AN INITIATIVE OF

Making More From Sheep

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Managing to maximise lamb performance regardless of season

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GRAZ PROPHET CONSULTING

Optimising Performance in Livestock Enterprises

To Sell or Finish

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Monaro is traditionally merino country.
Recent times have seen a move to a greater sheep meat / lamb focus.
Lambs are often sold opportunistically, sometimes finished sometimes stores
Traditionally completely dependent on seasonal conditions
Lamb market strength in makes finishing to heavier weights more attractive

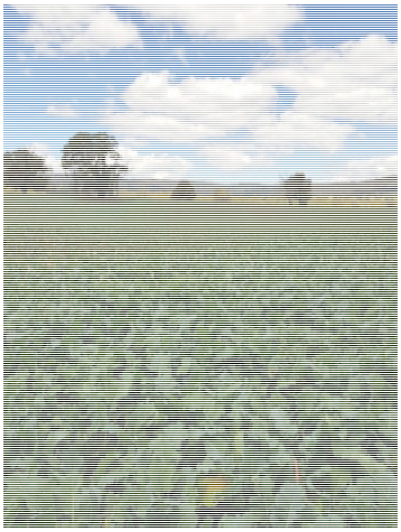
Reliable finishing requires better feed

- Higher quality pastures
- Specialist pastures
  - Lucerne
  - High performance pastures.
    - Legumes
    - Herbs
    - High performance grasses.
- Forage Brassicas
- Supplements

The stocking rate vs price trade-off

- The cost of saving pastures or land for crops for lamb finishing
- Ewe numbers vs lamb growth
- How much extra
  - Lucerne / pasture/ crop

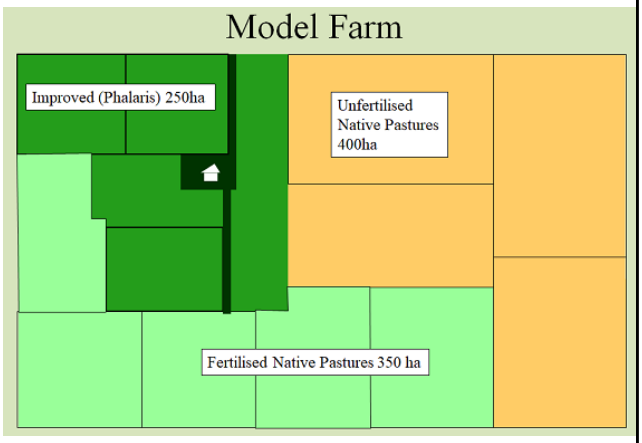
  do you need to reliably finish lambs every year.



Sell as stores or keep to finish

- MFS modelling of a typical farm in the central Monaro basalt plain.
- Lambs sold at weaning vs retained opportunistically
- How many fewer ewes joined?
- Which is the better economic outcome?

MFS
MONARO FARMING SYSTEMS



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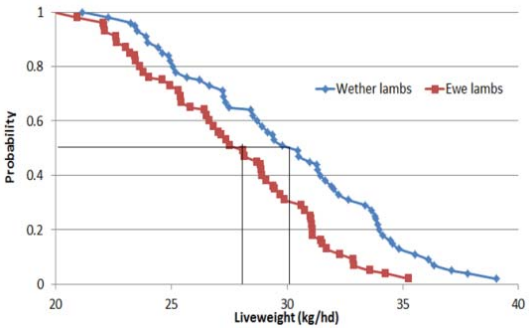
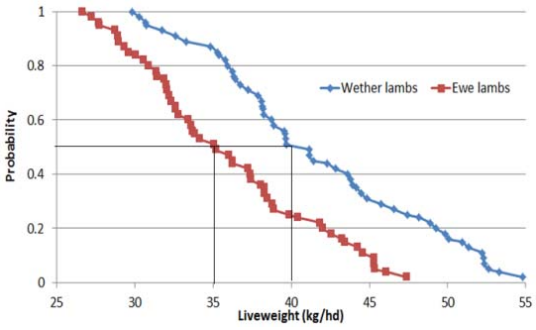
Comparing the systems

Store lambs – Weight at sale



Retained Lambs – Weight at sale



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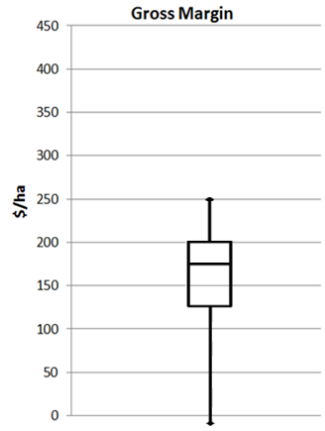
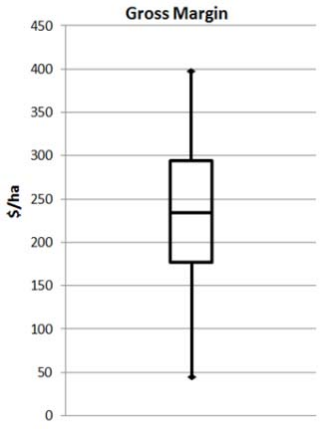
Comparing the systems

Store lambs – Gross Margin



Retained Lambs – Gross Margin



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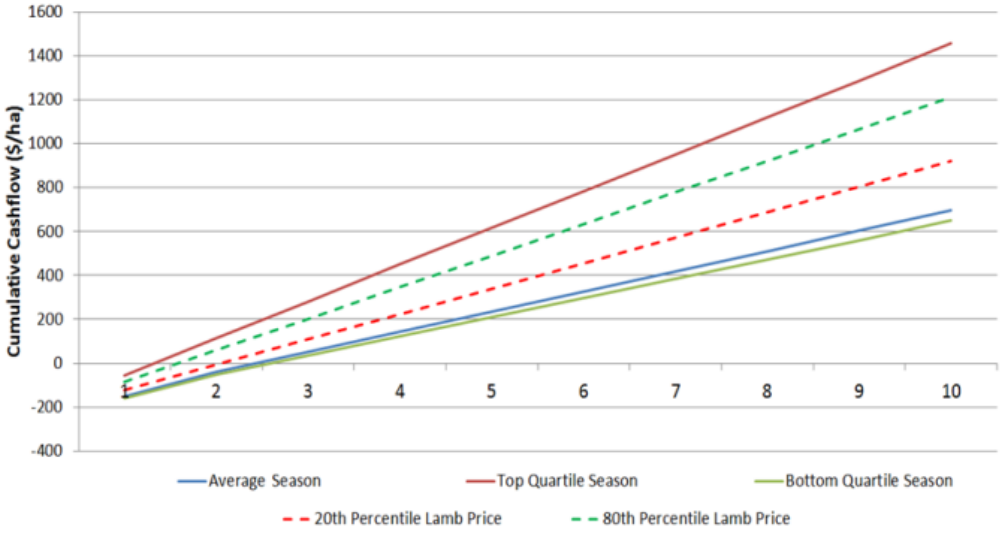
Does adding Lucerne to the system add value?

Cumulative gain in gross margin over 10 year from establishing Lucerne vs baseline pasture



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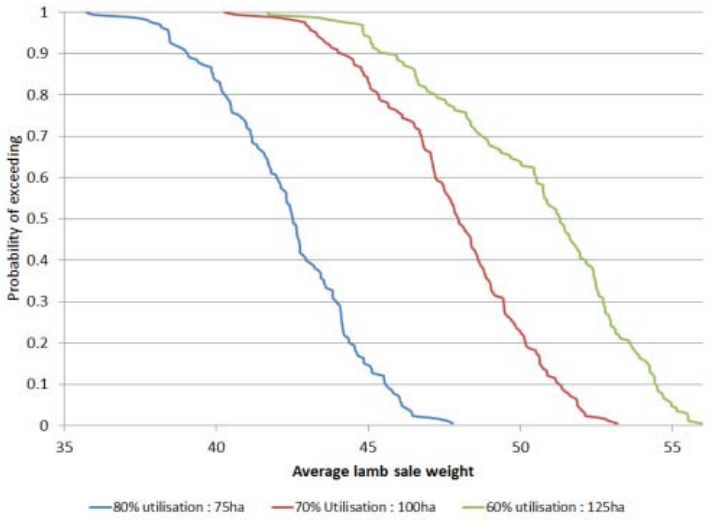
The graph shows the gain in gross margin from establishing Lucerne relative to relying on the baseline pasture mix.

Average GM/ha for Lucerne was $407/ha compared with $236/ha for lambs opportunistically finished on the base mix of pasture.

How do brassicas fit in?

- Area of pasture =
  1000ha – area of crop.



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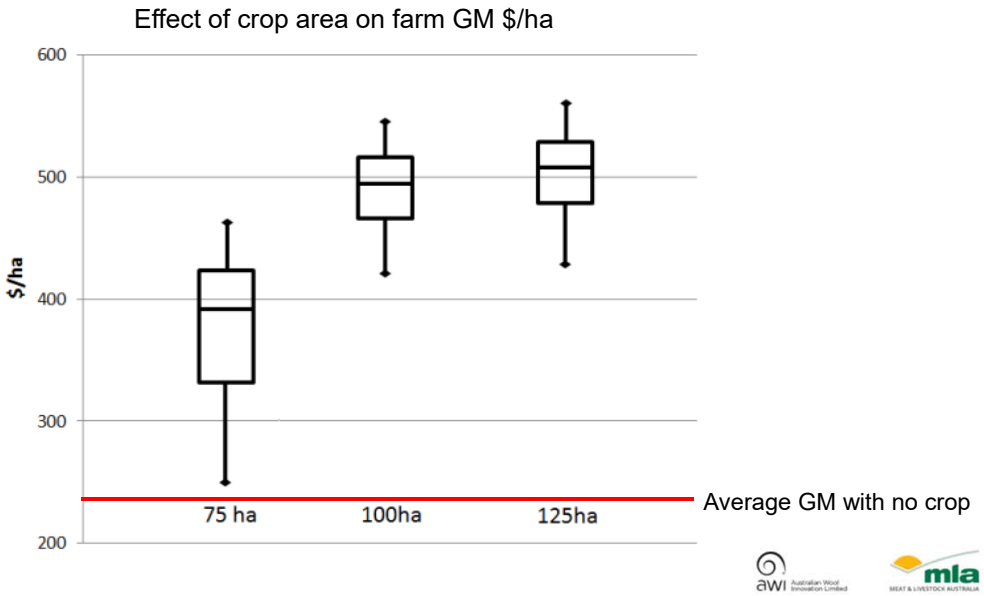
Assuming all lambs from the breeding enterprise are retained, as the area of crop per lamb increases so does the likely sale weight per head but this response is not linear. Median sale weight with 10% of the farm area sown to crop increases the sale weight by 6kg/hd compared with having only 7.5% of the farm area under crop. Increasing the area sown a further 25ha only lifted turn off weight by 4kg/hd. This is because the predicted 80% utilisation rate at the lowest level of cropping greatly reduces the average daily intake per lamb and hence the daily gain.

What is the economic optimum?



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The cost of the crop is modelled on the basis of the variable costs being $300/ha and this cost being divided by the kg of dry matter utilised. At high utilisation the cost per kg DM consumed is lowest but the weight gain return is also lowest. At the highest area of crop the cost per kg of crop consumed goes up but so does weight gain. Farm gross margin is optimised at around 10% of the farm area under brassica crop giving a crop utilisation figure of 70%.

Does this all work in the real world?

MFS
MONARO FARMING SYSTEMS

MLA Funded PDS

- Measuring inputs and performance on
  - Specialist pastures
  - Lucerne
  - Forage Brassicas

Does this work in the real world?

Brassica Crop

- Sown 5/08/17
- Biomass 13/11/17 = 600 kgDM/ha
- Biomass 20/12/17 = 6600 kgDM/ha
- Overall Crop Growth rate

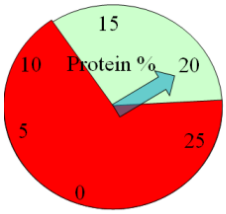
  Sowing to 20/12/17 = 6600 / 138 days
  = 48 kgDM/ha/d

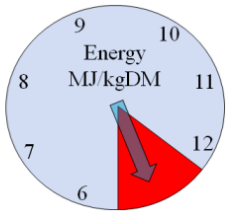
  Last 38 days = 158 kgDM/ha/day

Does this work in the real world?

Brassica Crop

- Feed Quality Testing

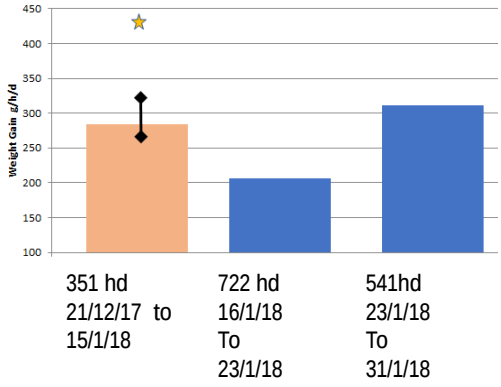




Does this work in the real world?

Brassica Crop

- Animal Performance



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Does this work in the real world?

Brassica Crop

- Economics

Head	Date In	Date Out	Days	Gain/hd	LWt Gain Paddock	Per ha		Value	
351	21-Dec	15-Jan	25	0.284	2492	156	$	483.93	
722	16-Jan	23-Jan	7	0.207	1046	65	$	203.15	
541	31-Jan	15-Feb	15	0.311	2524	158	$	475.00	
				Total		379	$	1,162.09	
						Costs		$410.87	
						Crop Gross Margin	$	751.22	per ha

NB Further grazing occurred after the monitoring period 686 lambs entered the paddock on 26/3/18

What to do when the season is against you?

Pre Weaning

- Maintain lamb growth with targeted supplements.
- Creep Feeding
  - Crop
  - Grain

Post Weaning

- Feed budget on crops and Lucerne
  - How many can you finish
  - Use of feed supplements to
    - A) Ensure target weight gains
    - B) Make the paddock last longer.

A pre-weaning scenario

- Merino Ewes joined to Dorset Rams
- Ewes in light condition (CS 1.5)
- Feeding in the lambing paddock
- Lamb losses from twin bearing ewes
- Mismothering in the lambing paddock.
- Little paddock feed (200 kg Green DM/ha)
- Low lamb growth rates (< 150 g/h/d).

How fast should lambs grow?

- Determine the target weaning weight
- Subtract the birth weight
- Divide by the age at weaning

- 27kg (mob average) – 5 kg = 22 kg
- 22 kg ÷ 85 days = 260 g/h/d

Impact of Base Feeding Rate

- 8 weeks after the first lamb.
- 38kg ewe 12kg lamb
- Feeding Barley
  - ME = 13.5
  - CP% = 12
- Where is your feeding strategy pitched?

Feeding Rate per ewe (g/h/d)	Lamb Wt. Gain (g/h/d)	Ewe Wt.Gain g/h/d
500	90	-86
700	123	-61
900	152	-34
1100	179	-4
1400	219	35

What can we do to lift lamb growth?

- Feed the lambs directly
  - Early Weaning
    (as young as 8 weeks and 10 kg)
  - Creep Feeding from 2-3 weeks of age.

What can we do to lift lamb growth?

- Feed higher rates to the ewes and lambs.
  - Relies on ewes milking more (will this happen?)

Creep Feeding

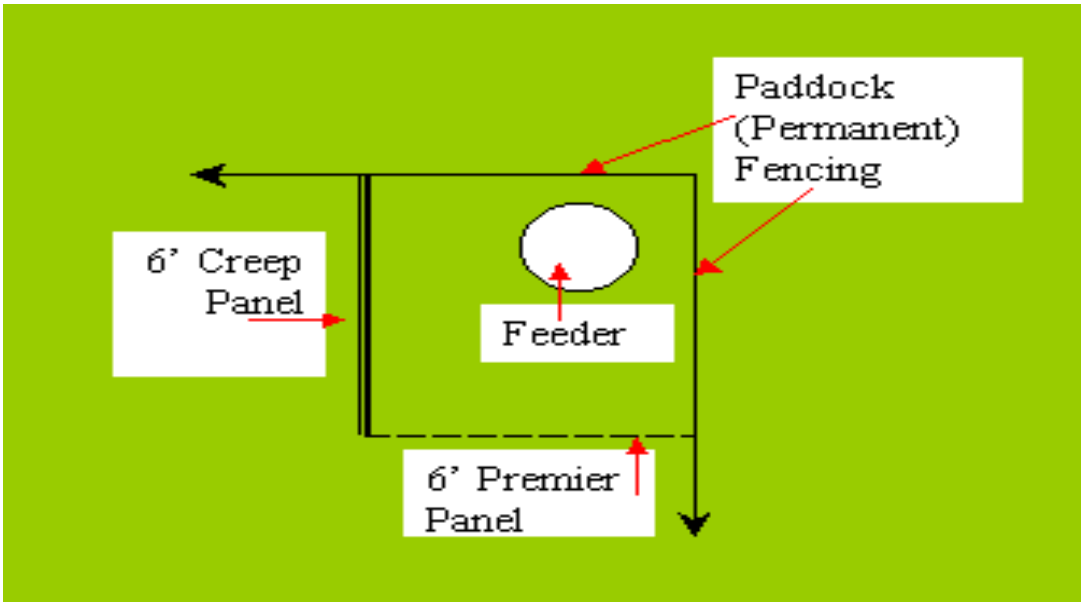
- Allows lambs access to extra feed. (especially useful for XBred Lambs)
- Need
  - troughs or self feeders
  - Creep pen
  - Creep gate
  - High quality feed

Feeding Method

- Troughs
  - Clean out daily.
  - Feed should not run out.
  - Easier for feed mixes.
- Self feeders
  - less labour but more capital.
  - Feed mixes may be a problem.
- Hay racks will reduce wastage

Creep Gates

- A creep gate with gaps 200mm wide will allow access for lambs up to 22kg and exclude ewes
- Adjust opening size for larger lambs or just wean and feed separately.


Paddock
(Permanent)
Fencing
6' Creep
Panel
Feeder
6' Premier
Panel

Creep Feeds

- Must be palatable (lambs are fussy)
- High in protein (18% CP)
- Pellets should be small in size.
- High quality roughage
  - (Lucerne or good clover hay or short chop silage)
- Copra meal (ME = 12 , CP% = 22%)
  - complete concentrate for very young lambs.
- Other meals mix well with cereal grains
  - A mix will work just as well and be cheaper

Predicted Response to Creep Feeding

Assumptions

- Ewes fed Barley 700g/h/d
- Creep feed
  - Barley 80%
  - CSM 20%
  + Lucerne Hay *ad lib*
- Ave Cost $ 500 tonne

Extra Gain = 14.3 kg

Feed Costs = $16.66

Days since Lambing	* Wt & Gain w/o Creep (Kg) & ……(g/h/d)	Creep Allowance(g/h/d)	Extra Daily Gain (g/h/d)	Wt. & Gain Creep Fed (Kg) & ……(g/h/d)
28 (18)	8			8
	146	167	90	236
42 (30)	10			11.3
	133	333	165	298
56 (42)	12			15.5
	104	555	243	350
77 (65)	14			22.8
	87	667	180	357
98 (84)	16	*33 kg*	*14.3 kg*	30.3

* Source GrazFeed

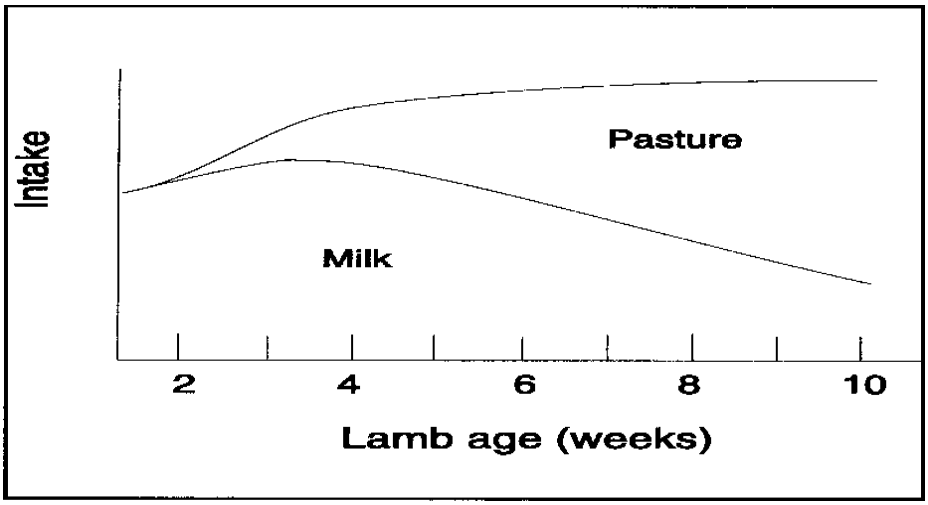
Creep rate is equivalent to the predicted remaining unsatisfied DM appetite from GrazFeed divided by 0.9 to convert to the as fed rate.

Extra daily gain calculated from th existing energy use efficiency for gain applied to the calculated extra ME provided by the creep ration.

Early Weaning

- Can wean at 8 weeks and 8 kg liveweight.
- Lambs trained to feed with their mothers.
  - Already eating up to 250g/h/d of grain.
- Need the same feed as for the creep.
- Lamb feeding rates will be much higher than in a creep.
- Ewe feeding rates can be much reduced. (230 g/h/d).
- Better lambs and better ewes.

Early Weaning



Early Weaning (onto crop)

- Sparse Crop (800 kg DM/ha, 6cm)
- Insufficient to last ewes and lambs.
- Ave 810g/h/d of barley supplement for a 27kg @ weaning.
- 20 lambs/ha (with some limited extra rain)

- With no supplement
  - 10 lambs/ha
  - 23kg @ weaning

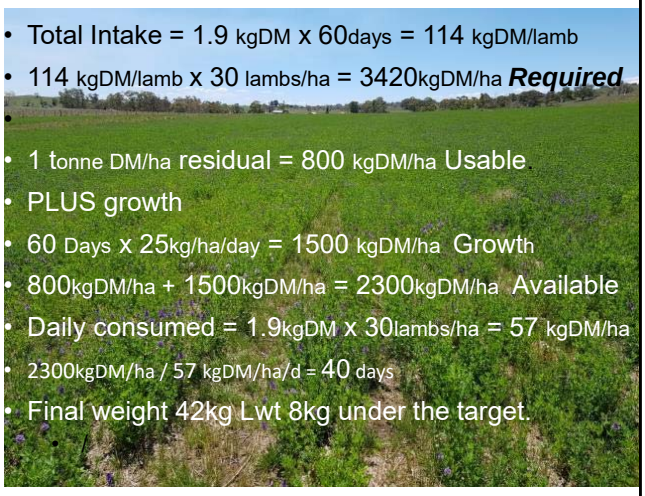
Costing the Options (4weeks – 14 weeks)

Outcome	Trailed 700g/h/d	+ Creep *Ad lib*	Trailed 1.4 kg/h/d	Early Weaning	Early Wean onto crop
Cost of Lamb Feed (per lamb)	Nil	$15	Nil	$27.77	$17.00
Cost of Ewe Feed (per ewe)	$27	$27	$51	$10.50	$10.50
Lamb weight at 14 weeks	16 kg	30.3 kg	22.8 kg	27 kg	27 kg
Ewe weight at 14 weeks	36 kg	36 kg	43 kg	38 kg	38 kg
Deaths lamb (10%) & ewe (2%)	$13.80	$3.00	Nil ?	Nil	Nil
Extra lamb gain @ $2.30 /kg	Nil	$29.61	$14.08	$22.77	$22.77
Benefit/ewe		$26.90	$3.88	$28.08	$22.00 *

* Less the loss of grain or hay yield say $300/ha ie $15/lamb

Post weaning

- Be realistic
  - about potential pasture and crop growth rates
  - and lamb growth rates
- Conduct a feed budget
- How many lambs can be finished
  - 20ha 1.8 t/ha Lucerne @ 70% DMD
  - 600 x 30 kg weaners needing to gain 18 kg
  - Expected Lucerne growth rate 25kg/ha/d
  - Use GrazFeed to predict key parameters
  - Expected daily gain 300 g/h/d
    ie 60 days to finish
  - Lamb Intake = 1.9kgDM/day



- Total Intake = 1.9 kgDM x 60days = 114 kgDM/lamb
- 114 kgDM/lamb x 30 lambs/ha = 3420kgDM/ha ***Required***
- 1 tonne DM/ha residual = 800 kgDM/ha Usable
- PLUS growth
- 60 Days x 25kg/ha/day = 1500 kgDM/ha Growth
- 800kgDM/ha + 1500kgDM/ha = 2300kgDM/ha Available
- Daily consumed = 1.9kgDM x 30lambs/ha = 57 kgDM/ha
- 2300kgDM/ha / 57 kgDM/ha/d = 40 days
- Final weight 42kg Lwt 8kg under the target.

Using supplements to extend grazing times

- Use substitution to your advantage
- Allow the lambs free access to Barley.
- GrazFeed predicts voluntary intake of grain of around 450g/h/d averaged over the period.
- Daily intake of Lucerne = 1.26kgDM/h/d ie 75kgDM per lamb or 2268kgDM/ha
- As before there are 2300 kgDM/ha available to graze.
- The paddock will now last the 600 lambs a full 60 days to reach 48kg Lwt
- If Lucerne growth is better voluntary intake of grain will be less and…
- If growth is less the lambs will compensate by eating more grain.

Conclusion

- Getting reliable outcomes requires a target and a plan
- Be prepared to fill feed gaps with specialist forages or supplements
- At current input costs and lamb prices nearly any strategy to achieve good early lamb growth will give positive returns.
- In poor seasons feeding ewes to make more milk for better lamb growth is less efficient than creep feeding or early weaning options

Take home messages

- Consider using forage brassicas, Lucerne or specialist pastures to
  - finish lambs quicker
  - sell more kg lamb per ha
  - Substantially increase profit
- Maintain lamb growth in poor seasonal conditions
  - Creep feeding
  - Weaning early onto supplements/crop
- Plan for post weaning growth
  - Feed budget to prevent surprises
  - Use supplements early to avoid stop/start lamb growth rates.