

## LACTATION, LAMB GROWTH AND THE LAMB WEANING DECISION

This Fact Sheet outlines the biology behind ewe production and lamb growth before and after weaning. Understanding this can help farmers decide the optimum time to wean lambs.

The ideal weaning date should be guided by whether it achieves two key goals. Firstly maximising profit from feed supplied to lambs and ewes and, secondly, protecting ewe condition so she is productive the following year.

The information below is based on the Beef + Lamb New Zealand 'Weaning Decision' report prepared by AgResearch scientists in 2007.

This Fact Sheet covers:

1. Ewe biology.
2. Lamb biology.
3. What to consider when deciding when to wean.
4. Example weaning scenarios.
5. Lamb selling strategies.

## UNDERSTANDING EWE BIOLOGY

### EWES LIVEWEIGHT DECLINES IN EARLY LACTATION THEN INCREASES IN LATE LACTATION

Ewe intake increases two to three weeks into lactation and builds to a peak at eight weeks. However milk production peaks at between two and four weeks. The ewe simply can't eat enough to meet her lactation and energy requirements.

At peak lactation, single ewes consume around 2.5kgDM/ day (dry matter per day) and twinning ewes 3kg DM/day.



In late lactation well-fed ewes (especially with a single lamb) can gain weight. Lactating ewes use feed 20% more efficiently to put on LW than dry ewes. But they have 10% higher maintenance requirements which is a cost.

### MILK PEAKS AT ABOUT FOUR WEEKS

Four weeks after lambing, a ewe's milk production peaks then starts to drop steadily by 19 to 26 g/day (grams/day).

Good nutrition is needed to achieve high peak milk production. However, nutrition levels don't really affect the subsequent milk decline rate.

### BREED AFFECTS MILK PRODUCTION

Some breeds produce a higher volume of milk, for example East Friesian. It is estimated that the lamb weight difference between high and low milking ewes is 3kg of weaning weight.

### HIGHER MILKING EWES ARE ONLY OF REAL BENEFIT FOR MULTIPLE LAMBS

Having high-milking breeds doesn't really benefit a single lamb as they can't consume all the milk produced. Research compared high milking Poll Dorsets to Romneys, with the Poll Dorset having a live weight gain advantage of 13 g/day in single lambs and a 30 g/day advantage in twins.

## TWINS STIMULATE UP TO 35% MORE TOTAL MILK PRODUCTION IN EARLY LACTATION

Suckling duration and frequency alters milk production. Extra suckling from twins stimulates the ewe to produce approximately 35% more milk in early lactation and 18% more in late lactation.

## EWE FEED INTAKE DROPS 20% AFTER WEANING

Research showed that a pre-weaning intake of 2.07kg DM/ ewe can drop to a maintenance feeding level of 0.92kg after weaning.

Stopping lactation frees up energy for the ewe herself. Usually ewe liveweight gain increases by 50 g/head/day after weaning, if fed at the same level.

## GETTING WEIGHT BACK ON EWES OVER SUMMER CAN BE COSTLY

To get ewes to grow at 100g/day, feed worth over 10MJME/ kg DM (megajoules of metabolisable energy) is needed. An example would be lucerne or summer brassica. This can be hard to provide (and therefore expensive) in summer.

If weaning is delayed and ewes lose weight when feed is tight, it can be costly to make up ewe weight. Each kg of ewe liveweight lost is equal to 17MJME but it takes 65 MJME to put one kg of weight back on.

For this reason, on summer-dry farms ewes should be weaned at her target mating weight for the following year e.g. 65kg.

Ewes weaned at the target weight don't have to gain weight over summer. They can be used to clean up aged or dried grass, helping condition pastures.

**Figure 1:** Feed requirements to reach 60kg at mating in weaned ewes or hoggets grazing a diet of 9.5 MJME/kgDM.

Note: MJME/kgDM = megajoules of metabolisable energy per kilogram of drymatter. Additional feeding information for heavier ewes is being developed.

Weaning Weight (kg)	LWg (g/D)	Requirement MJME/EWE/D	kgDM/EWE90 Days
<b>Ewes</b>			
60	0	10.1	96
58	22	11.5	109
56	44	12.9	122
54	67	14.3	135
52	89	15.7	149
<b>Hoggets</b>			
50	56	13.8	130
45	111	16.6	157
40	167	19.2	182

## UNDERSTANDING LAMB BIOLOGY

### LAMBS EAT PASTURE FROM AROUND TWO WEEKS OLD

The lamb's rumen is fully capable of digesting pasture by three weeks of age. Lambs weaned before six weeks are likely to suffer however as they can't make up for the lost milk by suddenly increasing pasture intake. Feed intake levels are too low.

### LAMBS WEANED YOUNGER THAN 8 WEEKS GROW SLOWER THAN LAMBS ON THEIR MOTHER

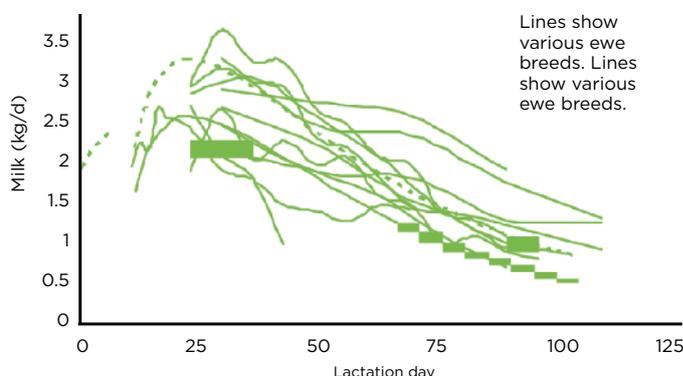
Lambs can increase pasture intake a little if milk intake declines but a lamb under 8 weeks is likely to grow better on its mother than if weaned. A crossbred lamb born at 4.5kg and gaining 250g/day will weigh only 18.5kg liveweight at 8 weeks.

### LAMB GROWTH RATES USUALLY DECLINE DURING LACTATION

Research shows lamb growth peaks somewhere between day 20 and 40 of lactation (at an average of 250-350g/ head/day). Lambs can partially compensate for lower milk availability by consuming more pasture.

Lamb growth can stay high in late lactation if pasture quality is over 10.5 MJME/kg DM e.g. leafy green grass, legumes, brassicas.

**Figure 2:** Milk production from various ewe breeds peaks, then declines over time.



### SINGLE LAMBS GROW FASTER THAN TWINS

Single lambs consume more milk and grow around 80g/day faster than twin lambs in early lactation and 35g/day faster than twins in late lactation. This occurs even if twin ewes are grazing high pasture covers. Although ewes produce more milk for twins, these lambs get around 68% and 59% of the milk intake of single lambs in peak and late lactation respectively. Triplet lambs get even less milk as the ewe can't physically respond any more to the suckling stimulus.

## THE RIGHT GENOTYPE CAN INCREASE WEANING WEIGHT BY 3KG

Half the difference in lamb weaning weight between lines of sheep can be attributed to the genetic make-up of the lamb. Heavier breed animals typically consume more feed and grow more efficiently.

## THE 'WEANING CHECK'

If ewes and lambs are well fed with pasture and ewes are milking well, then weaning between 8 to 12 weeks will reduce lamb growth.

Research shows that lighter lambs often have less of a 'check' than heavier lambs after weaning. It may be better not to wean lambs (especially single lambs) within 2-3 kg of sale weight as weaning will delay sale date.

## CONSIDER WEANING IF EWES SHORT OF FEED

One trial showed weaning lambs off poorly fed ewes (allowance of only 2kg DM/ewe/day) grew 15g/day faster than unweaned lambs remaining on their mother. Lambs kept on well-fed ewes (4kg DM/ewe/day) grew 76g/day faster than their weaned cohorts.

## SUMMARY

- Single lambs grow faster than twins, even with preferential feeding.
- Lambs grow the fastest on a diet of both milk and pasture. If ewes are maintaining condition then extending lactation may boost the overall growth rate of the lamb from birth to slaughter.
- If pasture covers are low and ewes are competing with lambs, weaning lambs onto saved quality feed may lift lamb growth rates and be a good use of feed.
- After weaning ewe intake falls by 20%.
- Knowing how lambs and ewes will respond to weaning under different conditions will help the farmer make the best decision of when to wean.

## CONSIDER THE FOLLOWING WHEN DECIDING THE IDEAL WEANING TIME

Assess the situation on a regular basis.

- a. Lamb age, weight, growth.
- b. Ewe weight, condition, lactation stage.
- c. Feed quality and quantity now and in future (predicted using feed budget, soil temperatures, wind and rainfall data, weather predictions).
- d. Feed costs (including supplements).
- e. Animal health.
- f. Schedule and store lamb prices.

## IDENTIFY TARGETS

E.g. wean single lambs when schedule over \$4.50/kg CW and before ewe weight drops to 63kg.

## MONITOR TO SEE IF TARGETS WILL BE MET

## WEANING DECISION SCENARIOS: Example of questions farmers can ask themselves and actions to take.

### DEFINITIONS:

**Early lactation:** birth to 4 weeks.

**Mid lactation:** week 5 to 8

**Late lactation:** over 8 weeks

### LAMB WEIGHT:

**Light prime:** 13.5–15.4kg carcass weight (CW)

**Prime:** 15.5–17.4kg CW

**Heavy prime:** 17.5kg+ CW

- Q:** Are feed covers low (e.g. under 1000kg dry matter/hectare) in early spring? Are lambs in mid lactation 'hardening up', although ewe condition is holding?
- Yes.** Avoid weaning lambs as their pasture intake is still low. Consider silage/ baleage supplements to get ewes through this pinch period. Consider selling ewes with lambs at foot to free up feed, especially if a feed surplus is unlikely to eventuate. Next year save more feed and consider applying nitrogen to boost growth. Consider later lambing.
- Q:** Are ewes in late lactation below target weight for next seasons tugging, and will it be costly/difficult to get them to gain weight over summer?
- Yes.** Wean. It is likely that lamb growth might also be low and less impacted by weaning.
- No.** Ewes can keep lactating.
- Q:** Are ewes competing with lambs for feed on the lambing blocks e.g. single lambs are growing less than 150-200 grams/head/day in late lactation?
- Yes.** Consider weaning, especially if saved feed is available for lambs e.g. brassica. They may grow faster after weaning with a higher intake and feed quality.
- No.** Don't wean. Lambs are growing well and will do better with milk and pasture.
- Q:** Are lambs prime but growing too slowly to beat the weekly processing plant schedule price drop (i.e. their \$ value/head is not increasing each week)?
- Yes.** Wean and sell and put feed into other stock.
- No.** Lambs are increasing in value each week so it pays to keep them on the ewes to make more money. The ewes must not be losing weight, as it may be costly to put weight back on them.

**Q:** Is feed getting tight and is it unlikely the bulk of lambs will wean at prime weight before feed quality and covers drop?

**Yes.** Consider taking an early draft of the heavy lambs but leave the rest of the lambs on the ewe. Calculate the weeks of feed available for ewes and lambs then sell the lighter 'tail- end' lambs that are not going to be prime within this period as store lambs.

**No.** Don't wean, especially if you are still 'beating' the schedule drop.

## LAMB SELLING STRATEGIES

The Beef + Lamb New Zealand report modelled different sale strategies using LambNet software. Two of the five options investigated were:

### (A) SELL SOME LAMBS EARLY

Take a draft of prime lambs directly off the ewes and allow the rest of the lambs to carry on growing faster on the ewe. The heavy lambs can be sold early at higher schedule prices.

### (B) KEEP HEAVY LAMBS ON THE EWE

Traditional lamb schedules fall from December to March, and lamb carcass weights need to increase faster than the per kg schedule drop. One example using standard schedule prices showed a 15kg CW lamb in November had to grow at least 94g/day to offset reducing schedule prices. This growth rate is more likely in unweaned lambs, rather than weaned lambs.

Modelling of the different scenarios showed that:

- Different drafting strategies (i.e. weaning early or late) resulted in only small differences in the amount of feed eaten. However when twin lambs were sold store at weaning and heavy lambs stayed on mothers, the amount of feed eaten was reduced significantly.
- Delaying weaning increased lamb live weight gain.
- Weaning light lambs and carrying big lambs on their mothers for another month reduced overall meat value.
- In a good spring, single ewe drafting policy had minimal effect on returns/kg DM.
- Weaning late was more profitable when ewe intake and her milking was high.

### Acknowledgements and more information

There is currently no one NZ model in which weaning strategies can be simulated. For further information phone 0800 BEEFLAMB (0800 233 352).

For research projects on lamb production see the reproductive efficiency and maximum growth rate sections of the Beef + Lamb New Zealand R&D Briefs.

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