Early weaning of lambs

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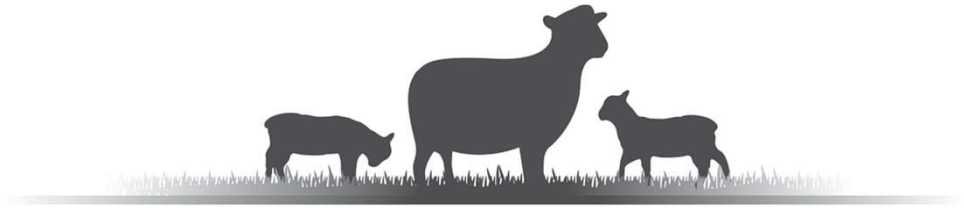

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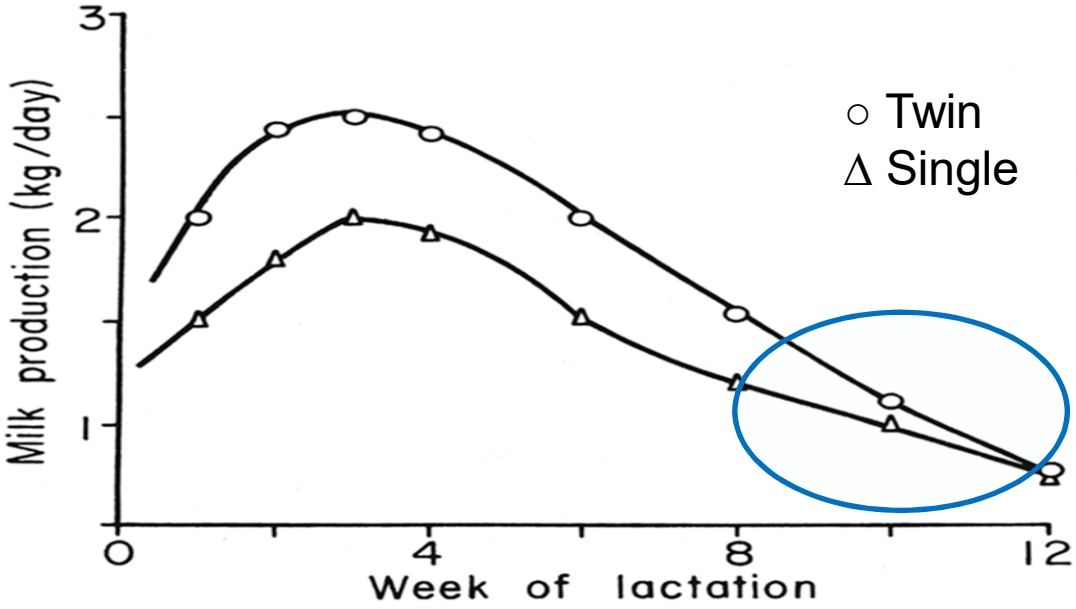
Why wean early?



- In late lactation the lamb is receiving little nutrition from the ewe (especially multiple born lambs)

- When feeding conditions are below optimum ewes and lambs become competitors

Why wean early?

- A mechanism to allow older/cull ewes to be sold at a higher value before it can become difficult to get rid of them
  - also reduces feed demand

- Weaning some ewes early could be a management tool to prepare paddocks for when the remainder of the flock is weaned (i.e. use early weaned ewes to clean up)

- In some areas of NZ, high quality feed types (herbs/clover/lucerne) may not be ready at lambing
  - a small area can support a large number of lambs

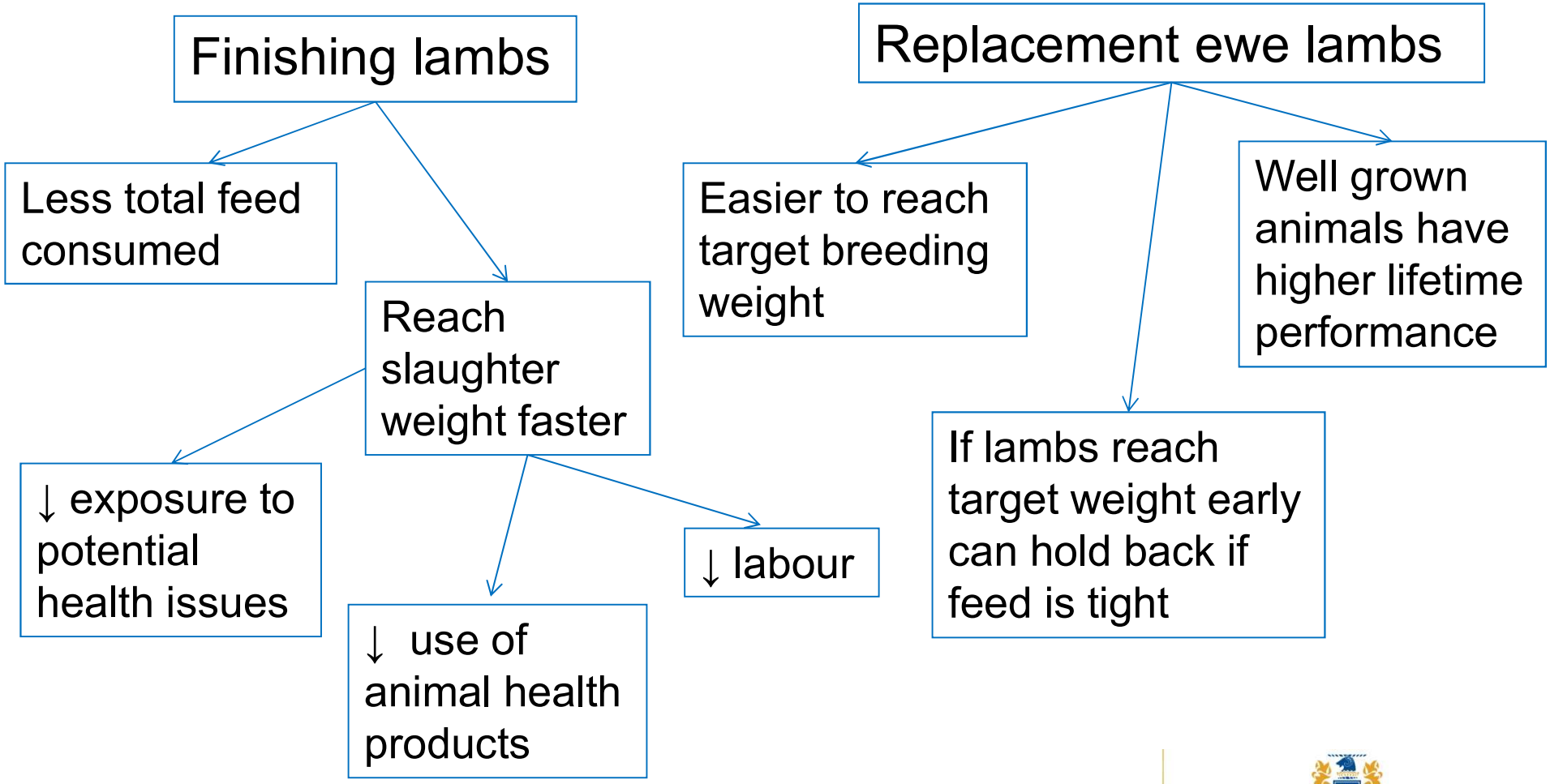
Why wean early?

- Multiple bearing ewes fail to produce proportionally more milk and can loose a lot of body condition during lactation. This can affect next years performance. So we could target this group for the benefit of the ewe and her lambs

- Gives greater flexibility with management of ewes and pasture control

- In sheep milking systems the earlier the lamb can be weaned the more milk that is available for sale

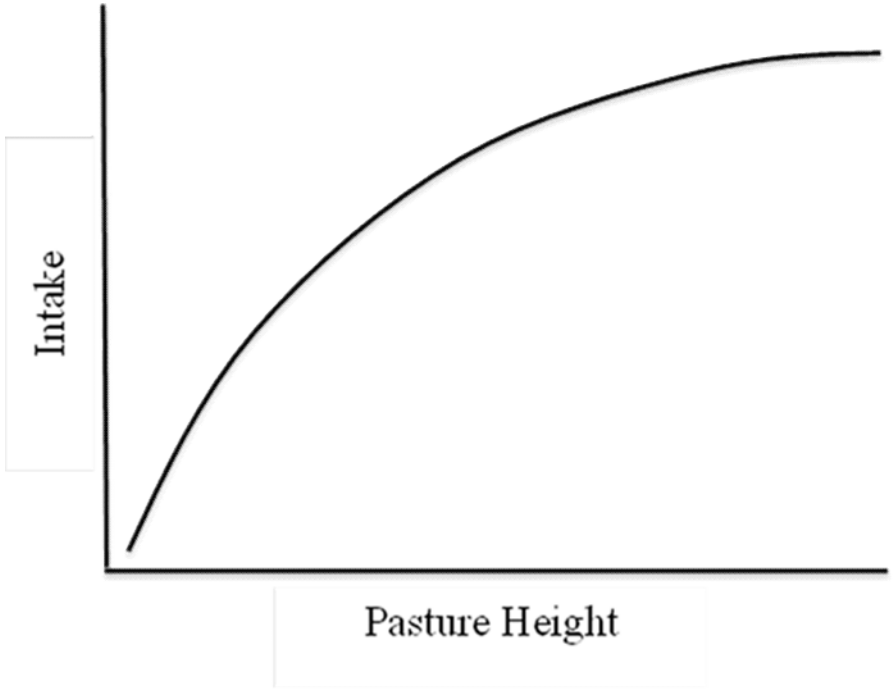
Why do we want fast lamb growth rates?



Animal performance – basic principals

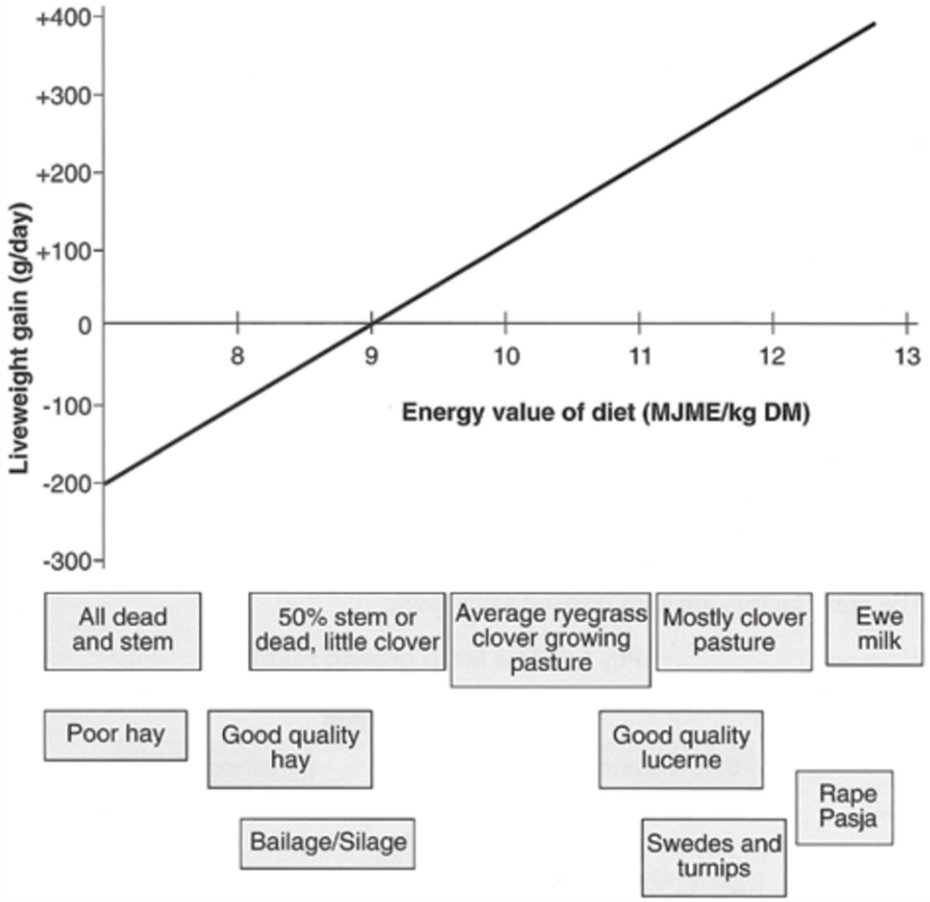
- If you want to achieve high performance
  - do not restrict intake
  - maximise bite size
  - allow the animal the ability to choose
  - ensure herbage is of high quality

Animal performance – basic principals



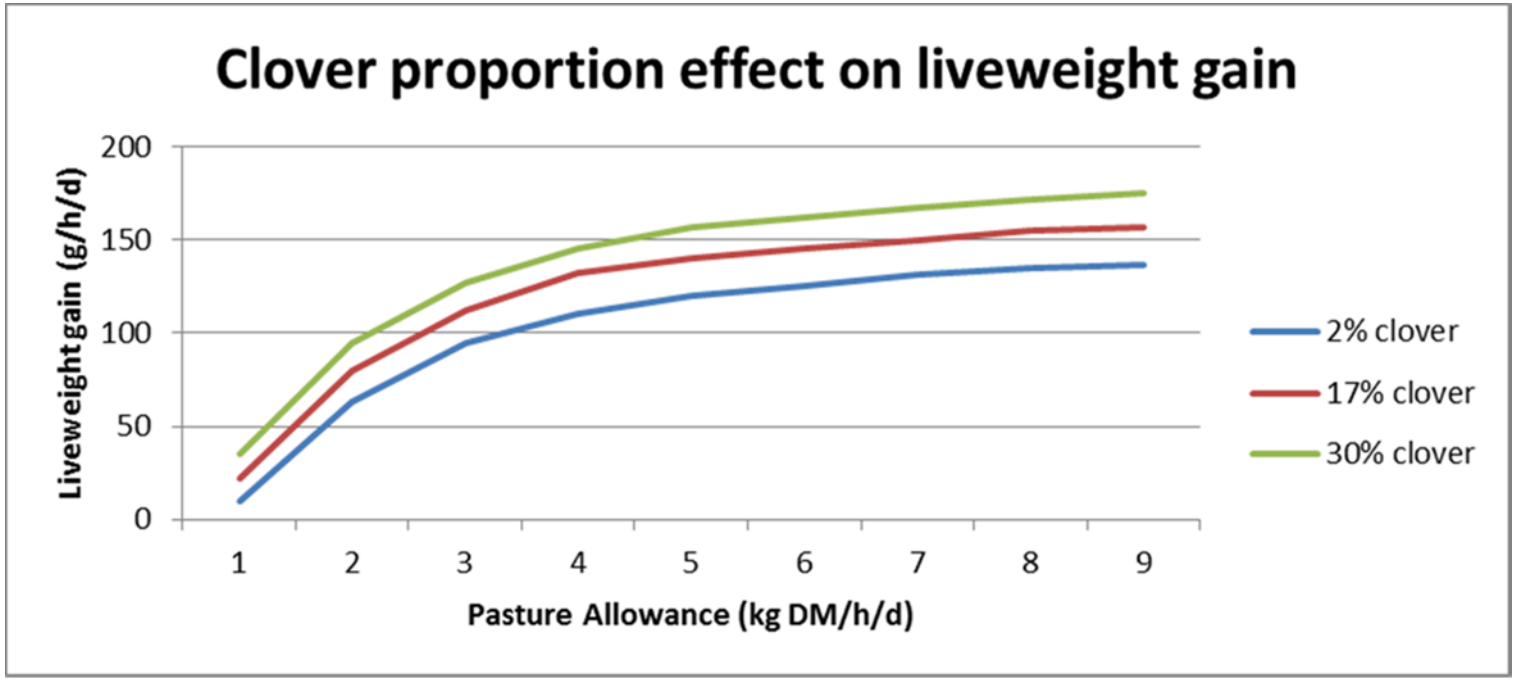
- In ryegrass white clover pasture sheep intake is not restricted at a sward height of 4 cm (1200 kgDM/ha)
- At a sward height >9 cm (2000 kgDM/ha) pasture loses quality

Animal performance – basic principals



400 Plus
A Guide to Improved Lamb Growth
for Farmers and Advisors, B&LNZ

Allowance and clover content



McEwen, et al., 1988

Early weaning

- Early weaning is not a new concept
- Studies from around the world and in NZ in the 1980's have shown lambs can be weaned at light weights if fed well post weaning
- The general principal has been 'heavier' lambs cope the best with early weaning. Early weaning should occur onto a 'high quality sward'
- Our group has looked at early weaning onto
  - Herb/clover mixes
  - Lucerne

Methodology

- First cycle twin-bearing ewes lambed on pasture. Lambs were tagged and identified to their dam at birth.

- When lambs reached an average ~50-60 days of age (minimum of 16 kg, average of 20-22 kg), the ewe and her twin lambs were allocated to a treatment

  1. Lambs with dams on grass **(grass)**
  2. Lambs with dams on high quality forage **(herb/clover or lucerne)**
  3. Lambs early weaned onto high quality forage and dams on grass **(early-weaned)**

- All lambs and dams were gradually adjusted to grazing high quality forage (over 5 days). Then dams removed from 'early-weaned lambs'

Methodology

- All herbage treatments allowed for unrestricted feed intake
- Lamb live weight and ewe live weight and body condition score was monitored until conventional weaning (lambs ~90-100 days of age)
- Herbage mass, sward height and herbage quality was monitored
- Each study was repeated over two years between 2014-2017

Ewe live weight change

Study	*n* per treatment	Live weight change to conventional weaning (g/day)		
		Grass	Crop	Early weaned
Lucerne 2015	23-24	-60 ± 24 a	105 ± 24 b	134 ± 24 b
Lucerne 2016	25	161 ± 21 a	138 ± 23 a	242 ± 22 b
Herb/clover 2014	23-24	247 ± 36 a	353 ± 35 b	307 ± 35 b
Herb/clover 2015	22-23	159 ± 15 a	118 ± 15 a	234 ± 16 b
Plantain/clover 2015	22-23	143 ± 18 a	129 ± 18 a	210 ± 18 b

We observed similar patterns with changes in ewe body condition score

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Lamb live weight gain

Study	n per treatment	Ave lamb age (days)	Live weight gain to conventional weaning (g/day)			
			Grass	Crop	Early weaned	Early wean vs grass
Lucerne 2015	46-48	64	255 ± 7 a	304 ± 6 b	263 ± 7 a	=
Lucerne 2016	50	61	261 ± 12 b	303 ± 13 c	223 ± 13 a	-
Herb/clover 2014	46-48	56	278 ± 6 a	318 ± 6 b	303 ± 6 b	+
Herb/clover 2015	48-50	54	318 ± 6 b	316 ± 6 b	280 ± 7 a	-
Plantain/clover 2015	44-46	59	318 ± 8 b	327 ± 8 b	255 ± 8 a	-

Carcass data

All lambs >35 kg were slaughtered at the end of the study period

		n	Carcass weight (kg)	DO%
Plantain/clover 2016				
	Grass	3	15.1 ± 0.5 a	42.5 ± 1.1
	Plantain/clover	11	16.5 ± 0.3 b	43.8 ± 0.7
	Early weaned	4	15.9 ± 0.4 ab	42.3 ± 1.0
Herb/clover 2016				
	Grass	9	15.4 ± 0.3	41.8 ± 0.7 a
	Herb/clover	15	15.9 ± 0.2	43.7 ± 0.5 b
	Early weaned	4	15.9 ± 0.5	40.9 ± 1.0 a

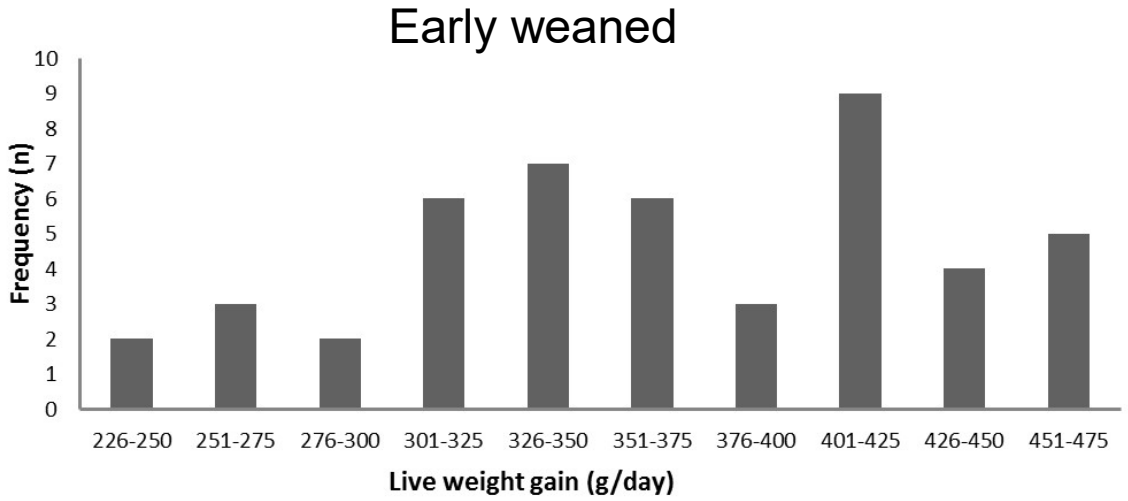
Summary of key results so far

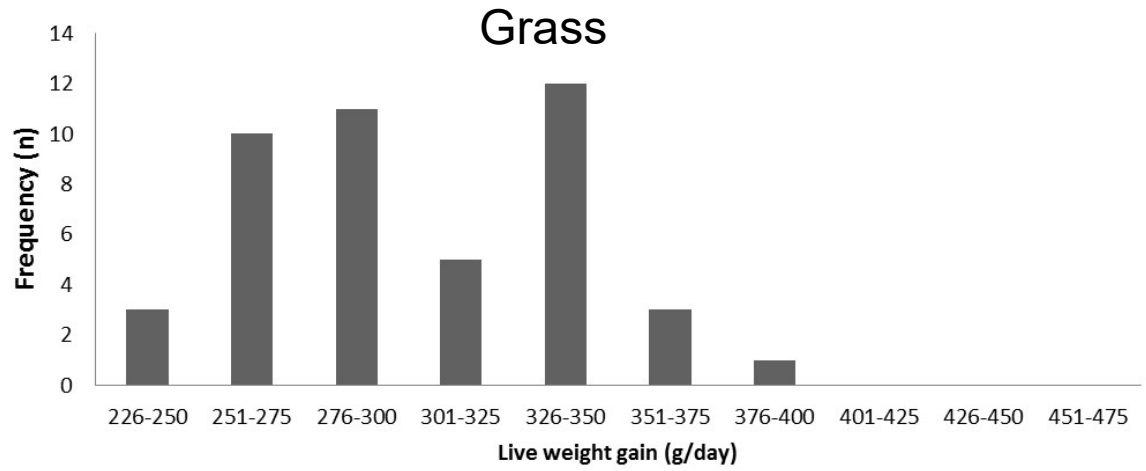
- Early weaning allows ewes to gain more live weight than conventional weaning
- In general early weaned lambs have similar/slightly slower growth rates compared to lambs with dams on grass. However, in one study we have saw faster growth rates

So what are the key drivers of these results

- Starting lamb live weight
- Pasture conditions
  - Herbage mass and allowance
  - Herbage quality

2014 Lamb growth distribution





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Effect of starting lamb live weight

	Live weight category (kg)			
	16-17	18-19	20-21	22-23
	Liveweight gain to conventional weaning (g/day)			
Herb/clover 2014				
Grass	298 ± 19 ab	282 ± 10 a	310 ± 23 abc	313 ± 15 abc
Herb/clover	381 ± 14 de	388 ± 12 e	410 ± 14 e	386 ± 22 de
Early weaned	325 ± 18 bc	352 ± 12 cd	375 ± 12 de	375 ± 17 de
Herb/clover 2015				
Grass	307 ± 14 bcd	326 ± 11 cd	342 ± 11 d	335 ± 21 cd
Herb/clover	305 ± 12 bc	333 ± 9 cd	305 ± 14 bc	316 ± 24 bcd
Early weaned	272 ± 11 a	287 ± 11 ab	281 ± 17 ab	295 ± 20 abc

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Effect of herbage allowance

Herbage mass on offer

Plantain/clover >3000 kgDM/ha
Grass high >1200 kgDM/ha

→ Unrestricted feed intake

Grass low 800-950 kgDM/ha → Restricted feed intake

		Liveweight change to conventional weaning (g/day)	
	n ewes	Lambs	Ewes
Early weaned	22	240 ± 7 b	-35 ± 20 b
Plantain/clover	22	307 ± 8 d	61 ± 20 c
Grass high	21	263 ± 8 c	65 ± 21 c
Grass low	21	153 ± 7 a	-102 ± 20 a

Conclusion

- There is potential to wean early
- For the ewe there are clear advantages
- There are potential advantages for the lamb but these appear to be dependent on:
  - The quantity/quality of the pasture available in spring
  - The starting lightweight of the lambs

Conclusion

- Early weaning is not an option for all farmers

- If you wanted to wean early what should you do (based on current and previous research)
  - avoid weaning lambs lighter than 16 kg
  - if weaning onto a ‘crop’ allow the lambs time to adjust with their dam
  - make sure you are weaning onto a sward that has a large component of legume

What's next …

- More comprehensive look at effect of starting lamb live weight on growth rates
- Collect more slaughter data
- Are lamb growth rates improved if they are adapted onto crop much earlier than at the time of early weaning
- Effects of early weaning on ewe udder characteristics

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Thank you!

- Acknowledgements
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  - C Alma Baker Trust
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