Hogget nutrition in pregnancy and lactation to maximise outputs

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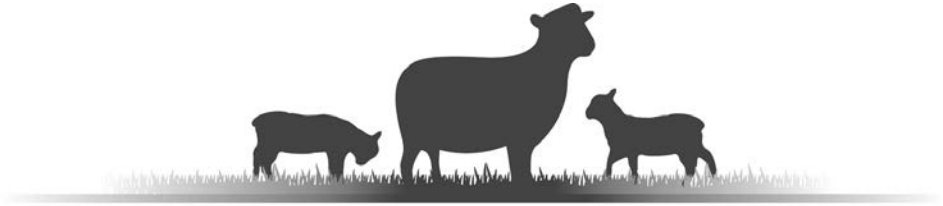

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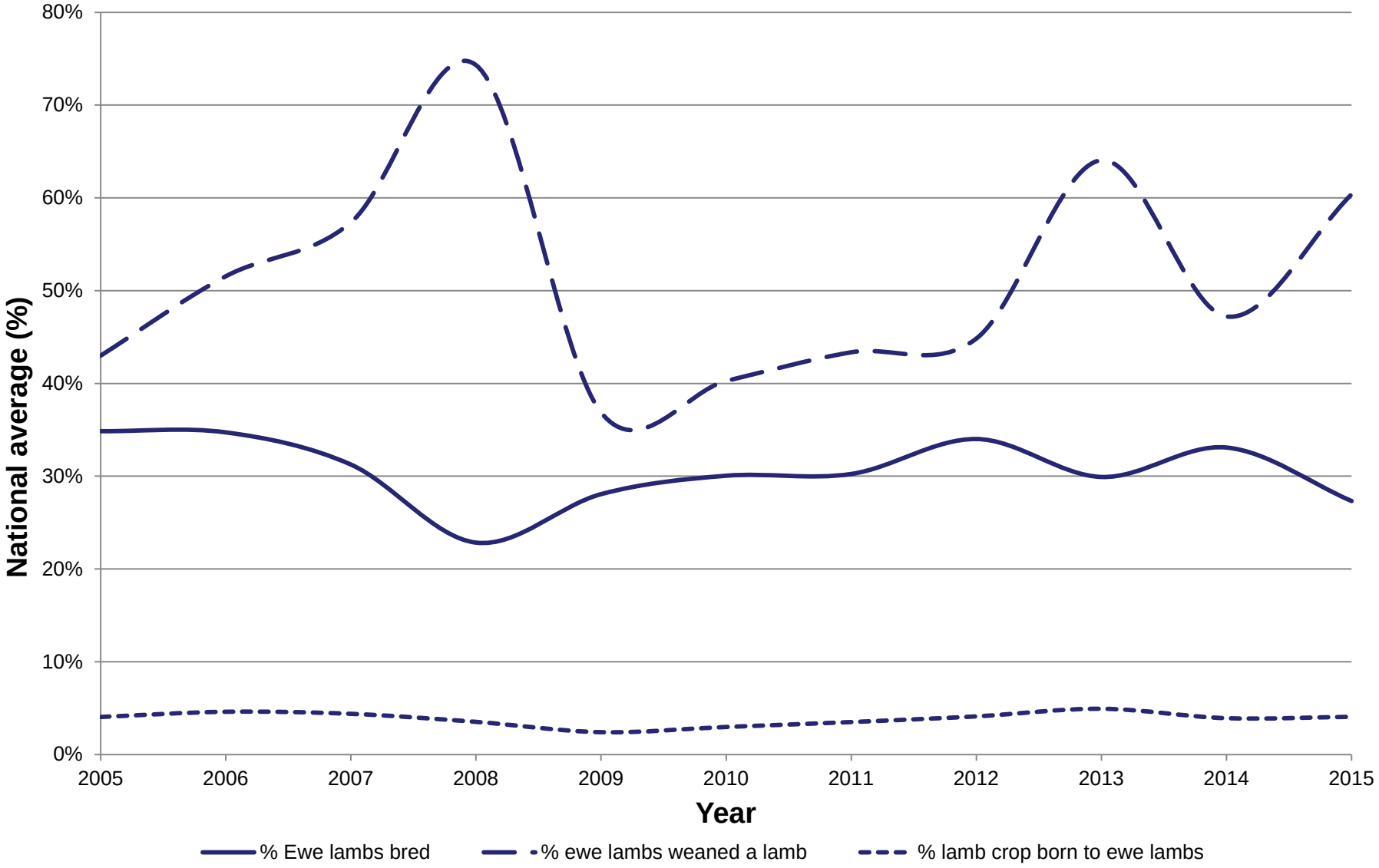
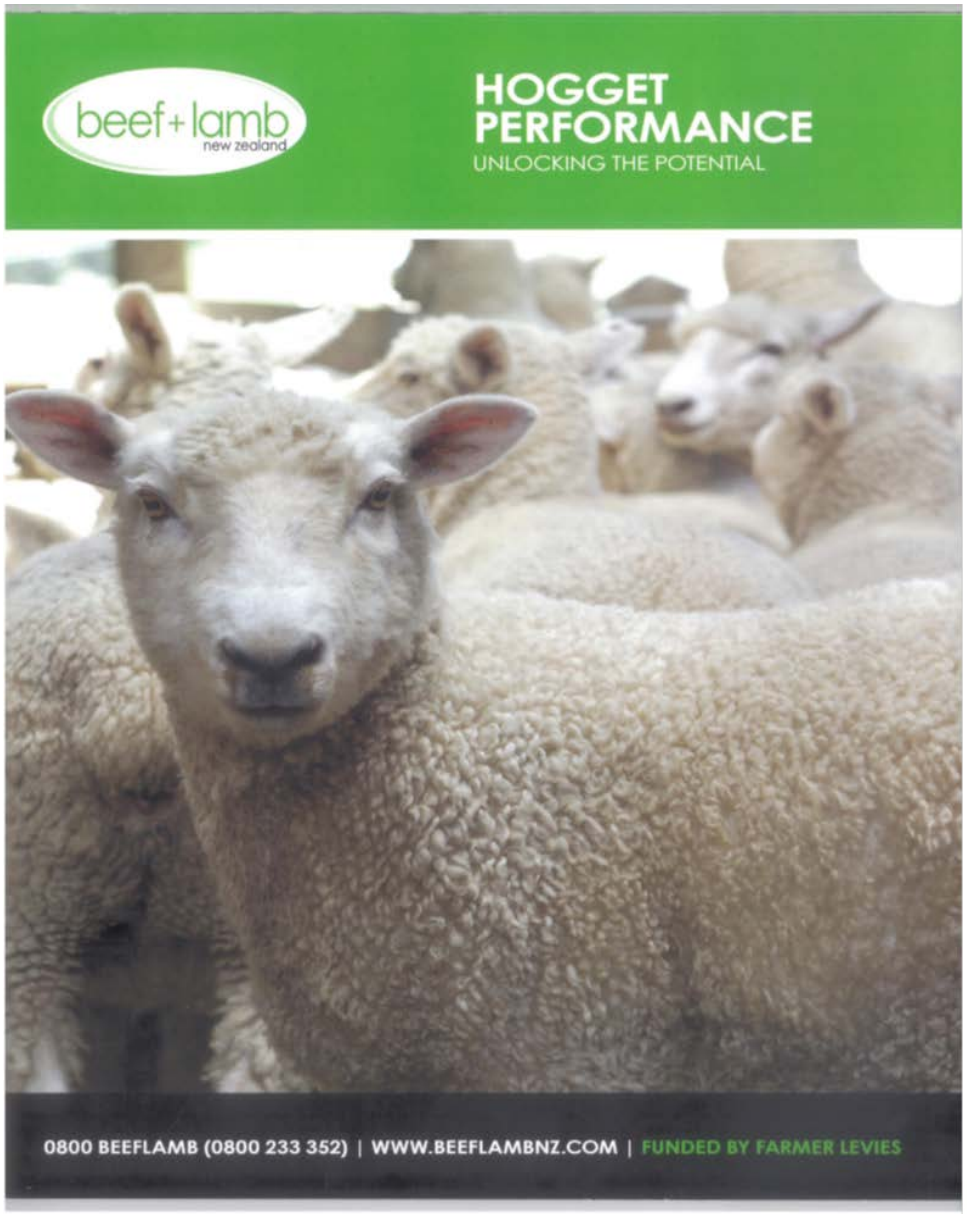
Hogget breeding statistics

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Breeding ewe hoggets

- Should all farmers breed ewe hoggets?
  - No
- Should farmers who normally breed ewe hoggets necessarily breed them all each year?
  - No, it should be a flexible policy
  - Dependant on hogget live weight and predicted feeding levels

Potential limitations of breeding ewe hoggets

- Low and variable reproductive performance
- Increased feed requirements during their first year of life
- Need adequately sized hoggets at 8 months of age
- Potential for reduced 2-year-old live weight and reproductive performance and decreased lifetime reproductive performance
- Progeny born to hoggets are often smaller at weaning and of lower value

Potential advantages of breeding ewe hoggets

- Production of a lamb within the first year of life
- More lambs produced on farm in a given year
- More efficient use of spring herbage
- Increased lifetime performance
- Early selection / screening tool
- More selection pressure as more progeny born
- Potential reduction in generation interval if progeny born to hoggets are selected as replacements

Management prior to and during breeding

- Minimum live weight (40 kg+)
- Minimum BCS (2.5+)
- Teasing
- Flushing (??)
- Avoid ram hoggets
- Teams of rams
- Ram mating harnesses
- Length of breedin

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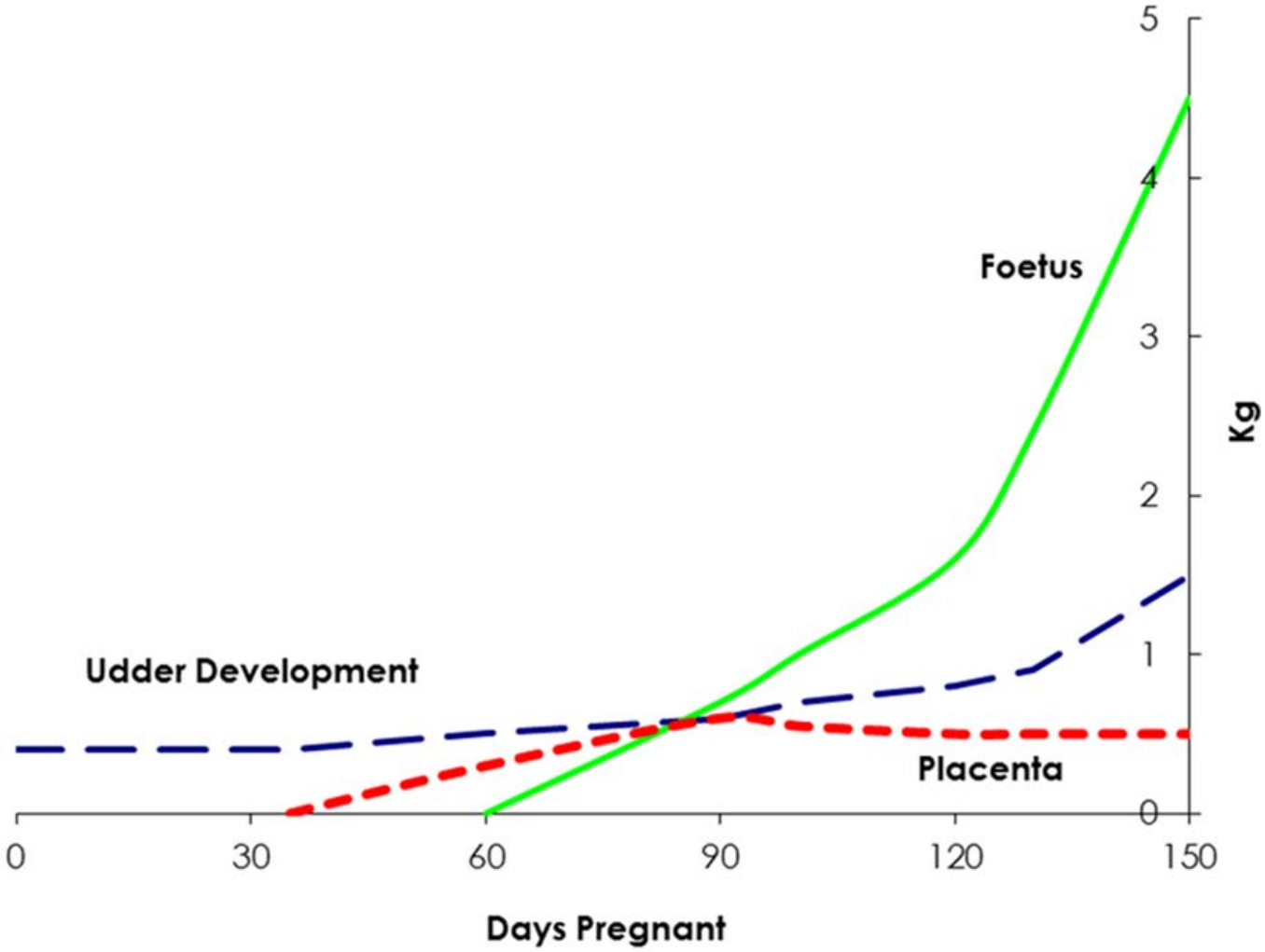
Management during pregnancy

Traditional management of our mature ewe flock in pregnancy

- With mature ewes we hold them at maintenance for at least the first two thirds of pregnancy
  - We can do this because she has reached her mature weight

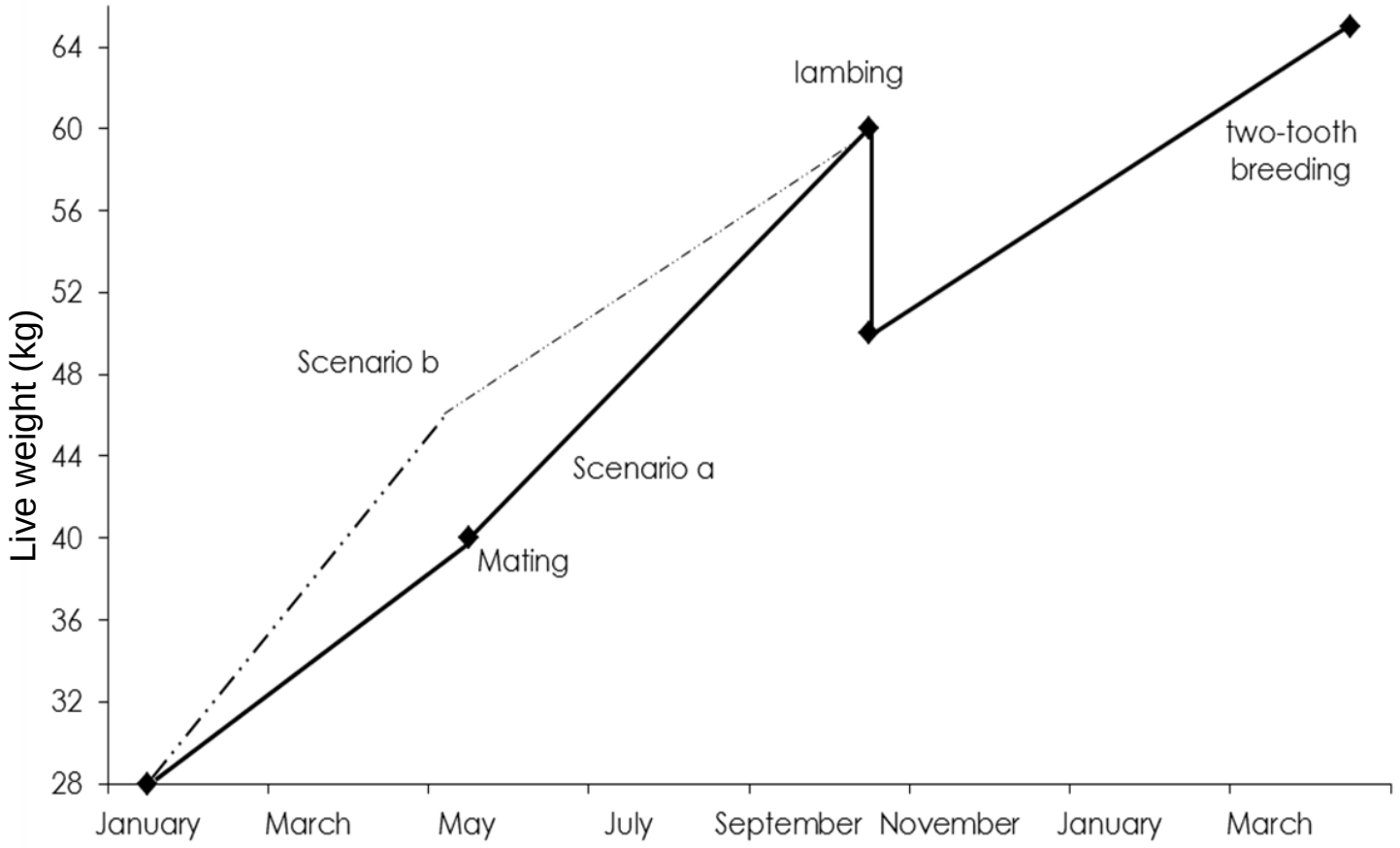

5
4
3
2
1
0
Kg
Foetus
Udder Development
Placenta
0
30
60
90
120
150
Days Pregnant

Traditional management of our mature ewe flock in pregnancy

- With mature ewes we hold them at maintenance for at least the first two thirds of pregnancy
  - We can do this because she has reached her mature weight
- But we can't do this with hoggets because:
  - The ewe hogget must gain the weight of the fetus and placenta
  - The ewe hogget also needs to continue to grow during pregnancy to achieve adequate mature live weight

The pregnant ewe hogget

- If we make some assumptions
  - (i) she weighs 40 kg at breeding (early May)
  - (ii) pregnancy 'weight' will be 10 kg (single fetus)
  - (iii) aim to have her at 50 kg the day after she lambs (1 October)
    - this is a minimum if she is going to be at least 60 kg at rebreeding
- Therefore ewe hoggets need to gain a total of 20 kg during pregnancy
  - equates to 135 g/d throughout pregnancy



Scenario a = ewe hogget that weighs 40 kg at mating
Scenario b = ewe hogget that weighs 45 kg at mating

Management in pregnancy

- To achieve the live weight gains
  - Hoggets need to be offered pre-grazing pasture covers greater than 1200 kg DM/ha and minimise post grazing covers going below 1000 kg DM/ha – throughout pregnancy
- This either requires a reduction in other classes of stock or an increase in alternative feed sources
  - Reducing pregnant mature ewe number is an option
  - Offering alternative forages is another option

Management to increase hogget lambing percentage

- A survey of NZ farmers found that the following factors increased hogget lambing %
  - ⇧ Hogget live weight at mating
  - Pregnancy scanning to identify numbers of fetuses
  - Vaccination for toxoplasma, campylobacter, clostridial diseases (pre-lamb 5 in 1)
  - Separate management of single- and multiple-bearing hoggets in pregnancy and at lambing
  - ⇧ Live weight of hoggets at set-stocking

Management in pregnancy

- There are a range of feeding options during pregnancy
  - Regardless of what option is used
    - Monitor live weight to ensure targets are met

Nutrition in early pregnancy

- Ewe hogget nutrition in early pregnancy can influence the maintenance of pregnancy
- Hogget trial
  - Low = 0 kg gain to day 100 then 180 g/day
  - Medium = 100 g/day to day 100 then 180 g/day
  - High = 180 g/day to day 100 then 300 g/day

Nutrition in early pregnancy

Treatment	n	Hoggets pregnant (%)	Hoggets lambed (%)
Low	80	62 ab	42 a
Medium	80	66 b	64 b
High	80	46 a	30 a

Treatment	n	Lamb birth wt (kg)	Lamb wean wt (kg)	Lamb survival (%)
Low	42	3.5 ± 0.2 a	18.1 ± 1.0 a	36 a
Medium	51	4.0 ± 0.2 b	20.6 ± 1.0 b	53 b
High	20	4.0 ± 0.2 b	21.8 ± 1.0 b	85 b

Nutrition in mid-pregnancy

- Romney + Coopworth single- and twin-bearing hoggets were offered pasture masses to allow:
  - 10 kg live weight gain (Low)
  - 20 kg live weight gain (Medium)
  - 30 kg live weight gain (High)
- All ewe hoggets offered 1400 kgDM/ha during lactation

Nutrition in mid-pregnancy

- Nutritional treatments had:
  - No effect on lamb birth weight but...
  - Lambs born to the Low hoggets were lighter at weaning than Medium and High hoggets
    - Which suggests impaired milk production of Low hoggets

Pregnancy weight gain	n	Birth weight (kg)	Wean weight (kg)	Survival (%)
10kg (Low)	92	3.9 ± 0.1	22.1 ± 0.4 a	71.7
20 kg (Medium)	82	3.8 ± 0.1	23.8 ± 0.4 b	70.7
30 kg (High)	92	3.9 ± 0.1	23.9 ± 0.4 b	76.1

Management at set stocking

- Management during/prior to lambing
  - Paddocks should ideally provide shelter
  - Pasture covers should not fall below 1200 kg DM/ha
    - Not only want maximum milk production the ewe hoggets also needs to continue to grow
  - Advantages from separating multiple- and single-bearing ewe lambs

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Management during lactation

Management in lactation

- Pasture covers should not fall below 1200 kg DM/ha
- Herb-clover mixes and Lucerne have been shown to increase the growth of lambs born to hoggets to weaning
  - And the live weight of the hogget herself

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Herb-clover mixes and Lucerne

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Hogget study I

- Single-bearing hoggets 2012 (n=305) and in 2013 (n=195) were offered:
  - Pasture mix (10 ewes/ha)
  - Herb mix (16 ewes/ha)
  - Lucerne (16 ewes/ha 2012, 10 ewes/ha 2013)
- Treatments began 7 days prior to expected start of lambing
- All ewes remained on feeding treatment until weaning (~day 70)

Single hogget live weight

Treatment	n	Set-stocking (kg)	Weaning (kg)	Weight gain (g/day)
Pasture mix	128	60.3 ± 0.4	66.0 ± 0.6 a	63 ± 6.1 a
Herb mix	162	59.6 ± 0.3	79.7 ± 0.5 c	218 ± 5.4 c
Lucerne	122	59.8 ± 0.4	78.0 ± 0.6 b	198 ± 6.2 b

Single lamb weights

Treatment	n	Birth	Weaning	Weight gain
Pasture mix	121	4.7 ± 0.1	24.6 ± 0.4 a	303 ± 5.6 a
Herb mix	162	4.6 ± 0.1	27.9 ± 0.4 b	351 ± 4.7 b
Lucerne	118	4.8 ± 0.1	31.4 ± 0.4 c	403 ± 5.7 c

Average age at weaning = 65 days

Hogget study II

- Twin-bearing hoggets 2015 (n=185) were offered:
  - Pasture mix (10 ewes/ha)
  - Herb mix (13 ewes/ha)
  - Lucerne (13 ewes/ha)
- Treatments began 7 days prior to expected start of lambing
- All ewes remained on feeding treatment until weaning (~day 70)

Twin hogget live weight

Treatment	n	Set-stocking (kg)	Weaning (kg)	Weight gain (g/day)
Pasture mix	128	57.9 ± 0.6	56.9 ± 1.2 a	5 ± 1 a
Herb mix	162	58.2 ± 0.6	63.0 ± 1.2 b	9 ± 1 b
Lucerne	122	57.5 ± 0.6	69.6 ± 1.2 c	155 ± 1 c

Twin lamb weights

Treatment	n	Birth	Weaning	Weight gain
Pasture mix	121	3.5 ± 0.1	20.5 ± 0.5 a	198 ± 1 a
Herb mix	162	3.5 ± 0.1	23.7 ± 0.5 b	233 ± 1 b
Lucerne	118	3.5 ± 0.1	27.4 ± 0.5 c	276 ± 1 c

Average age at weaning = 85 days

Management in lactation

- Consider weaning early to allow young mother more time to recover live weight before rebreeding
  - This can benefit the young dam and if done correctly will not impact on weaned lamb growth

What are the long term impacts of hogget breeding

- Hogget breeding has the potential to increase lifetime performance
- Any decrease in two-tooth live weight is not permanent
- Hogget breeding does not reduce ewe longevity if managed properly in their first year of life

Hogget studies underway

- Post weaning growth
- Alternative herbages over breeding
- Reproductive loss in late pregnancy and lactation

Conclusion

- Hogget breeding has the potential to improve on farm productivity
- The are no magic bullets for getting hogget breeding correct
  - But getting the feeding and live weights correct are the major drivers of success

Thankyou

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