

## Northland Pastoral Extension: Popular Summary

# Maximising Ewe Performance



## Summary of Key Findings

### Reproductive Management

For Northland, reproductive performance of ewes can be maximised by attention to:

- Breeding season – choice of tupping date for normal seasonal lambing.
- Mating management – ram/ewe ratios, preparation of rams and ewes, mating performance of rams.
- Fecundity – ovulation rate, maintenance of pregnancy.
- Post-natal losses – most losses occur from birth to 3 days after birth.

### Shearing Policies

Ewe shearing timing affects wool production, staple length and colour and value of returns of the wool.

### Management

Summer supplementary feeding should be targeted to lighter-weight ewes – they show greater response in twinning potential than heavier ewes.

Effective grazing and management towards high green-pasture content is at least as important in ewe performance as fertiliser applications.

Post-lambing feeding is more important for ewe and lamb performance than pre-lamb feeding levels.

### Out-of-Season Lambing

Poll Dorset and Dorset × Romney ewe flocks, bred in Northland, give good autumn lambing performance, without hormone treatments.

Need to carefully assess markets, premiums and on-farm management changes.

### Pests and Diseases

Plan animal health programmes specific to each property. Integrate pest and parasite control with management and other control measures.

Facial eczema control prevents huge losses in animal performance.

## Reproductive Management

### Mating Season

Can be manipulated, but best and cheapest results obtained from breeding ewes that will show oestrus at the time(s) preferred.

### Mating Management

Ram/ewe ratio of 1:100 sufficient. To maximise impact of rams of high genetic merit should be used at 1:200. Mate younger ewes separately from older, experienced ewes, using sexually experienced rams. Ratio of up to 1:160 with two-tooth rams (previously used as ram hoggets) gives good results. Mating paddocks influence sheep behaviour by their shape, topography and ground cover. Ewes should not become separated from rams by physical barriers (eg bush, creeks, gullies) within a mating paddock. Prepare rams really well for mating – start at least 8 weeks before joining date; don't shear within 6 weeks ahead of mating. Prepare ewes for mating – for high ovulation rates, pasture needs to be at least 2500 kg of green, dry matter per hectare and ewes should be offered 3.5 kg green dry matter per day; don't shear less than 3 weeks before start of mating.

### Fecundity

Number of lambs born per ewe lambing is affected by ovulation rate and pre-natal mortality.

### Ovulation Rate

Ovulation rate influenced by:

- Genetic factors.
- Nutrition – flushing effect.
- Two interactions near mating time – static and dynamic effects.

Ovulation rate is controlled by ewe genotype, with some breeds (eg Booroola Merino, Finnish Landrace) having high ovulation rates.

**Static effect** – heavier ewes more fecund, with a lift in ovulation by 0.2 to 0.3 per 10 kg gain in LW.

**Dynamic effect** – direction of liveweight change.

### Effect on multiple ovulation rates of ewe liveweight at pre-flushing (6 weeks before mating), at start of mating, and of changes of liveweight in that period

Multiple ovulations were determined by laparoscopy.

- Heavy ewes have higher percentage of multiple ovulations than light ewes – illustrates **Static effect**.

Pre-flush LW (kg)	6-week flush LW change	% multiple ovulations
45	No change	52
57	No change	78

- Liveweight gain beneficial and liveweight loss detrimental to ovulation rate – illustrates **Dynamic effect**.

Pre-flush LW (kg)	6-week flush LW change	% multiple ovulations
51	Gained 6 kg	87
51	No change	70
51	Lost 6 kg	47

- Mating weight alone is not the major factor controlling ovulation rate, as pattern of weight *change* is also important – illustrates **Dynamic effect**.

Mating weight (kg)	Pre-flush LW (kg)	6-week flush LW change	% multiple ovulations
51	45	Gained 6 kg	82
51	51	No Change	70
51	57	Lost 6 kg	58

- For a given liveweight change, light ewes are more responsive in terms of multiple ovulation rate than heavier ewes.

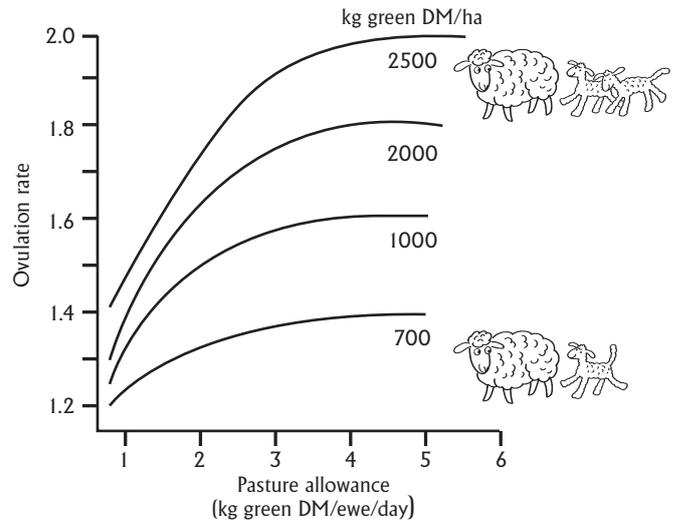
Pre-flush LW (kg)	6-week flush LW change	Increase in multiple ovulations
45	Gained 6 kg (45 kg → 51 kg)	28% (52% → 80%)
57	Gained 6 kg (57 kg → 63 kg)	13% (78% → 91%); only <i>half</i> the response of lighter ewes in Mob 6

## Feed Requirements and Ovulation Rates

### Good 'flushing' and feed requirements needed to increase ovulation rate

For good ovulation rates, you need to offer more than 2000 kg green DM/ha.

Don't push the level of utilisation harder than 50% during any grazing period by ewes.



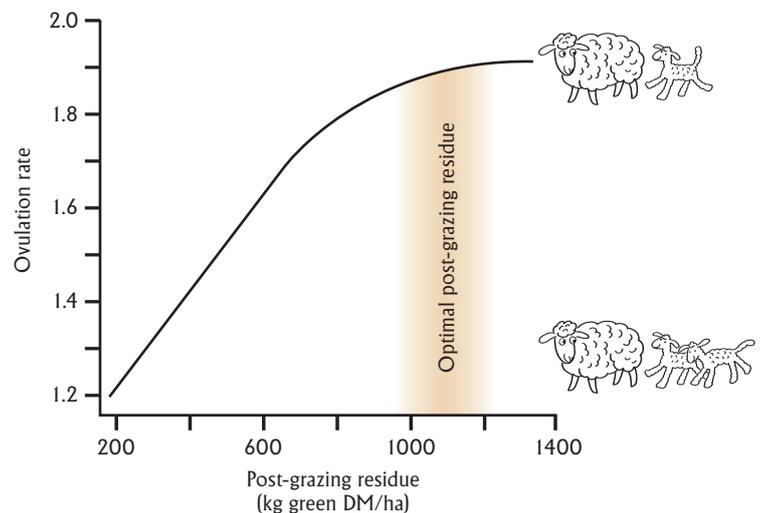
### Effect on ovulation rates of grazing intensity

As the amount of pasture feeding increases, ovulation rates increase, reaching a plateau at allowances around 3–4 kg green DM/ewe/day.

With increasing amounts of herbage offered per hectare, levelling off of ovulation occurs at higher rates.

Further response to feed offered over 2500 kg green DM/ha is unlikely.

For high ovulation rates, need more than 2000 kg of green DM per hectare.



Ovulation rates are directly related to post-grazing residues up to about 1000 kg green DM/ha; above this, no notable increases in ovulation rates occur.

Aim to be in the shaded zone of residual DM levels on the graph.

The level of utilisation should be *less than* 50% during any grazing period by ewes.

Good grazing control during spring and summer is vital, so that high yields of green, clover-dominant pasture are available in autumn to maximise reproductive potential of the flock.

#### Example

After offering 2000 kg green DM (we want those high ovulation rates!), should have 1100 kg plus of residual green DM.

## Pre-Natal Mortality

Failing to maintain pregnancy is the most important cause of a reduction in the potential lamb crop.

Farm surveys in New Zealand indicate 18–19 potential lambs are lost per 100 ewes joined, because one of a set of twin embryos fails to develop to term.

Most pre-natal mortality occurs in the first 30 days after mating, with greatest losses in the first 18 days. Causes of much of this pre-natal loss are unknown. Management that assists in reducing these losses includes:

- Attention to nutrition during pregnancy.
- Avoiding stress from shearing, mustering or dipping around critical times of mating and lambing.
- Putting together a well-constructed animal health plan with your veterinarian.

## Post-Natal Mortality

Most losses occur at birth or within 3 days of birth. Main causes:

- **Dystocia** (difficult birth) – affects both very small and very large lambs.

Very small lambs are from weak ewes, which have poor uterine contractions and lambs die of hypoxia. Large lambs are too big for size of maternal pelvis, prolonging the birth, often with damage to the lamb.

- **Starvation-exposure** – losses tend to be associated with small lambs and/or lambs from ewes having multiple births. Can occur from poor mothering ability by ewe, lack of milk, separation of ewe and lamb (eg on hill country, lamb may slip off birth site and ewe does not follow lamb down the slope).

Lambs born as multiples more likely to be mis-mothered or suffer from insufficient milk. Scan for multiples, and lamb them separately.

Ewes can be lambed on flatter paddocks and then ewes and lambs shifted onto steeper slopes, one or two days *after* lambing.

Slopes of 30° or more are only a problem in first 12–24 hours after birth. Once lambs are mobile, steep slopes no longer jeopardise lamb survival.

Large losses can be caused by:

- Infections – eg *Toxoplasmosis* and *Campylobacteriosis*.
- Exposure – substantial losses occur on individual farms or in years when extremely wet, windy and cold weather occurs over lambing.

## Management

### Feed Quality and Quantity Post-Lambing

Feed quality and quantity post-lambing have the most influence on lamb growth, ewe body weight and subsequent performance at the next tupping.

- Fit the feed demand at lambing time as closely as possible to spring pasture growth – in Northland, this is usually in September.
- The feed quality pre-lamb, post-lamb, post-weaning and pre-tupping is strongly influenced by grazing pressure and type of grazing.

Ewes should be put to the ram around April 5–10 (because this is when ovulation rate peaks).



Adding cattle at 20–40% of liveweight/ha improves clover content, green herbage content and improves ewe and lamb performance, with positive impact on the cattle too. A great win-win result!

## Later Lambing

In Northland, later lambing means lambing in early September.

Advantages of later lambing:	Disadvantages of later lambing:
<ul style="list-style-type: none"> <li>Overall higher lambing percentage – less dry ewes, more multiple births.</li> <li>It fits feed supply better – more chance of flushing ewes, more wool, more feed at lambing.</li> <li>Better feeding in September gives greater chance of a better lambing the following season.</li> </ul>	<ul style="list-style-type: none"> <li>If tupping is upset by facial eczema, can get a lot of very late/empty ewes.</li> <li>Mean lambing date moved back 2 weeks.</li> </ul>

Need to *protect* ewes and rams.

A more concentrated drop *might* coincide with bad weather. *Possibly* less chance to finish lambs before mid-December (compounded by more lambs in total).

## Ovarian Activity

A study of ewes to Moerewa in March and April 1973 showed a lift in percentage of ewes ovulating in April *and* a big increase in the number of multiple ovulations.

	March	April
Ewes examined	1234	1447
Number showing ovarian activity	822	1323
% showing ovarian activity	<b>66</b>	<b>93</b>
Number showing multiple ovulation	110	<b>304</b>
% showing multiple ovulation	<b>9</b>	<b>21</b>

Nearly one-and-half times as many ewes ( $\frac{93}{66} = 1.41$ ) ovulating from March to April!

Nearly two-and-half times as many ewes ( $\frac{21}{9} = 2.33$ ) showed multiple ovulations from March to April!

## Dry Ewes

A survey of Northland farms showed an increase in birth rate *and* a reduction in dry ewes with later tupping.

Joining	12 March	10 April
% conception rate	66	81
% lambs born	108	137
% lambs docked	90	109
Mean lambing date	2 Sept	18 Sept
<b>% dry ewes</b>	<b>9</b>	<b>1</b>

15% more ewes conceived in April than conceived in March.

19% more live lambs produced by April tupping than by March tupping.

Huge drop in dry ewes after April tupping compared with dry ewes after March tupping.

## Early Weaning

Early weaning is an integral part of later lambing – if you wean the whole flock at 10 weeks average age, weaning range is 8–13 weeks.

Alternatively, if ewes are shed-lambed at intervals from the start of lambing, consider weaning on mob-age basis, at 8 weeks since that mob started to lamb.



## Early Weaning Studies

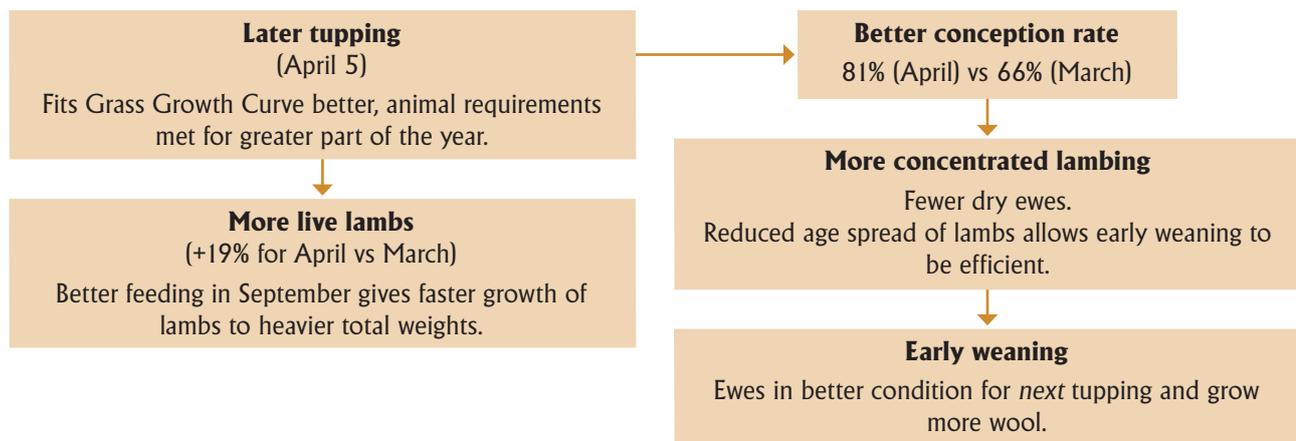
Later lambing in Northland consistently offers more feed post-lambing than earlier lambing dates, and this is the critical factor in lamb growth rates while on the ewe.

### Waiotira, Northland, 1979

Lambs weaned at 8 weeks of age, 16 kg body weight. Continued to grow at 220 g/day, similar to lambs left on ewes until 12 weeks of age.

- Both groups averaged 23.4 kg at 12 weeks.
- After 12 weeks, growth rates were similar in both groups – 80 g/day.
- The early-weaned ewes were 3.5 kg heavier at the following tupping.

## The Flow-On Effects of Later Tupping



## Fine-Tuning the Lambing Date on Your Property

Look at the percentage of ewes in the first cycle of lambing to gauge how your present tupping date affects the spread of lambing:

- First cycle 0–20% lambled – tupped 3 weeks too early.
- First cycle 20–40% lambled – tupped 2 weeks too early.
- First cycle 40–60% lambled – tupped 1 week too early.
- First cycle 80% plus lambled – tupped at right time!



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A project coordinated by the Northland Pastoral Farming Development Group

The unabridged version of **Research Stocktake – Maximising Ewe Performance** is available on the Enterprise Northland website [www.enterprisenorthland.co.nz](http://www.enterprisenorthland.co.nz)