Why Body Condition Score? How much do I feed to my ewe to get it to gain a unit of BCS?

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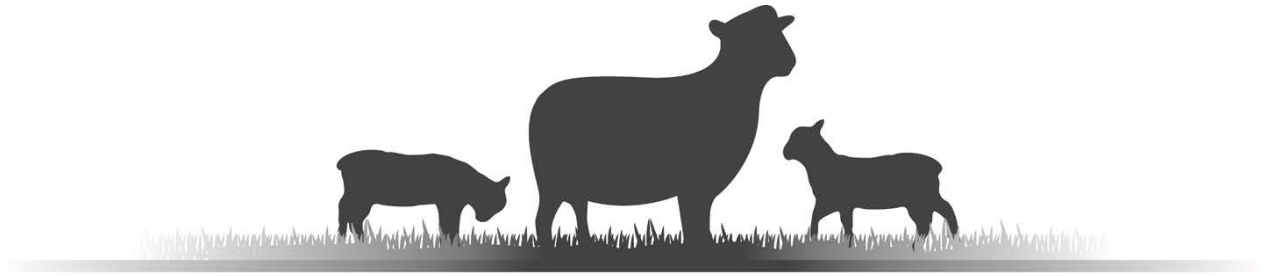


INTERNATIONAL SHEEPRESEARCH CENTRE

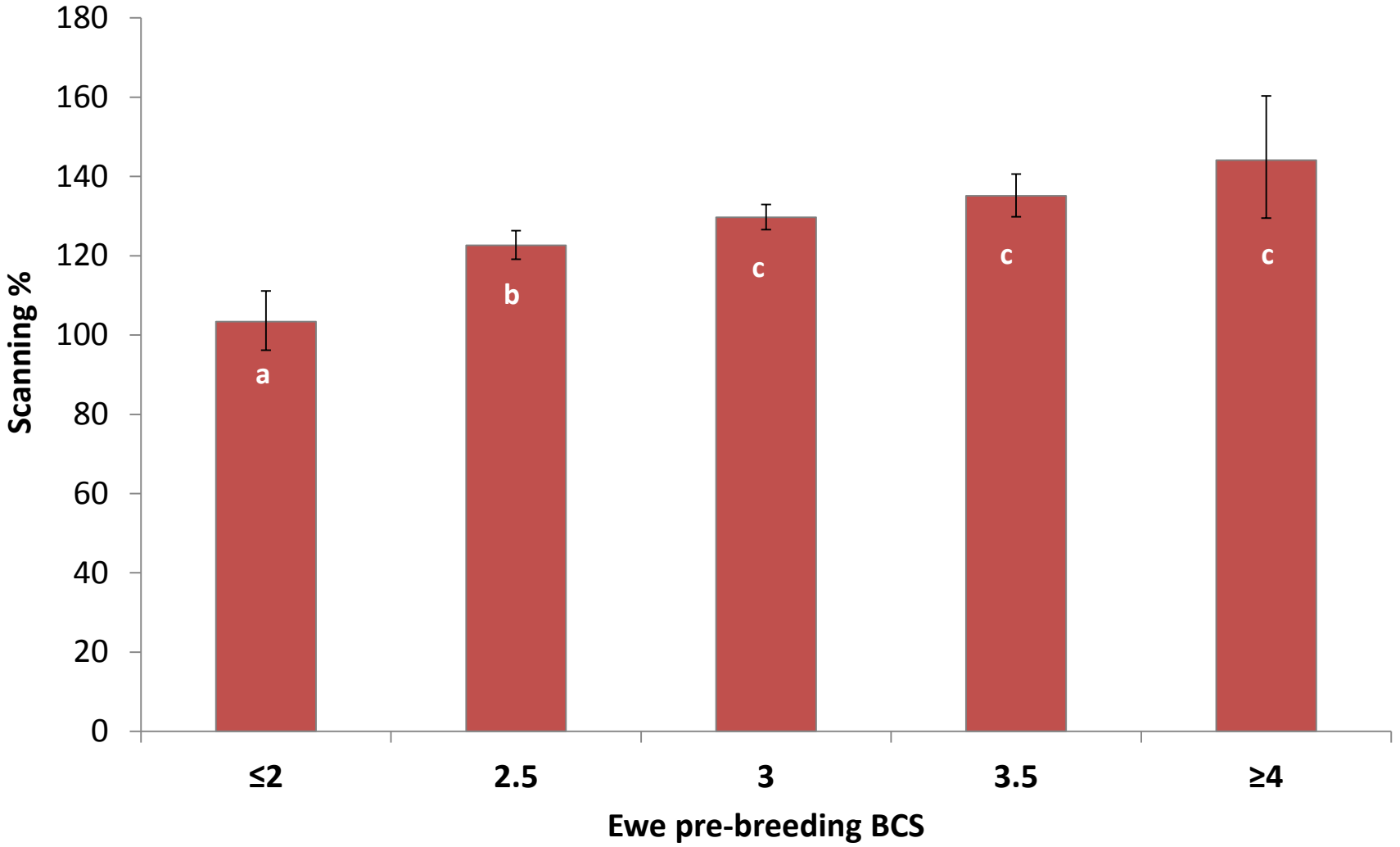
BCS – rules of thumb

Better condition ewes:

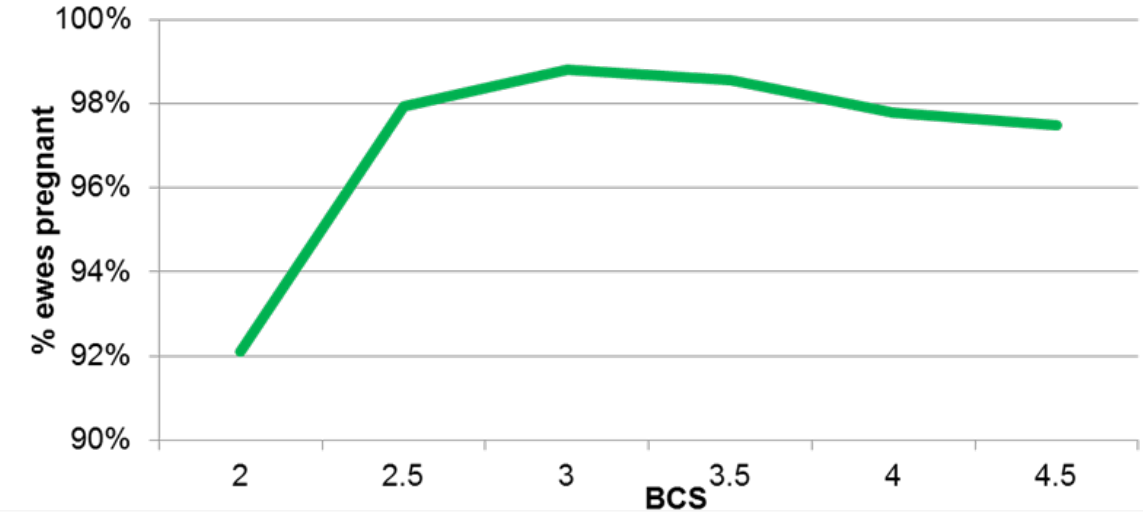
- Start cycling earlier in the breeding period
- Have higher ovulation rates
- Have higher conception rates
- Give birth to heavier lambs
- Produce more milk
- Wean heavier lambs with higher survival rates

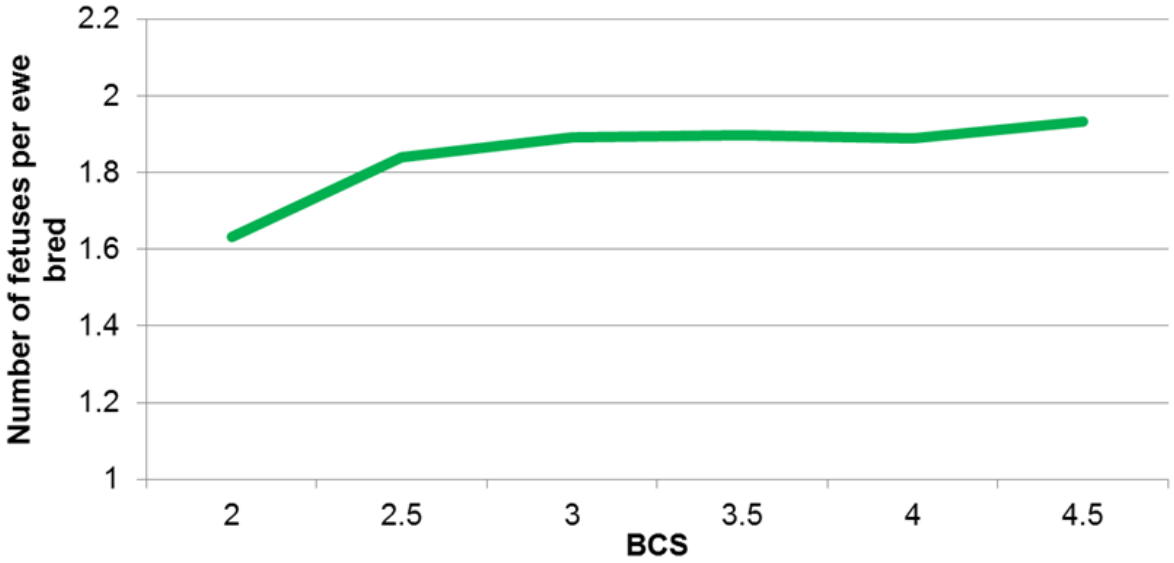
However, the relationship is not linear (plateau)

Pre-mating: BCS with 14,000 hoggets

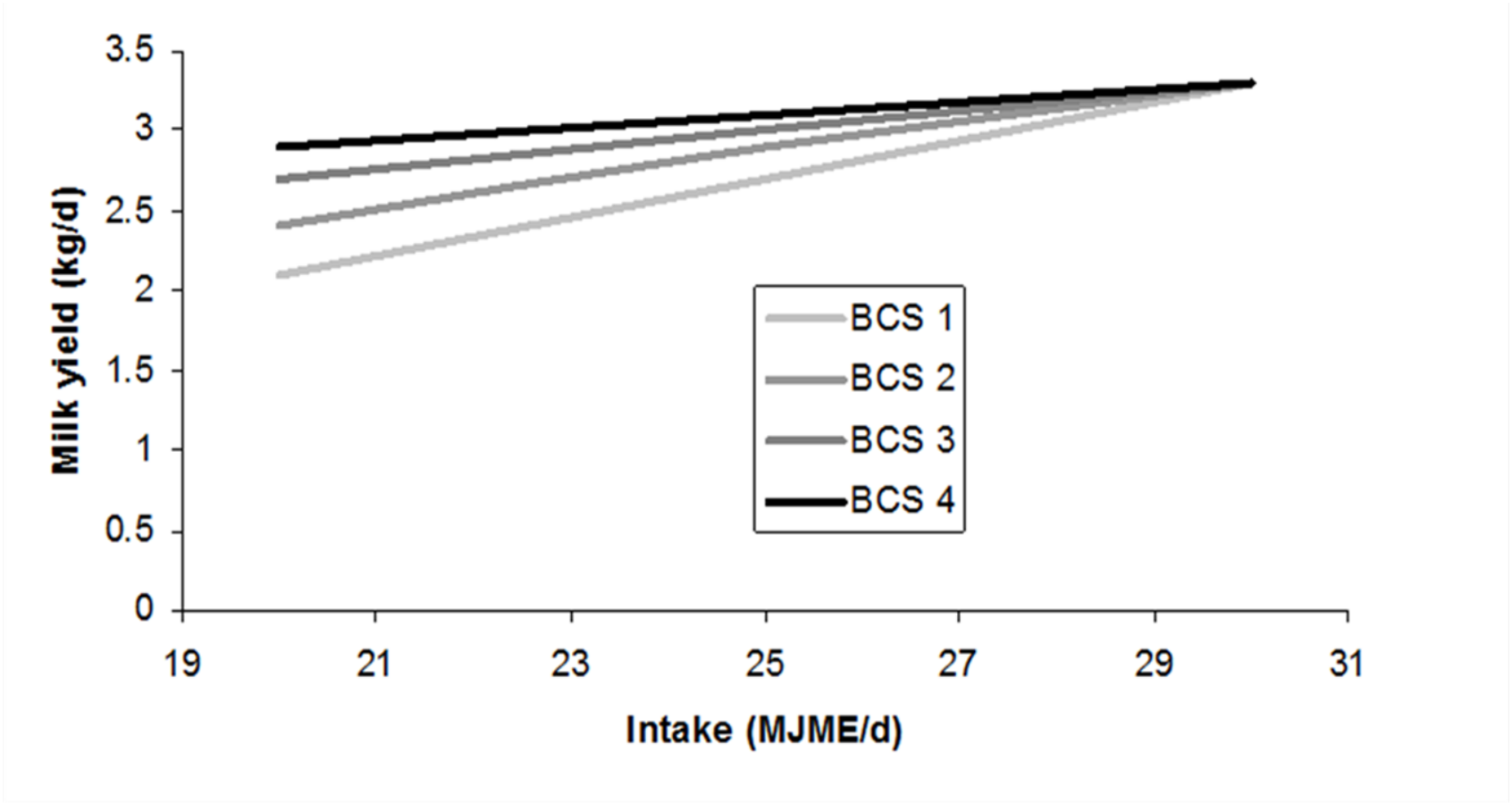


BCS and mature ewe at breeding



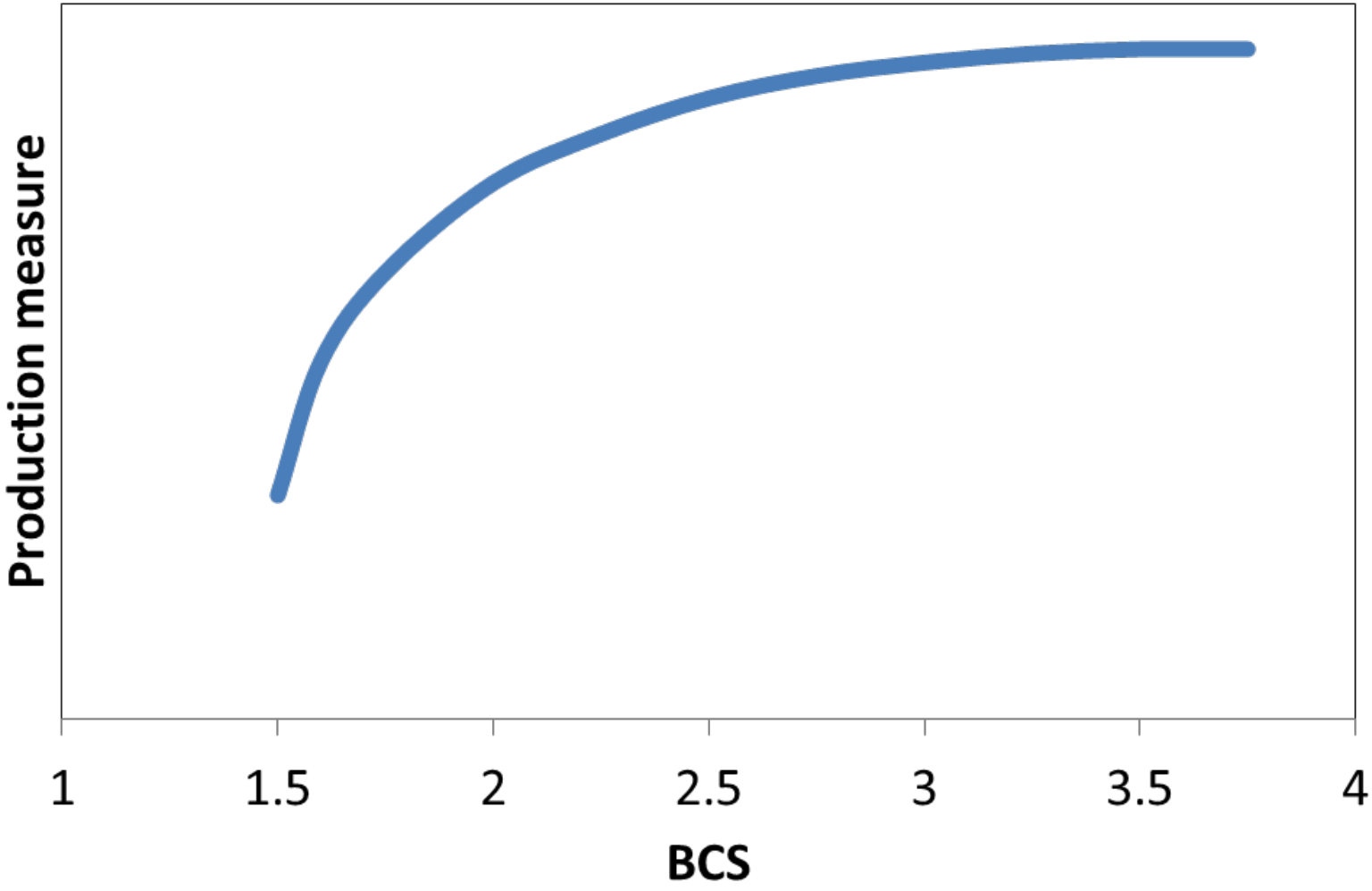


Effects of feeding level in lactation and body condition on milk production



T. Fraser

BCS & production - general relationship



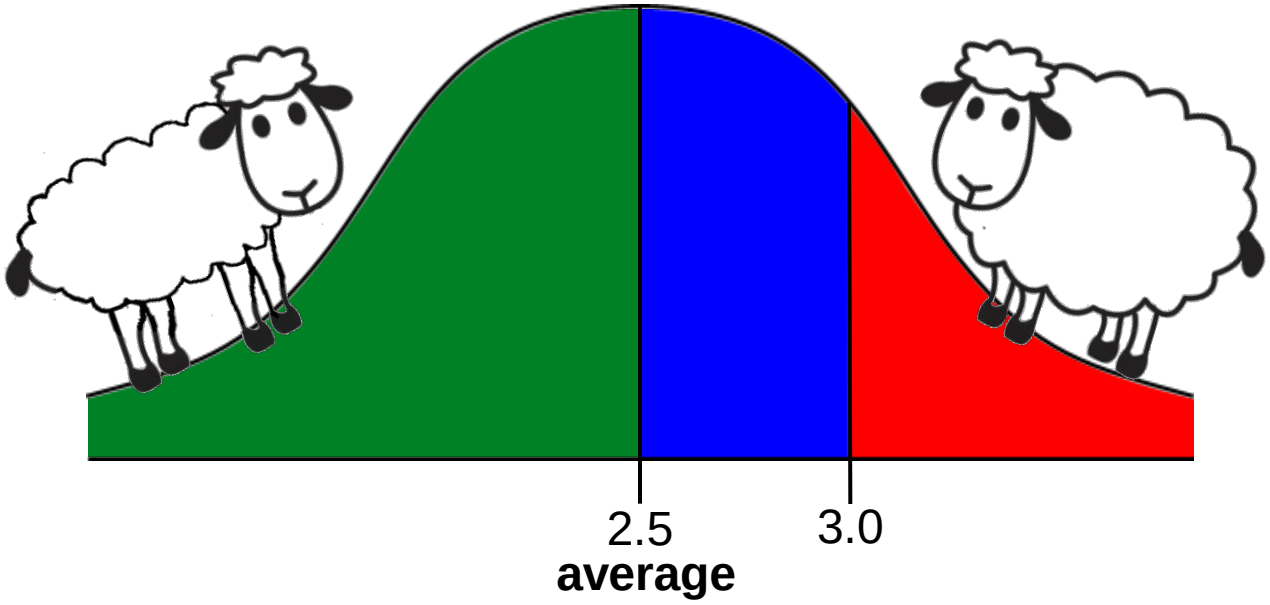
What does the BCS plateau mean?

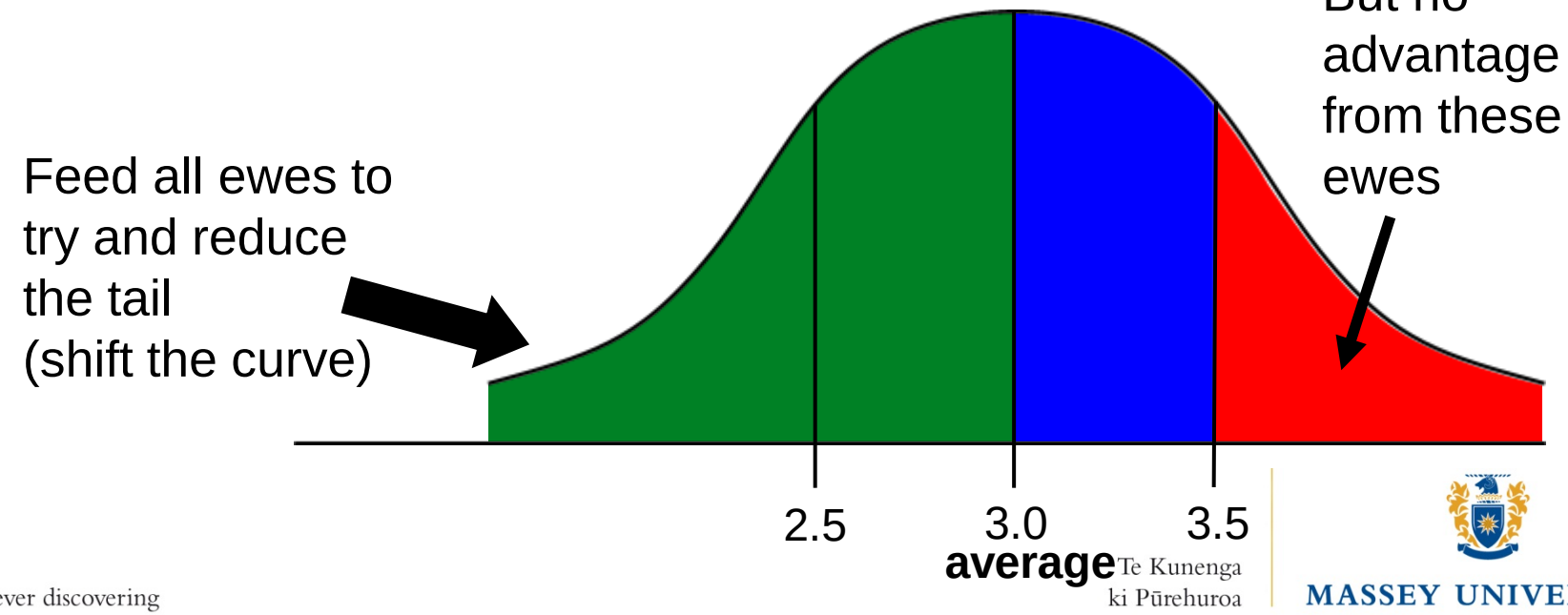
For every additional gain in condition the response in animal performance is smaller.

There is a point (≈ body condition score 3 or 3.5) at which a further gain in condition/live weight will not increase production levels.

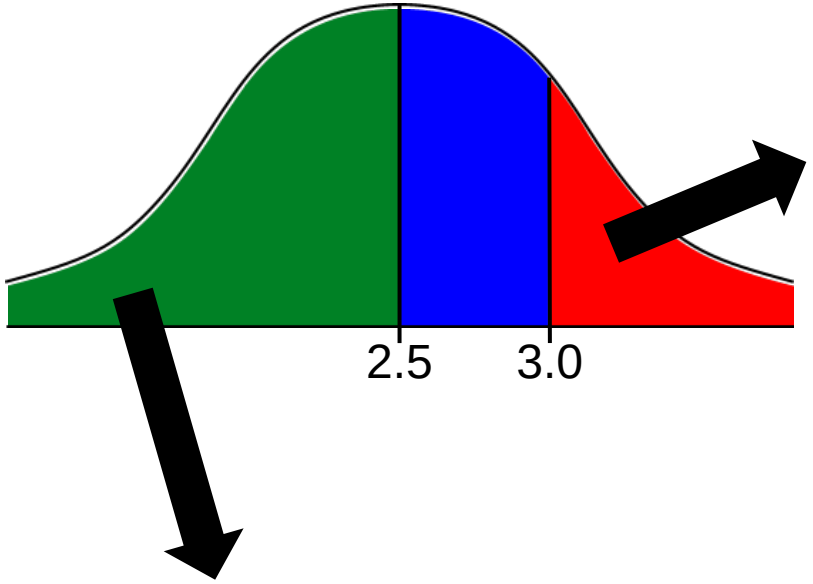
Aim to reduce the % of ewes below the 'optimum' condition score (i.e. BCS < 3)

- the biggest percentage jump in the number of fetuses carried per ewe will come from reducing the number of the very poor condition ewes.
- targeted use of feed


2.5
3.0
average

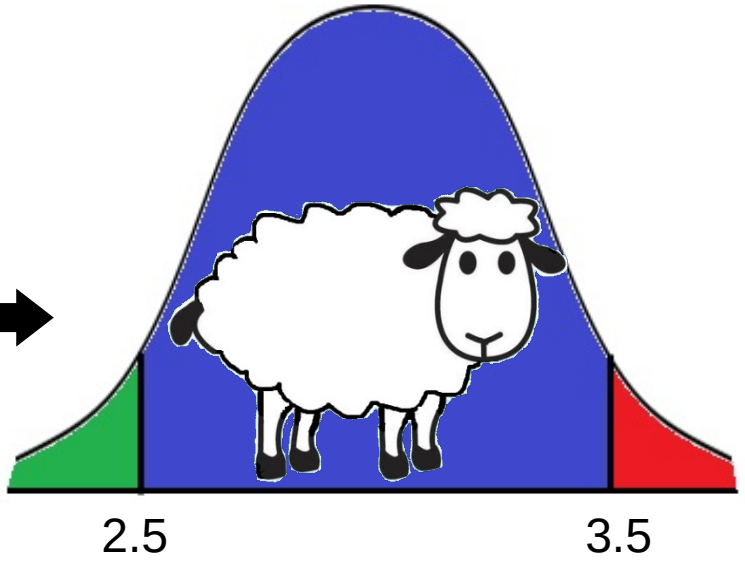

Feed all ewes to try and reduce the tail (shift the curve)
But no advantage from these ewes
2.5
3.0
3.5
average

Targeted feeding



Hold these ewes

Target feeding to reduce low BCS tail and maximise the proportion of the flock in the ideal range



Potential times to BCS

- At weaning - allow time to work on thin ewes
- 4-6 weeks pre-breeding - no need to flush high BCS ewes
- At PD as ewes through ultrasound crate and allows time to target feeding levels of poor condition multiple bearing ewes in late pregnancy
- At set stocking so poor condition multiple bearing ewes go into paddocks of greater cover or at a lower stocking rate

Targeted feeding

Splitting the ewes will:

- Save feed by offering ewes in good condition, maintenance feeding only.
- Allow those ewes that need it the most (poor condition ewes) to gain condition and therefore reproductive performance.
- For the same about of feed, flock reproductive performance will be higher than based on a scenario where all ewes fed as one group.

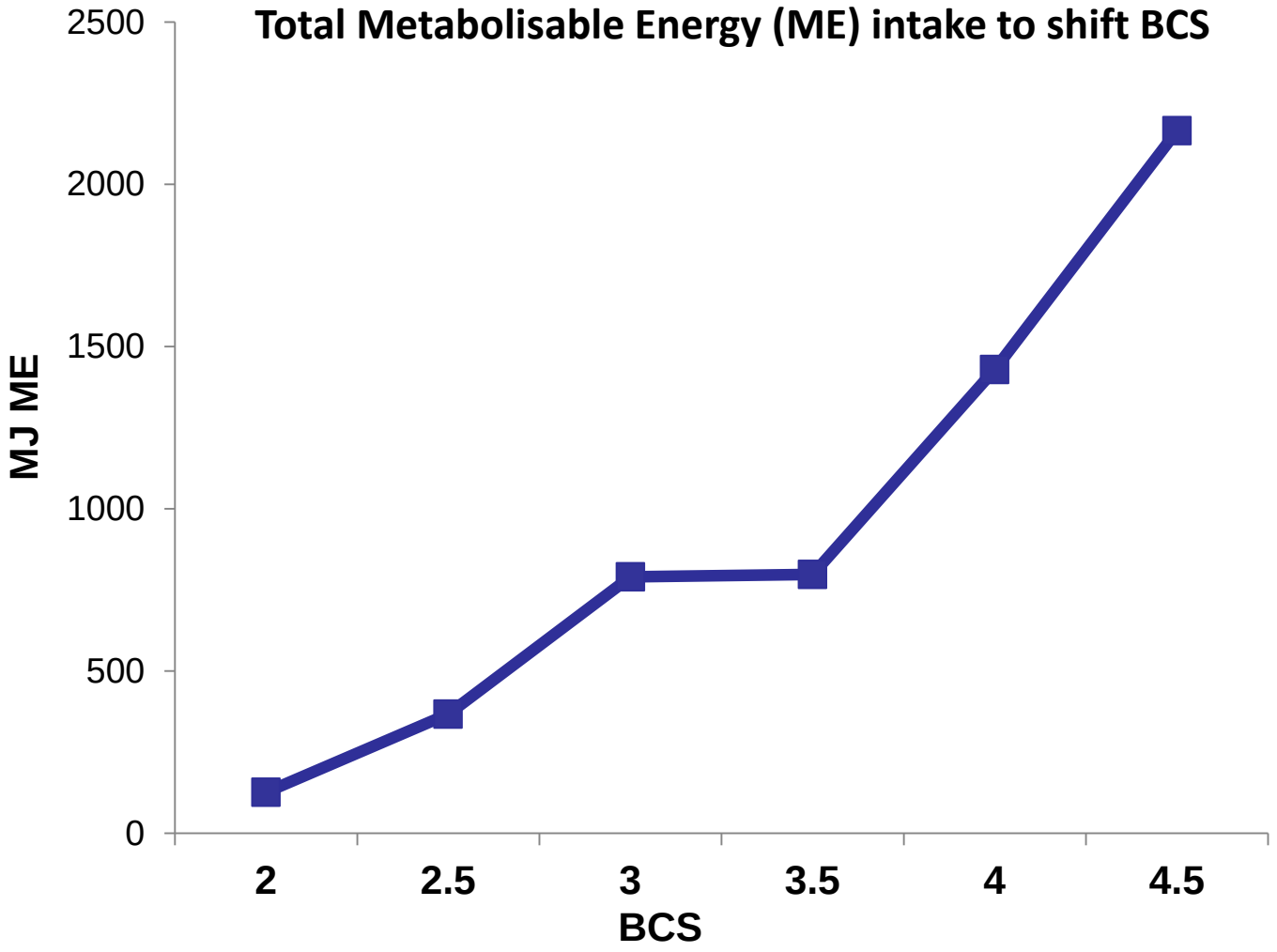
But…how much needs to be fed?

Up to now have used a live weight gain to represent BCS gain:

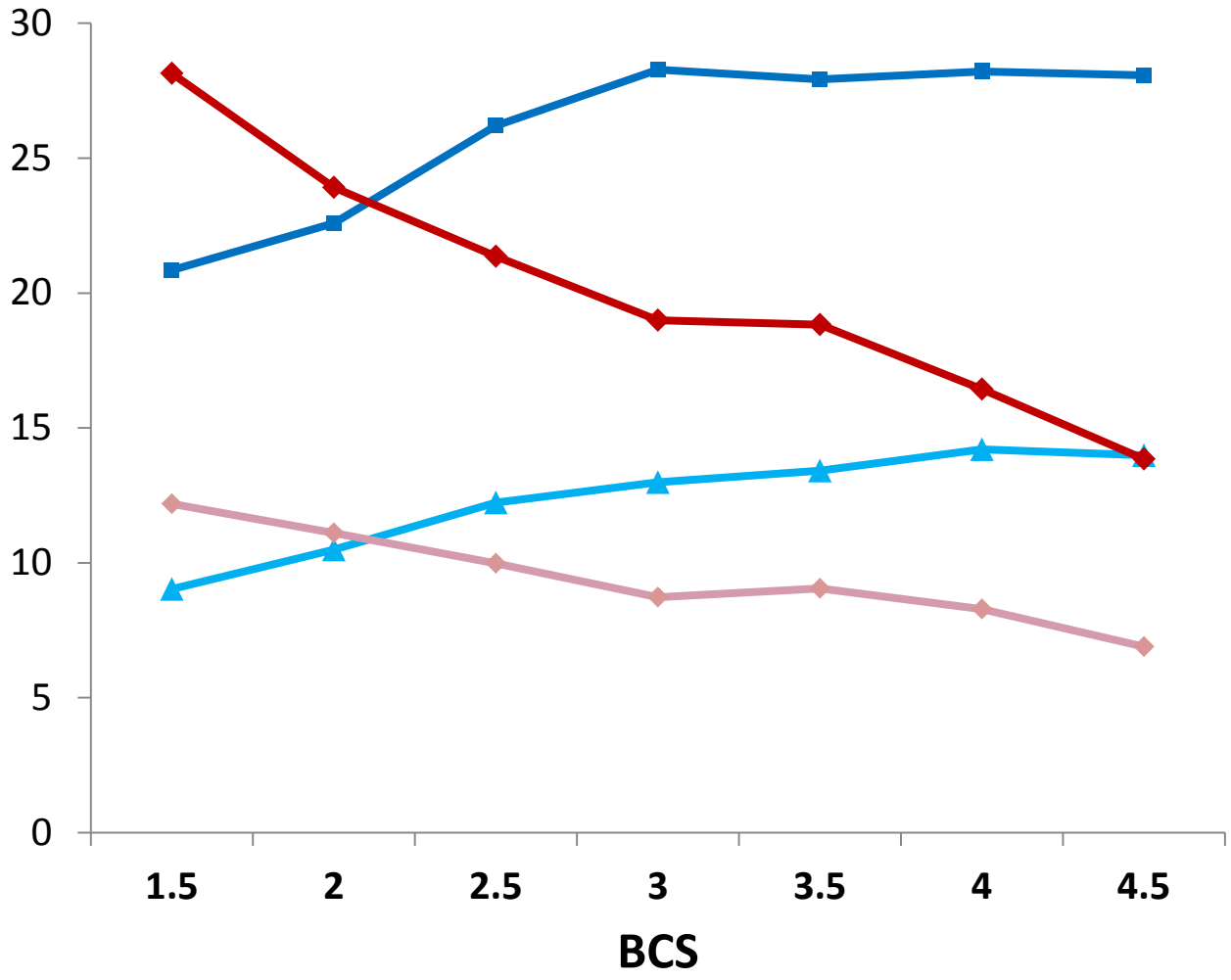
- Assumes each unit of BCS gain has same amount of live weight associated.
- Assumes equal composition of the gain across the BCS scale.
- Assumes equal efficiency for gaining BCS across the BCS scale.

Study undertaken to look at body composition and feed requirements to change BCS (rather than live weight)

Energy intake to increase BCS

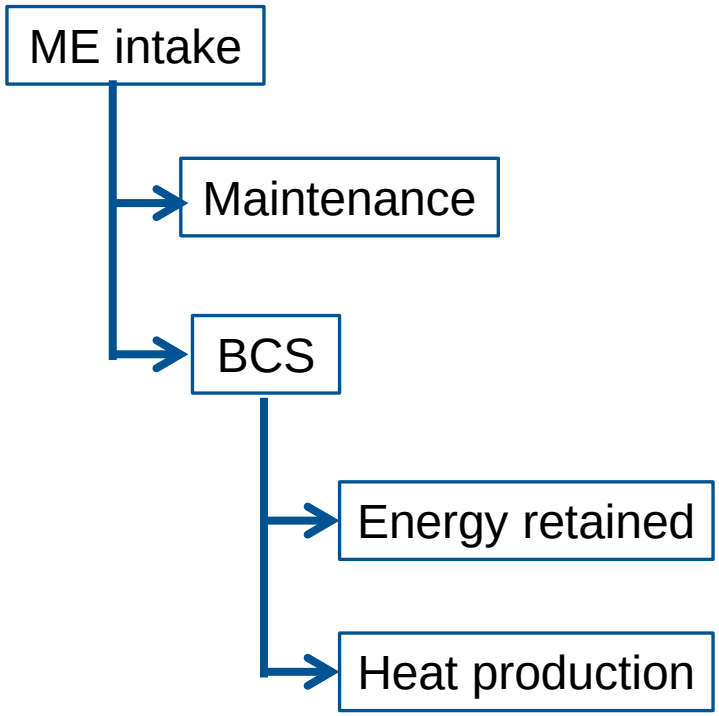


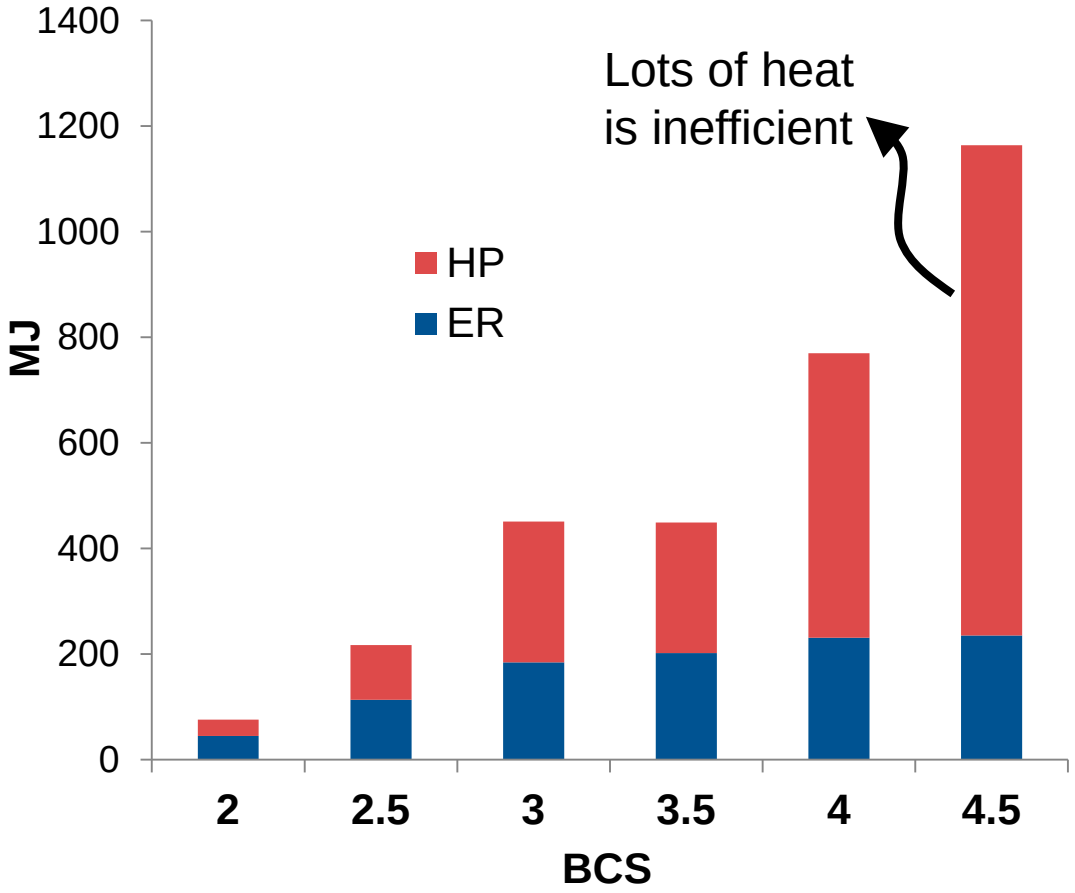
Where does the feed energy go? Carcass composition



At higher BCS also more fat in non-carcass tissues

Where does the feed energy go? Energy retained (ER) vs. heat production (HP)





Feed energy required above maintenance to change BCS

Note:

- “above maintenance”
- Unit of energy = megajoules of metabolisable energy (MJ ME)

BCS Target	Beginning BSC					
	1.5	2	2.5	3	3.5	4
2	9					
2.5	80	71				
3	229	220	149			
3.5	471	462	391	242		
4	822	813	742	593	351	
4.5	1297	1288	1217	1069	826	475

Back of an envelope:
Feed cost to increase BCS from 2➔3 vs 3➔4

2 to 3 BCS = 220 MJ ME	***3 to 4 BCS = 593 MJ ME***
If pasture = 10.5 MJME/kg DM	
21 kg DM	*57 kg DM*
@15 c/kgDM	
$3.15	***$8.55***
Could get 30% more lambs to slaughter	*Lucky to get 10% more lambs to slaughter*
17.5 kg carcass @$4.50 x0.3 = $23.62 (or if only 20% = $15.75)	*17.5 kg carcass @$4.50 x0.1 = $7.88*

Marginal response

Is breaking-even (or maybe not even breaking-even) worth it?

Back of an envelope: Allocating feed to increase BCS

- Targeted feeding of lower BCS ewes
- For example: aiming to go from **2.5 to 3** (at some point between weaning and mating) = **149 MJME**
- want to gain the BCS over **4 week period**
- = **5.5 MJME/day**
- Assume approx **11 MJME/day for maintenance**
- 11 + 5.5 = **16.5 MJME/day**
- Feeding 10.5 MJME/kgDM = **1.6 kgDM/ewe/day**
- If set stocked and pasture growth = **25 kgDM/ha/day** = **16 ewes/ha**

Take-home messages

- Production response to increased BCS plateaus at a BCS above 3.5
- Feed requirements increase substantially when increasing BCS greater than 3 or 3.5
- Marginal production response to increasing BCS above 3.5 unlikely to cover feed cost.
- Target feeding of those ewes that are below BCS 3.5 likely to provide most benefit.

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