

Fasting of Sheep Prior to Shearing

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This good practice guideline covers the emptying out (fasting) of sheep prior to shearing. It provides background information and makes recommendations on the pre-shearing treatment of ewes, hoggets and lambs.

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- > Agresearch
 - > Agricultural Health & Safety Council
 - > NZ Shearing Contractors Association
 - > New Zealand Veterinary Association Inc
 - > Ministry of Agriculture and Forestry
 - > SPCA New Zealand
 - > ACC
 - > Federated Farmers
-

FASTING OF SHEEP PRIOR TO SHEARING KEY POINTS:

This guideline has been designed according to scientific research and industry best practice

Shearing empty sheep can help reduce pen stain

Empty sheep can reduce already significant loads for shearing and woolshed staff to handle

Emptying sheep prior to shearing will not compromise animal welfare or lamb development

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INTRODUCTION

IN THIS SECTION:

- 1.1 Endorsement
- 1.2 General background
- 1.3 Objectives

1.1 ENDORSEMENT

These recommendations are endorsed by Federated Farmers of New Zealand's Meat and Fibre Producers' Council, the NZ Shearing Contractors' Association and the Agricultural Health and Safety Council.

1.2 GENERAL BACKGROUND

Both farmers and shearing industry personnel have very real concerns regarding the emptying out of sheep prior to shearing¹.

Farmers worry that prolonged periods off feed prior to shearing can:

- > affect the growth and development of unborn lambs when ewes are shorn during pregnancy
- > cause metabolic problems in ewes when they are shorn in late pregnancy
- > cause permanent weight loss or reduced growth in lambs when ewes are shorn with lambs at foot.

Shearers and other woolshed staff are concerned that full sheep:

- > add to the already heavy drag-out weight of many ewes.
- > kick and struggle more during shearing.
- > cause hazardous conditions in catching pens and on the shearing board by passing more faeces and urine.

ACC statistics indicate that while full sheep cannot always be blamed, back injuries, strains and sprains associated with strenuous movement and lifting are a serious problem in the shearing industry².

Wool buyers and processors also consider that full sheep increase the incidence of pen stain in wool. While not always discounted at sale, pen stain can increase the rate of fading in woollen products³.

Good communication, careful planning and the fostering of strong working relationships are keys to addressing these concerns. Both farmers and the shearing industry must recognise that each party works within a highly variable environment and has unique personal and professional needs.

1.3 OBJECTIVES

The objective of this document is to make practical recommendations to reduce the incidence of full sheep being presented for shearing while ensuring that the welfare and performance of sheep is not adversely affected.

It is hoped this guideline will result in:

- > a better understanding of the complex issues surrounding full sheep by farmers, wool harvesting staff and other sheep industry personnel
- > an improved working relationship and better communication between farmers and woolshed staff
- > fewer injuries and ACC claims by those working in woolsheds
- > improved sheep welfare
- > improved compliance with nationally and internationally recognised animal welfare standards
- > reduced pen stain in wool and improved product performance.

The recommendations made in this document are based, wherever possible, on scientific research. Where gaps in scientific knowledge exist, industry best practice has been used as a basis for the recommendations.

¹ MWI 2002. Had a gut full? Sheep need to be empty at shearing - but just how empty? *Meat & Wool Innovation, Summer 2002*: 25-26.

² Wallaart, J. 2002 pers. comm.

³ Regnault, W.R.; Elwin, M.; Wickham, G.A. 1992. Discolouration and fast fade. *Wool 4*: 2-4.

02/

GENERAL RECOMMENDATIONS

IN THIS SECTION:

2.1 Time off feed

2.1 TIME OFF FEED

Time off feed includes the time sheep spend mobbed up during mustering, when feed intake is minimal. Care must be taken to ensure that no sheep shorn exceeds the recommended number of hours without feed or water. This is particularly important when a full day's shearing is mustered the previous day, as sheep shorn late in the day will be off feed 10-12 hours longer than those shorn early in the morning. Extra care must be taken when handling pregnant sheep.



03/

YARDING

IN THIS SECTION:

- 3.1 Shedding up
- 3.2 Lambs at foot

Sheep should be held in yards or a genuinely bare holding paddock (pasture cover no greater than 600 kg DM/ha when measured with an electronic pasture probe, or no more than 10 mm in height if measured manually) before being put in the woolshed.

It may be necessary to graze the paddock with other stock before using it to empty out sheep. Prompting ewes to stand and move about at regular intervals during yarding may hasten emptying out.

3.1 ▶ **SHEDDING UP**

Ewes should be put in the woolshed as late as is practical on the day before shearing begins. Catching pens should remain empty overnight.

3.2 ▶ **LAMBS AT FOOT**

Care must be taken when handling ewes and hoggets with lambs at foot. Where practical, lambs should remain with their mothers until the ewes are put in the woolshed.

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RECOMMENDATIONS FOR EWES

IN THIS SECTION:

- 4.1 Background to ewe recommendations
- 4.2 Non-pregnant and non-lactating ewes
- 4.3 Ewes in early or mid pregnancy
- 4.4 Ewes in late pregnancy and lactation

4.1 BACKGROUND TO EWE RECOMMENDATIONS

Scientific trials suggest that a full ewe's gut contents can make up over 20 per cent of its bodyweight^{4,5,6} (around 15 kg for a ewe weighing 75 kg), adding an extra 2-5 tonne to the weight of sheep a shearer must catch, drag and handle on the shearing board each day. If ewes are large-framed and in good condition (eg 65 kg empty weight) and/or if ewes are shorn in late pregnancy when the conceptus (foetus, placenta and associated fluids) can weigh around 10 kg⁷, full sheep make an already physically demanding task even harder.

The problems associated with full sheep have been exacerbated by a 10-15 kg increase in the average empty weight of ewes, and a 5-10 year increase in the average age of shearers, over the last 15 years.

Full sheep can display considerable discomfort and struggle more during shearing. This can increase the amount of time individual sheep spend on the shearing board and may increase the stress levels of both sheep and shearer.

Full ewes have a high rate of defecation and urination, resulting in slippery conditions in catching pens and on the shearing board. Such conditions increase the risk of injury to woolshed staff. Increased urination may also increase the likelihood of shearers and

others contracting leptospirosis through urine splashing on uncovered cuts and scratches.

Few experiments have studied the effect of time off feed on the gut fill, welfare and performance of adult ewes. However, one trial⁸ found that lactating ewes could bounce back from severe underfeeding (50 per cent of maintenance needs) for three days with no effect on lamb growth rates and weaning weights. This suggests that ewes with lambs at foot should fully recover after a 24-30 hour fast.

Veterinarians note that metabolic diseases can be a problem in pregnant (especially multiple lamb-bearing) ewes that are held off feed, but this can occur at any time of the year if sheep are yarded for long periods⁹.

Metabolic diseases are not the only risk facing sheep during prolonged yarding. Such circumstances can precipitate clinical diseases such as Salmonellosis, and can trigger reactions to *Salmonella* and *Campylobacter* vaccines. Ewes experiencing a post-vaccination reaction can lose their appetite, stagger, fall to the ground and suffer metabolic problems. Farmers are advised not to vaccinate empty sheep against *Salmonella* or *Campylobacter*.

Experiments conducted at Massey University utilised a 24-30 hour period off feed prior to mid-pregnancy shearing, with no detrimental effect on ewe performance, lamb birth weight or newborn lamb survival¹⁰.

⁴ Kirton, A.H. 1964. Assessment of body composition in the live animal. *Proceedings of the NZ Society of Animal Production* 24: 77-78.

⁵ Hungate, R.E.; Phillips, G.D.; McGregor, A.; Hungate, D.P.; Beuchner, H.K. 1959. Microbial fermentation in certain mammals. *Science USA* 130: 1192-1194.

⁶ Boyne, A.W.; Campbell, R.M.; Davidson, J.; Cuthbertson, D.P. 1956. Changes in composition of digesta along the alimentary tract of sheep. *British Journal of Nutrition* 10: 325-333.

⁷ The New Zealand Sheep Council, 1999. *A guide to feed planning for sheep farmers*, second edition: 48.

⁸ Coop, I.E.; Clark, V.R.; Claro, D. 1972. Nutrition of the ewe in early lactation. 1. Lamb growth rate. *NZ Journal of Agricultural Research* 15: 203-208.

⁹ Sommerville, E. 2003 pers. comm.

¹⁰ Kenyon, P. 2003 pers. comm.

Research indicates that feed type can affect gut fill and the time it takes a sheep to empty out¹¹. Sheep eating poor-quality, fibrous feeds have reduced intakes and gut fill but empty out slowly because the feed is slow to digest. In contrast, sheep on lush, highly digestible feeds have high intakes and gut fill but empty out quickly. However, lush feeds are more likely to produce soft faeces that cause pen stain, so sheep off high-quality feed must still be given adequate time to empty out.

Although not supported by research, shearing industry experience suggests that fasting ewes that are offered water after an initial period without it drink large quantities and urinate more as a result.

4.2 **NON-PREGNANT AND NON-LACTATING EWES**

A ewe that is neither pregnant nor lactating should spend no less than 20 hours and no more than 32 hours off feed prior to shearing. This ewe should spend no less than 12 hours and no more than 24 hours without water prior to shearing. These recommendations also apply to adult male sheep.

4.3 **EWES IN EARLY OR MID PREGNANCY**

A ewe that is shorn during early or mid pregnancy should spend no less than 18 hours and no more than 30 hours off feed prior to shearing. This ewe should spend no less than 12 hours and no more than 24 hours without water prior to shearing.

4.4 **EWES IN LATE PREGNANCY AND LACTATION**

A ewe that is shorn during late pregnancy or lactation should spend no less than 12 hours and no more than 24 hours off feed prior to shearing. This ewe should spend no less than 8 hours and no more than 20 hours without water prior to shearing.

¹¹ Bray, A. 2003 pers. comm.

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RECOMMENDATIONS FOR HOGGETS

IN THIS SECTION:

- 5.1 Background to hogget recommendations
- 5.2 Non-pregnant and non-lactating hoggets
- 5.3 Hoggets during pregnancy and lactation

5.1 BACKGROUND TO HOGGET RECOMMENDATIONS

Hoggets weigh less than adult ewes – from around 55 per cent of mature ewe liveweight at seven months of age to around 85 per cent of mature ewe liveweight at 15 months of age. Because of this, additional weight due to gut fill in hoggets is of less significance to shearers than in mature sheep. However, full hoggets can still experience stress and discomfort during shearing and, like ewes, can cause slippery and unhygienic conditions in the woolshed.

Research on the effect of fasting on lambs has shown that 24 hours off feed causes a large reduction in gut fill but no loss of carcass weight¹². It also indicates that lambs get rid of around 75 per cent of their gut contents during the first 12 hours of emptying out. It is likely that these results also apply to hoggets. The effect of feed type on gut fill and the rate of emptying out is similar in hoggets and adult ewes.

Little is known about the effect of time off feed on the welfare and performance of pregnant and/or lactating hoggets. However, pregnant hoggets are more prone to non-infectious spontaneous abortion than mature ewes and are particularly vulnerable in early pregnancy, so special care should be taken to minimise stress in pregnant hoggets prior to and during shearing. Like adult sheep, hoggets can be affected by metabolic diseases and vaccination reaction if held off feed for prolonged periods.

5.2 NON-PREGNANT AND NON-LACTATING HOGGETS

A hogget that is neither pregnant nor lactating should spend no less than 18 hours and no more than 30 hours off feed prior to shearing. This hogget should spend no less than 12 hours and no more than 24 hours without water prior to shearing.

5.3 HOGGETS DURING PREGNANCY AND LACTATION

A hogget that is shorn during pregnancy or lactation should spend no less than 12 hours and no more than 24 hours off feed prior to shearing. This hogget should spend no less than 8 hours and no more than 20 hours without water prior to shearing.

¹² Bray, A. 2003 pers. comm.

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RECOMMENDATIONS FOR LAMBS

IN THIS SECTION:

- 6.1 Background to lamb recommendations
- 6.2 Lambs pre-weaning
- 6.3 Weaned lambs

5.1 BACKGROUND TO LAMB RECOMMENDATIONS

Shearing lambs necessitates a period off feed and an associated temporary reduction in lamb growth rate. However, this may be compensated by an increase in post-shearing appetite, resulting in temporarily enhanced liveweight gain when lambs are put back on feed.

Carcass weight reductions can occur in lambs that spend too long off feed prior to shearing. A number of experiments have shown that 24 hours off feed causes a large reduction in the gut fill of lambs but no loss of carcass weight. However, fasting for more than 24 hours can cause carcass weight losses in lambs, even when they have access to water.

Veterinarians note that prolonged yarding can predispose lambs to viral pneumonia. Most lambs weigh between 20 and 30 kg when shorn, so additional weight due to gut fill is of little significance to shearers. Research suggests that the stomach contents of a full 30 kg lamb weighed around 4 kg. However, full lambs can still experience discomfort and struggle more during shearing. Given that research indicates lambs get rid of around 75 per cent of their gut contents during the first 12 hours off feed, ideally lambs need only be off feed for 12 hours prior to shearing. However, in some cases, for young lambs prior to weaning a 6-hour minimum period off feed and water prior to shearing may be observed to avoid logistical challenges with stock movement.

5.2 LAMBS PRE-WEANING

Young lambs, prior to weaning should spend no less than 6 hours and no more than 24 hours off feed prior to shearing. This lamb should spend no less than 6 hours and no more than 20 hours without water prior to shearing.

5.3 WEANED LAMBS

A weaned lamb should spend no less than 12 hours and no more than 24 hours off feed prior to shearing. This lamb should spend no less than 8 hours and no more than 20 hours without water prior to shearing.

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SUMMARY

The recommendations for emptying out sheep prior to shearing are summarised in Table 1 below. It should be noted that they refer to the minimum and maximum periods of time without feed and water prior to shearing for any individual sheep.

RECOMMENDED MINIMUM AND MAXIMUM NUMBER OF HOURS WITHOUT FEED AND WATER PRIOR TO SHEARING					
	Minimum number of hours without feed	Maximum number of hours without feed	Minimum number of hours without water	Maximum number of hours without water	Special considerations
Ewes (and adult male sheep)					
Non-pregnant, non-lactating	20	32	12	24	Exceeding these maximums may induce metabolic problems and/or precipitate clinical diseases.
Early - mid pregnancy	18	30	12	24	
Late pregnancy and lactation	12	24	8	20	Exceeding these maximums may induce metabolic problems and/or precipitate clinical diseases. Where practical, unweaned lambs should remain with their mothers until ewes enter the woolshed.
Hoggets					
Non-pregnant, non-lactating	18	30	12	24	Use special care when handling pregnant hoggets. Exceeding these maximums may induce metabolic problems and/or precipitate clinical diseases. Where practical, unweaned lambs should remain with their mothers until hoggets enter the woolshed.
Pregnancy and lactation	12	24	8	20	
Lambs					
Pre-weaning	6	24	6	20	Exceeding these maximums may precipitate clinical diseases.
Weaned	12	24	8	20	

Table 1: Summary of recommendations for emptying out sheep prior to shearing

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APPENDICES

5.1 GLOSSARY

TERM	DEFINITION
Empty sheep	A sheep that has been given time to reduce the contents of its bladder, rumen and gastrointestinal tract to a point where its gut contents are less than 25 per cent of maximum and its rate of urination and defecation is unlikely to cause significant soiling of yards, pens and other sheep.
Full sheep	A sheep that has not been adequately emptied out (see 'empty sheep' above).
Off feed	<p>Situation where a sheep's feed intake is minimal (ie no more than 0.1 kg DM/day or 10 per cent of maintenance needs). Time off feed prior to shearing includes the time sheep spend mobbed up during mustering, when feed intake is minimal.</p> <p>It should be noted that the recommendations made in this guideline refer to the minimum and maximum periods of time without feed and water prior to shearing for any individual sheep. Thus, a recommendation of 18 hours minimum and 30 hours maximum off feed means that the time from when sheep are mobbed up during mustering to when the first sheep in that mob is shorn should be no less than 18 hours, and the time from when sheep are mobbed up during mustering to when the last sheep in that mob is shorn should be no more than 30 hours.</p>
Ewe	<p>A female sheep that is greater than 15 months of age¹³.</p> <p>Early-pregnancy ewe: between days 1-50 of pregnancy.</p> <p>Mid-pregnancy ewe: between days 50-100 of pregnancy.</p> <p>Late-pregnancy ewe: between days 100-150 of pregnancy.</p>
Hogget	A sheep that is 7 to 15 months of age.
Lamb	A sheep that is less than 7 months of age.

¹³ Geenty, K.G. 1997. A guide to improved lambing percentage: 200 by 2000: 54-62.

DISCLAIMER

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