FACTSHEET

Pneumonia and pleurisy in sheep

June 2024

This Factsheet summarises the results of studies carried out by researchers at Massey University and AgResearch. 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[1] 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[2] farms in Canterbury, Manawatu and Gisborne were analysed to see if farm location or within-flock factors were more important in predisposing sheep to pneumonia.

The third[3] 'case control' study looked at the links between farm management and pneumonia.

The fourth study[4] 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 fifth study scored lungs at slaughter to investigate the role of genetics and breeding in reducing the incidence of pneumonia.

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 lambs 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.

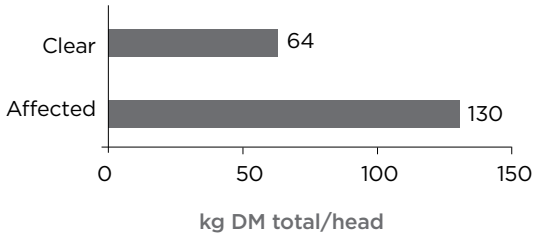
Example of the cost of reduced lamb growth rates

In a mob of 500 lambs with a typical level of pneumonia, there are two key costs, estimated below:

1) Loss due to downgrade of carcasses: $2920 (at a $6.63 schedule), or $5.80 per head

2) Longer time to slaughter and extra feed required: significantly affected lambs can grow 50% slower than unaffected lambs. If a lamb grows at 75g/d instead of 150g/d, it will take 47 days longer to grow from 30kgLW to 37kgLW, and require an additional 66kgDM.

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

Studies by both Massey University and AgResearch have shown that while the prevalence of lambs with Chronic Non-Progressive pneumonia at slaughter ranges significantly between flocks and years, on average, flocks have 20-30% of lambs affected.

The incidence of pneumonia varied between month and region, however, factors at the flock level, within the control of farm managers, were more influential than the 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:

- Shearing lambs at weaning (increased stress, crowding together, time spent in close confinement)
- Breeding ewe replacements on-farm (lambs spend more time in yards, cull replacements are sold later in the season so have extended exposure time)
- Contact with other flocks through the purchase of lambs post-weaning
- Increased percentage of lambs sold late in the season (this is likely a consequence rather than a cause)

Other proposed risk factors, which are largely anecdotal, 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 the time (2002/2003) 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

AgResearch has ongoing studies on the nature of disease-causing agents and a programme investigating possible genetic markers for pneumonia resistance.

There are currently no vaccines for sheep pneumonia licensed for use in New Zealand, and further work on vaccines since 2014 has not yielded anything promising to date.

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.

- Best practice ewe body condition and feeding to grow lambs as fast possible to weaning and maximise the development of their immune system.
- 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—use satellite yards to reduce long-distance movement; reduce pressure on lambs when droving; utilise 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

---

[1]*Goodwin KA, Jackson R, Brown C, Davies PR, Morris RS and Perkins NR 2004. Pneumonic lesions in lambs in New Zealand: patterns of prevalence and effects on production. New Zealand veterinary journal 52, 175–179.*

[2]*Goodwin-Ray KA, Stevenson M, Heuer C and Pinchbeck G 2008. Hierarchical and spatial analyses of pneumonia-lesion prevalence at slaughter in New Zealand lambs. Preventive veterinary medicine 83, 144–155.*

[3]*Goodwin KA, Jackson R, Brown C, Davies PR, Morris RS and Perkins NR 2004. Pneumonic lesions in lambs in New Zealand: patterns of prevalence and effects on production. New Zealand veterinary journal 52, 175–179.*

[4]*Goodwin-Ray KA, Stevenson MA and Heuer C 2008. Effect of vaccinating lambs against pneumonic pasteurellosis under New Zealand field conditions on their weight gain and pneumonic lung lesions at slaughter. The Veterinary record 162, 9–11.*