



FACT SHEET

APRIL 2018

PNEUMONIA AND PLEURISY IN SHEEP

This fact sheet summarises the results of five studies carried out between 1999 and 2003. The economic analysis was updated in 2018. It outlines the effects of pneumonia and pleurisy on lamb growth rate and farm profitability. It also covers on-farm risk factors that predispose sheep to getting the disease. Thirdly, it outlines research showing that vaccination may not be a viable option for reducing disease impact.

WHAT ARE PNEUMONIA AND PLEURISY?

Pneumonia is a disease that causes lesions in lungs. The most common form is Chronic Non-Progressive Pneumonia (CNP) and can be caused by bacteria, mycobacteria or viruses. Symptoms are often not very obvious (i.e. they are sub-clinical) but affected sheep will often have trouble breathing, pant following exercise and cough.

Sheep with pneumonia are more likely to develop pleurisy (where lungs adhere to the chest wall). Affected carcasses are downgraded/condemned at processing plants.

AIMS OF THE STUDIES

In 1999/2000 lambs from fourteen commercial sheep farms were monitored. Four hundred lambs on each farm were randomly selected and weighed every four weeks, to gauge the effect of pneumonia on growth rate. Lung lesions were assessed monthly at slaughter in 40 randomly selected lambs per farm.

In the second study (2000/01) a database of 1719 farms in Canterbury, Manawatu and Gisborne were analysed to see if farm location or within-flock were more important in predisposing sheep to pneumonia.

The third 'case control' study looked at the links between farm management and pneumonia.

The fourth study tested the efficacy of the pneumonia vaccine Ovipast Plus®, in preventing adverse subclinical effects using 9174 lambs in the North Island. Mortality was not assessed in this trial.

The final study estimated the economic cost of pneumonia and pleurisy.

KEY FINDINGS

SLOWER WEIGHT GAIN

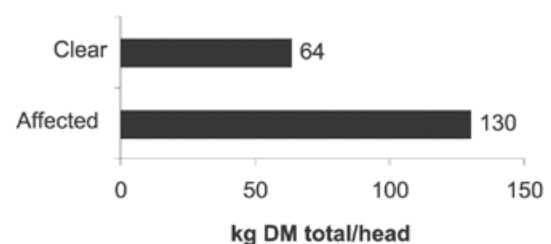
The first study of 14 farms showed that pneumonia had a significant effect on lamb growth rate where more than 20% of the lung surface area was affected. The rate of weight gain was halved (i.e. affected sheep grew 50% slower). At the other end of the scale, there was no effect on weight gain if less than 5% of the lung surface was affected.

Example of the cost of reduced growth rates when finishing lambs

In a mob of 500 lambs affected by pneumonia there would be two key costs. It would cost an extra \$977 of feed to grow lambs from 30 to 37 kg LW; plus an additional loss of \$2,920 due to lamb carcasses downgraded for pleurisy (based on an average \$6.63/kg schedule).

Instead of all lambs growing at 150 g/day, 9% would be growing at only 75 g/day. Consequently, on average they would take 56 days to reach target weight instead of 47 days. In this time they would eat an additional 6,200 kg of DM. See Graph A below for the differences in feed needed per lamb.

Graph A: Example of total feed (kg dry matter per head) needed to grow a lamb from 30 to 37 kg LW, if clear or severely affected by pneumonia.



USUALLY MORE THAN 20% OF THE MOB BECOMES AFFECTED

The second study showed that the prevalence of lambs with Chronic Non-Progressive Pneumonia ranged from 0% to 100% per flock. On average, flocks had 24% of lambs affected. The number of flocks with some pneumonia present in the surveyed flocks ranged from 40% to 71%.

The region in which lambs were farmed did not significantly affect either the incidence or severity of pneumonia. There was more variation between mob within a flock, than between flocks. In other words, flock-level factors are more influential than a location of a particular farm.

WHAT ON-FARM FACTORS ARE LINKED?

The study of associations between pneumonia and management showed that the factors below may be linked to pneumonia:

- Shorn on the day of weaning (i.e. stress, crowding together). This had the most significant association.
- Slaughtered late in season (increased time at risk or slow growth rate because of pneumonia).
- From flocks where replacements are bred on-farm (increases number of lambs slaughtered later in season, e.g. cull ewe lambs in late autumn and spring).
- From larger flocks.
- Lambs from stronger-wool type ewes (e.g. Romney in the Canterbury region).
- From farms where lambs are purchased post-weaning (i.e. come into contact with affected animals).

Other proposed risk factors include; high temperature and humidity, crowding, stress, dust, excessive exercise, poor ventilation, low immunity and high loads of parasites.

VACCINE STUDY

The efficacy of the only vaccine commercially available at that time was tested on 9,174 lambs. The lambs were grazed on seven commercial farms in the North Island. The vaccine (Ovipast Plus®) did not reduce the extent of pneumonic lesions. It also did not prevent a reduction of lambs average daily live weight gain (ADG) caused by pneumonia. No comment can be made on the effectiveness of the vaccine at preventing mortality.

RECENT RESEARCH AND INITIATIVES

Studies into novel and improved vaccines have been ongoing in NZ since 2014. AgResearch has ongoing studies on the nature of disease-causing agents and a programme for development of suitable vaccine products.

Collaboration between AgResearch and MSD Animal Health has involved conducting field trials evaluating a *Mannheimia haemolytica* vaccine with vaccination of both ewes and lambs, or lambs alone.

Indications are that vaccination of both ewes and their lambs has greater benefit than vaccination of lambs alone.

Further studies are underway with multivalent vaccines containing both *M. haemolytica* and *Mycoplasma ovipneumoniae* strains.

There are no vaccines for sheep pneumonia licensed for use in New Zealand.

ON-FARM MANAGEMENT

Prevention is the best management tool. A healthy animal that has adequate nutrition, up-to-date animal health and minimal stressors is less likely to develop the disease.

- Keep the time of yarding lambs to a minimum.
- Small mob sizes to reduce animal stress and dust inhalation.
- Avoid shearing lambs at the same time as weaning.
- Try to minimise stock movement at middle of day when dust levels highest and avoid long-distance movements where practical.
- Try to reduce the extent and duration of open-mouth panting when mustering and droving lambs—satellite yards to reduce long-distance movement; reducing pressure on lambs when droving; laneways to allow lambs to drift at their own pace.

ACKNOWLEDGEMENTS AND MORE INFORMATION

Final Report: 97AH/AG188, Pneumonia and pleurisy in sheep, March 2006, 103 pages.

Beef + Lamb New Zealand would also like to acknowledge Tony Rhodes (PGG Wrightson Agricultural Consultant) for his work reviewing this fact sheet.

B+LNZ RESOURCES

 www.knowledgehub.co.nz

PDF DOWNLOADS

- Growing great lambs resource book
- 400 Plus—a guide to improved lamb growth resource book
- A guide to feed planning for sheep farmers resource book

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