

but in these the heart muscle is affected. Muscular stiffness may be very difficult to detect in mild cases, though often they do not do as well as the unaffected lambs in the flock. Wasting of the muscles, especially of the limbs, is prominent in lambs in which the muscle changes are progressive.

In hoggets the clinical signs are essentially the same as for lambs, but a number of affected hoggets may pass red-brown urine. This coloration of the urine is probably a direct result of muscle damage.

One may confuse white muscle disease with a number of the common diseases of lambs, but it is most likely to be confused with arthritis or tetanus. Arthritis differs in that affected lambs walk with a limp and it may be possible to detect swollen joints. Mild cases of tetanus may appear to be similar to white muscle disease because of the general stiffness of the body, but the typical spasms of tetanus, in which the limbs are held rigidly outstretched and the head thrown back, should serve to differentiate them. When older lambs in good condition are found dead it is likely that they will be regarded as cases of pulpy kidney, unless a careful examination of the body muscles and heart is made.

Post-mortem Findings

When a post-mortem examination is made by simply opening the carcass along the midline indications of white muscle disease may be and often have been overlooked. All the muscles of the body, but particularly those of the hind limbs and back, should be incised and the heart examined externally and internally. The muscle changes take the form of either yellow-white streaks in the muscle or a generalised paleness similar to the appearance of fish flesh. The muscle changes are

usually equal on both sides of the body. If the heart is affected, similar changes will be found (see the lower illustration on the previous page).

Treatment and Prevention

No work has yet been done in New Zealand on treatment and prevention of the disease, but it has been shown overseas that vitamin E both prevented and cured naturally occurring stiff lamb disease. The disease was prevented in lambs by dosing them soon after birth with vitamin E. Even though severely affected lambs were cured, treatment was not considered satisfactory, since they failed to thrive. It may yet prove to be economical to treat mildly affected lambs and hoggets, but this will depend on the results of treatment trials. No work has yet been done on the prevention of the disease in hoggets.

The dose rate and period of treatment of lambs or hoggets depend on the severity of the case. Based on results reported from overseas and the small numbers of animals treated in New Zealand, the suggested dose rates are as follows:—

Lambs, 100 to 500 mg. a-tocopherol.

Hoggets, 500 to 1000 mg. a-tocopherol.

One treatment may be sufficient in early cases, whereas it is necessary to continue daily dosing for 4 or 5 days or longer in advanced cases. However, since the economics of sheep raising make doubtful the value of treating the worst cases, it may be more profitable to carry out preventive dosing of the unaffected animals in a flock when there is evidence that a large number may be affected. For such preventive dosing 50 to 100 mg. is recommended for lambs and 200 to 300 mg. for hoggets.

Since driving is an important factor, the incidence can be lowered by not driving lambs and hoggets at the critical period; if driving the flock is essential, it should be done very quietly and in easy stages.

Summary

White muscle disease of lambs and hoggets is a comparatively new disease in New Zealand and farmers and veterinary surgeons should be on the alert for its appearance. It is recommended that if a farmer suspects that this condition is present in his flock, he should consult a veterinary surgeon to confirm the diagnosis and advise treatment and preventive measures.

The disease occurs in young lambs from birth onward and in hoggets while wintering on turnips or within 24 hours of being driven off. Increased muscular activity can precipitate an outbreak with heavy losses.

A deficiency of vitamin E is considered to be the cause and treatment of mild cases with this vitamin is recommended.

Measures suggested for prevention include taking particular care to drive lambs or hoggets as little as possible at the critical times and dosing unaffected animals with vitamin E.

Experimental work on prevention and treatment of the disease is now in progress and it is hoped that more precise recommendations regarding these aspects will be possible as a result of this work.

Show Dates

THE following are dates and venues of A. and P. shows from November to the end of January:—

NORTH ISLAND

November

- *4, 5, and 6 November—Manawatu and West Coast A. and P. at Palmerston North (Royal Show).
- 6 November—Tokoroa A. and P. at Tokoroa.
- 12 and 13 November—Wanganui A. and P. at Wanganui.
- *12 and 13 November—Whangarei A. and P. at Whangarei.
- 13 November—Clevedon A. and P. at Clevedon.
- *17 November—Thames Valley A., P., and H. at Te Aroha.
- 19 and 20 November—Egmont A. and P. at Hawera.
- 20 November—Bay of Islands P. and I. at Waimate North.
- 20 November—Waihi A. and P. at Waihi.
- *25, 26, and 27 November—Auckland A. and P. at Auckland.
- 26 and 27 November—Stratford A. and P. at Stratford.
- 27 November—Kaikohe A., P., and H. at Kaikohe.

December

- 4 December—Helensville A. and P. at Helensville.
- *4 December—Hauraki A. and P. at Paeroa.

January

- *7 and 8 January—Rotorua A. and P. at Rotorua.
- 14 and 15 January—Wairoa County A. and P. at Wairoa.
- *15 January—Marton District A. and P. at Marton.
- *22 January—Central Hawkes Bay A. and P. at Waipukurau.
- *25 and 26 January—Feilding I., A., and P. at Feilding.
- 28 and 29 January—Horowhenua A. and P. at Levin.
- 29 January—North Kaipara A. and P. at Paparoa.

SOUTH ISLAND

November

- *1 November—Ashburton A. and P. at Ashburton.
- *10, 11, and 12 November—Canterbury A. and P. at Christchurch.
- 17 November—North Otago A. and P. at Oamaru.
- 19 and 20 November—Nelson A. and P. at Richmond.
- 20 November—Courtenay A. and P. at Kirwee.
- *20 November—Waimate A. and P. at Waimate.
- 20 November—Taieri A. and P. at Outram.
- 27 November—Motueka A. and P. at Motueka.
- *27 November—South Otago A. and P. at Balclutha.
- 27 November—West Otago A. and P. at Kelso.

December

- 4 December—Tokomairiro A. and P. at Milton.
- *7 and 8 December—Gore A. and P. at Gore.
- 11 December—Wynndham A. and P. at Wynndham.
- 11 December—Otago Peninsula A. and P. at Portobello.
- 14 and 15 December—Southland A. and P. at Invercargill.

January

- 8 January—Blueskin A. and P. at Waitate.
- 15 January—Waikouaiti A. and P. at Waikouaiti.
- 22 January—Palmerston and Waihemu A. and P. at Palmerston.
- 29 January—Waiapu A. and P. at Tuatapere.

* The Department of Agriculture exhibit will be staged at this show.

REGISTRATION OF DAIRY FACTORY MANAGERS

Intending applicants are hereby notified that applications for registration under the Dairy Factory Managers Regulations should reach the Registrar, Dairy Factory Managers Registration Board, c/o Department of Agriculture, P.O. Box 2298, Wellington, on or before 1 December 1954. Forms are available from the Registrar.

Attention is drawn to the fact that any application which is received by the Board after 1 December 1954, shall not, except in special circumstances, be considered by the Board until after 1 December 1955.

E. M. EDGECOMBE,
Registrar.

N.B.—This notice refers to persons who are NOT AT PRESENT HOLDERS OF CERTIFICATES. Notice of renewal and renewal form will be posted to every registered manager by the Registrar.