands may render the carcase fit for human consumption though not for export. On the other hand, if abscesses are widespread and pleurisy is a complication, or the carcase is yellow or jaundiced, total condemnation is warranted.

Prevention and Control

As there is no medicinal treatment of any value and a satisfactory method of preventive vaccination has not yet been devised, control measures are limited to the culling of sheep with enlarged glands and the avoidance of further spread of infection. Although the absence of enlarged glands cannot be accepted as an indication of freedom from lympho, trials by the livestock division of the Department of Agriculture have already shown that the elimination of sheep with enlarged glands reduces the incidence of the disease in subsequent years. As it is impracticable, under hill country conditions to make special musters for gland detection only, inspections are carried out at the usual musters. This may be at dipping, shearing, crutching, weaning or culling times. With suitable yards and an extra man or two the work can be carried through with a minimum interference to routine procedure.

In view of the greater prevalence of the disease in older sheep and the likelihood of their contaminating the yards, rails, and shearing shed, it is recommended that young sheep be shorn first and old ones last.

Sheep to be examined are run into the pens and the glands in front and

above the shoulder, in the flank, and in the groin are felt (palpated) for signs of enlargement and the disease. After a little experience detection becomes simple. Affected sheep are raddled, drafted off, shorn last, and isolated from the rest of the flock. It is easier to locate the glands in shorn sheep. However, inspection before shearing detects open abscesses which may be a dangerous source of infection in the shed. If inspection is practised after shearing the erection of temporary yards may be necessary if the branding race is not suitable.

Sterilisation Important

As the fresh discharge from open abscesses may infect sheep after sheep extra care should be exercised by shearers in the detection of ruptured abscesses or abscesses which are cut into accidentally. When an open abscess is detected, shearing should be suspended on that stand until the sheep is disposed of, the machines and floor disinfected, and the hands and arms of the shearer suitably treated. The practice of having spare sterilised machines for each shearer on lympho infected properties is a good one, as is also the policy adopted by some sheep owners of allowing a premium to shearers for the recognition of cases with enlarged glands or discharging abscesses.

On the basis of experiments carried out in Sydney, Carne states: "Because of the cleansing effects of the frequent immersion of combs and cutters of the hand piece into the disinfectant observed in field experiments, and the probable sterilisation by heat of the organisms in immediate contact with the hot metal, it is considered that a concentration of 10 per cent. cresylic acid in mineral naphtha would be the most suitable of the disinfecting fluids tested."

This material can be obtained mixed up from gas works at a cost of about 3s a gallon.

Treatment of Shear Wounds

For the sterilisation of blades boiling the whole shears for 20 minutes as with surgical instruments, is recommended. The use of moveable floor stands, that can be speedily replaced by spares, is an advantage. For this purpose sheets of fibre board for each stand have been found suitable. Sterilisation and drying can be carried out while shearing is in progress. An ample supply of disinfectant should be conveniently available for the washing and disinfection of the shearers' hands and arms. A strong solution of chlorine (see Bulletin 27) may be used. The use of tar for the treatment of shear wounds is of doubtful value, not only on account of its weak antiseptic properties, but also because it is difficult

to scour out. On lympho affected properties a tar emulsion in which is incorporated 3 per cent. cresylic acid is recommended. The tar emulsion is as protective as tar but not so messy. The cresylic acid acts as a disinfectant. This combination may be obtained from the gas works at a cost of about 3s a gallon. The practice of retaining affected sheep is unsound in the light of recent evidence from South Australia. There it has been shown that the organism may contaminate the soil, that the manure of affected sheep may contain the organism, and that infection may be set up through wound infection and the eating of contaminated food.

The fact that the disease may be set up by contamination of the tailing wounds emphasises the need for cleanliness during these operations, and in addition, avoiding the use of old camping grounds or paddocks for recently tailed lambs.

Co-operation Necessary

The suitable treatment of holding paddocks, yards, rails, etc., depends upon circumstances. A concentrated disinfectant may be used for contaminated rails. As South Australian investigations seem to indicate that the organism does grow in the soil of camping grounds when moisture and temperature are favourable and an acid medium adversely affects the growth of it, it is recommended that camping grounds, yards, etc., should be treated with ground sulphur at the rate of half a ton to the acre, applied during or just before the wet season. It is stated that the alteration in the reaction of the soil produced by a single application of sulphur will last for several years. In wet lympho areas, holding paddocks should be spelled for several months before shearing so that newly shorn sheep may have access to a clean paddock. The practice of turning killers in the holding paddocks is not recommended. As it appears that the organism is destroyed when the soil becomes dry, this practice may not be necessary in areas where the soil is quite dry. The price of sulphur varies with its sulphur content and at present ranges from about £6 to £14 a ton.

To prevent the development of the disease in hitherto clean areas lympho affected sheep should not be offered for public sale, but sent direct to the works. Regulations to enforce this would protect the unsuspecting from the unscrupulous sheep owner. It is obvious that the success of an eradication scheme depends on getting the full co-operation of everyone handling the sheep including the shearers, the shed hands, and the owner.

(Copies of this Bulletin may be obtained from the secretary, Canterbury Chamber of Commerce, Christchurch.)