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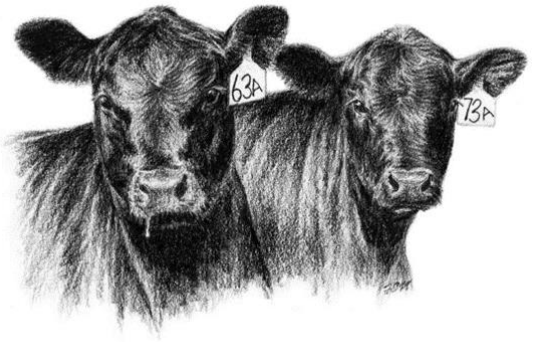
26 July 2024

Production weaning in beef herds



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HVC production & breeding

Outline

1. What is weaning?
2. When to wean for optimal productivity?
3. Benefits of weaning early.
4. Managing weaning of < 7-month-old calves.
5. Take home messages and resources.

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Objectives of a successful weaning

- ✓ Separation of the cow and calf; to allow for better feed allocation and prepare the cow for the next calving!
- ✓ Simple and efficient (minimise labor input).
- ✓ Educate weaners (working in yards, dogs, humans, prepare for feedlot experience).
- ✓ Supply adequate nutrition to achieve a minimum of 0.6 kg ADG.
- ✓ Minimise the potential for disease during the weaning process and later in life.
- ✓ Set cows up for the next breeding season.

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Timing of weaning

Factors to consider:

- ✓ cow BCS
- ✓ calf weight, age and condition
- ✓ quality and quantity of pasture available
- ✓ seasonal forecast
- ✓ fodder on hand
- ✓ weaning feed systems available
    - suitable feeding facilities
    - TMR/ pellets/ silage/ hay/ fodder crops?

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Time of weaning

Weaning in highly productive beef herds should occur between 4.5 and 7 months of age.

- ✓ ‘Early weaning’ under 4.5 months is a management tool in response to drought or poor seasonal conditions, but does increase complexity.
- ✓ Weaning after 7 months is inefficient and costly to your business.

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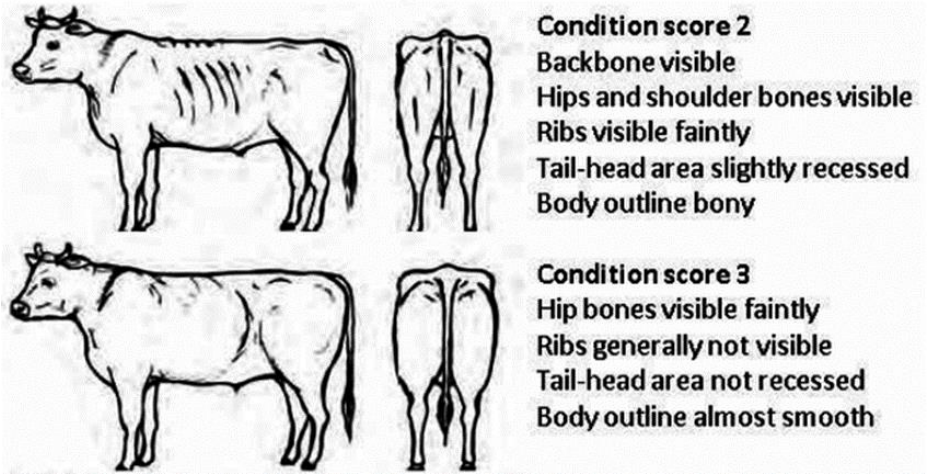
Cow body condition score (BCS)

1. Wean when cow BCS reaches 2.5/5.
2. Do NOT feed wet cows and calves – wean!
3. Easy to maintain cows in this BCS until calving.
    a) Cow requires low quality feed (total of 75 MJ ME, protein density of 7-9%)



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Calf age and weight

- ✓ Calves can be weaned down to 100kg, ideally 120 kg and up.
- ✓ As the weaning weight decreases the quality of the weaner diet and the skill level required increases.
- ✓ Maintain a weight gain of 0.6 kg/day to prevent any future production losses.

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Reasons to wean < 7 months of age

1. Reduced energy consumption
    a) better utilisation of limited feed (esp. during droughts; includes water)
    b) reduce or avoid supplementary feeding costs.
2. Improved pasture allocation
    a) allocate quality feed to growing stock (normally a limiting factor)
    b) aids pasture management
        i. preparing paddocks for autumn break
        ii. pink eye prevention.
3. Marketing flexibility.
4. Maintaining cow BCS helps reproductive outcomes the following year and reduces potential feeding of breeding herd.
5. Must occur at some stage.

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Better feed allocation

- Cow (600 kg; maintaining) and calf (180 kg; 1 kg ADG) unit consumes 160 MJ ME per day
  - Dry cow requires 75 MJ ME per day
  - 180 kg calf gaining 1 kg per day requires 72 MJ ME per day.

✓ 160 MJ (16 kg) vs. 145 MJ (14.5 kg).

✓ **10% saving in feed costs.**

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Energy efficiency

Energy efficiency is the efficiency with which cattle convert forage energy into milk or meat.

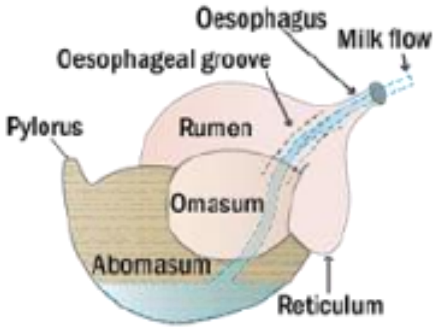

Figure 1: Rumen development stage - 1st week

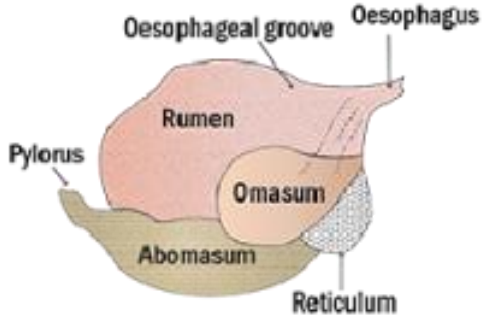

Figure 2: Rumen development stage - 12 - 16 weeks

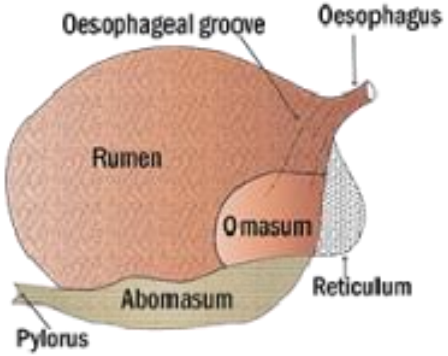

Figure 3: Rumen development stage - mature

What does this mean in practice?

- Cows convert forage energy into milk @ **~60%**
  - Pre ruminant calves convert milk @ **90%** via the abomasum
    - Energy efficiency at this stage is **60% x 90% = <u>54%</u>**
  - Ruminant calves convert milk as low as @ 63% post 2 months of age
    - Energy efficiency as rumen develops is **60% x 63% = <u>38%</u>**

30% reduction in energy efficiency of converting forage energy into calf weight (> 2 mo).

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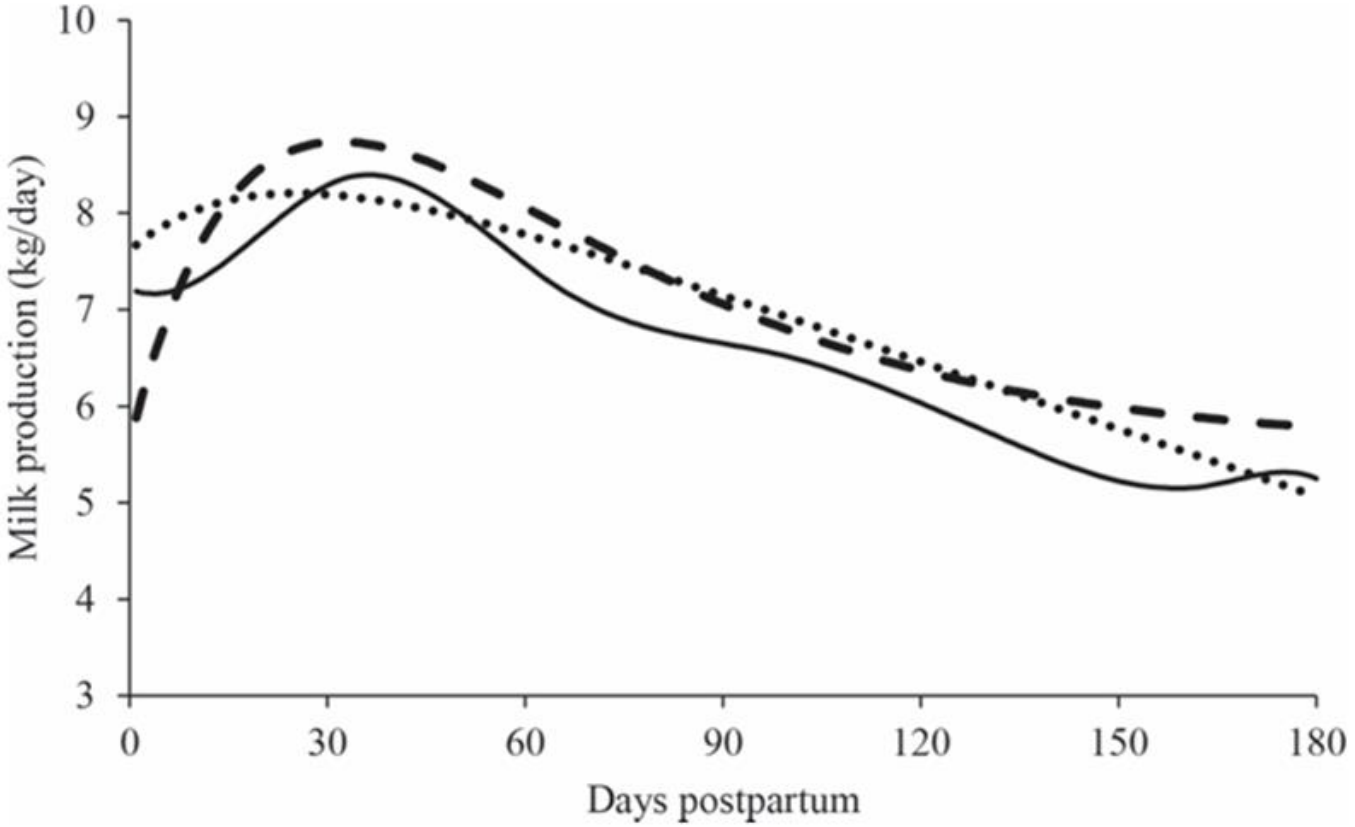
Beef cow lactation curve – milk yield



[3] **Figure 1.** Lactation curves of multiparous cows for 180 d of lactation estimated with 3 different methods [sold line = cubic splines with 5 equally spaced knots; dashed line = the Wood (1967) model; dotted line = the Wilmink (1987) model].

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Beef cow lactation – colostrum

Table 1. Concentrations of select macronutrients, micronutrients, immunoglobulins, and general antimicrobial peptides present in bovine colostrum (BC) and mature milk.

Component	BC	Mature Milk
Total solids (%)	24–28	12.9
Fat (%)	6–7	3.6–4.0
Protein (%)	14–16	3.1–3.2
Casein (%)	4.8	2.5–2.6
Albumin (%)	6.0	0.4–0.5
Total immunoglobulin (mg/mL)	42–90	0.4–0.9

[4]

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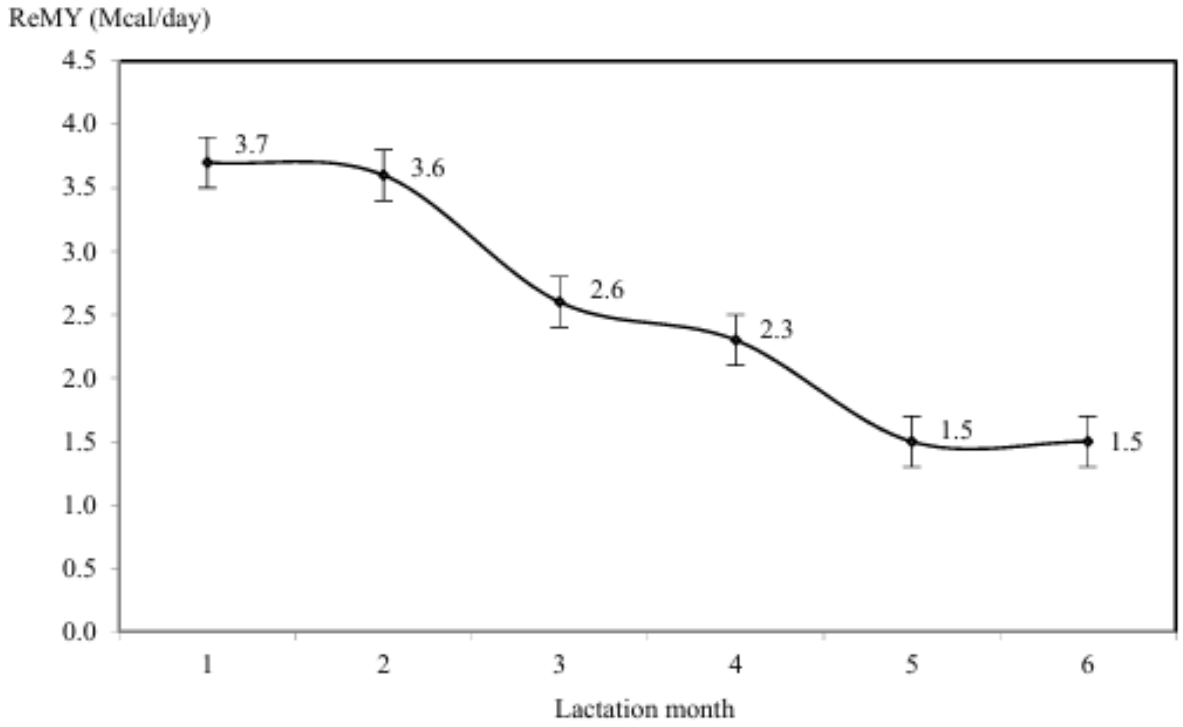
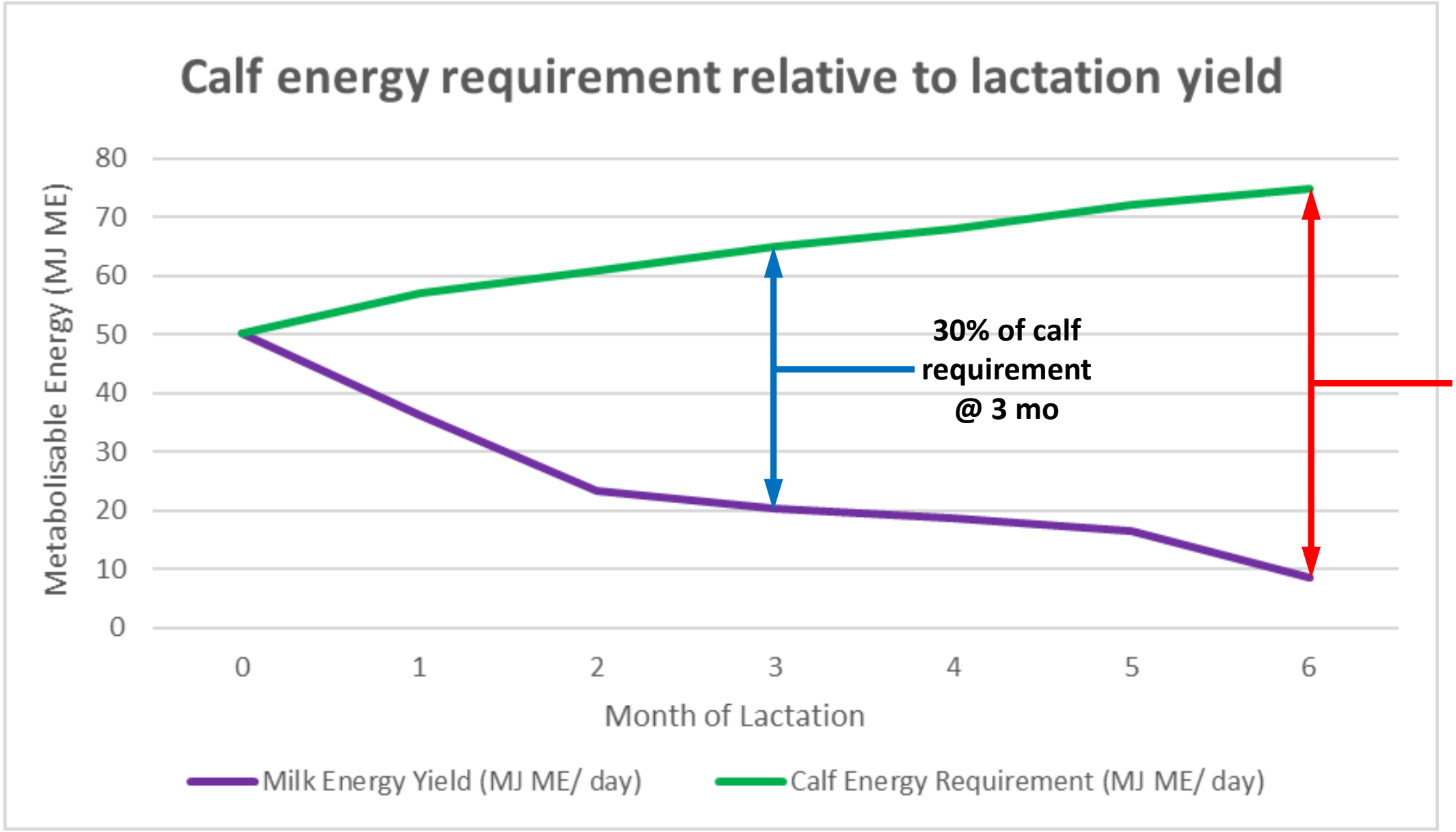
Beef cow lactation curve – energy



[5] Figure 3. Retained Milk Yield (ReMY) along lactation period in primiparous beef cows grazing native pastures of Uruguay



Calves eat more grass than you would think, make sure it is available and good quality!

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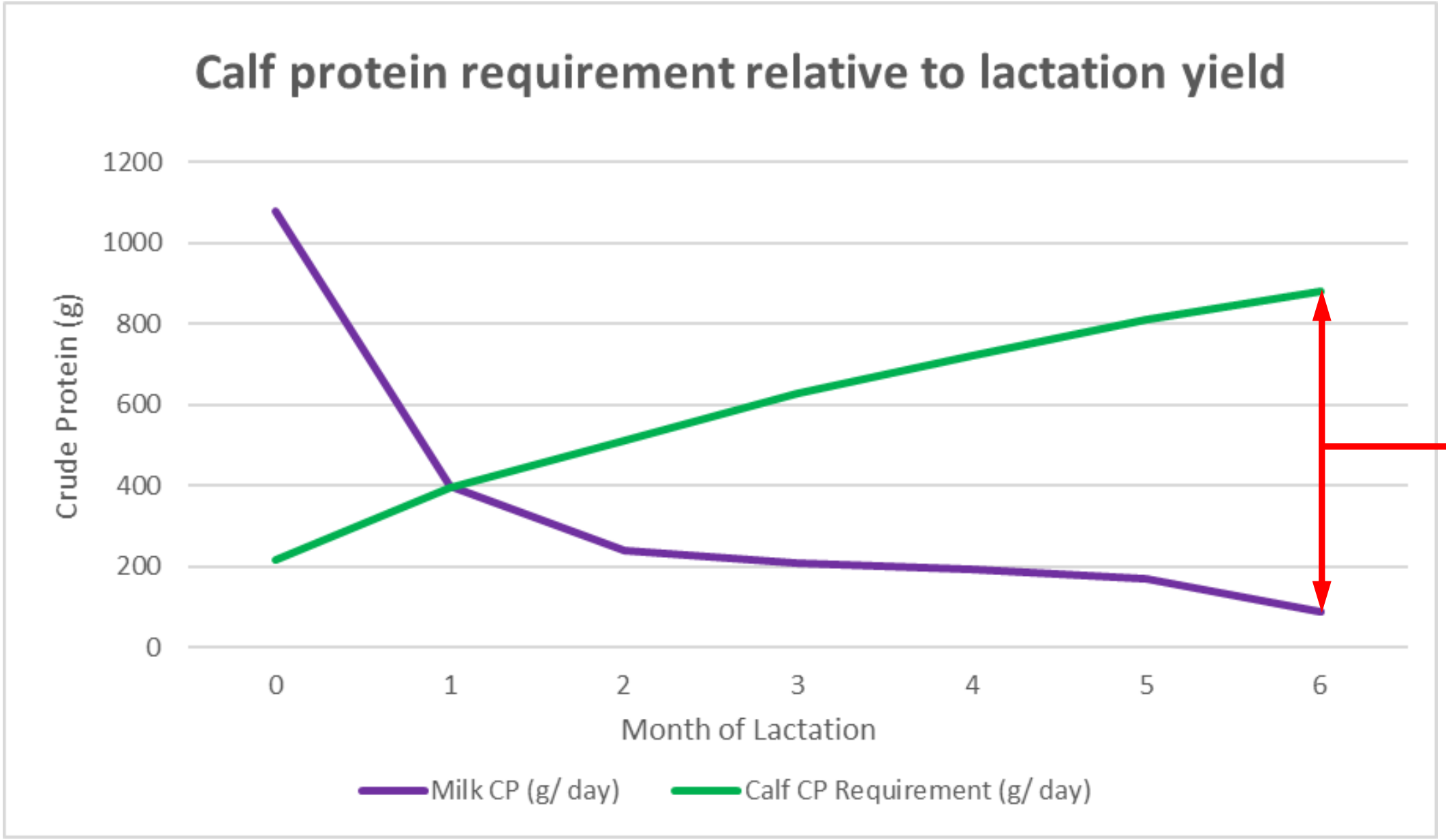

Does milk have any other benefits??

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Must take advantage!

Weaning early = better feed utilisation/ feed surplus = OPPORTUNITY

BUT, without reallocation of resources, it defeats the purpose!

<u>EARLY WEANING MUST BE MATCHED WITH:</u>

- ✓ Greater feed availability/reallocation to growing animals to be profitable, or;
- ✓ Savings in feed costs if cows no longer require supplementation to achieve target BCS, or;
- ✓ An increase in stocking rate (increase breeders or opportunistically trade).

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Financial justification of production weaning

- ✓ Compared weaning time of **March (6mo)** in early weaned system (EWS) vs**. May (8mo)** in late weaned system (LWS) on a fixed 1,050 Ha.
- ✓ Outcomes:
  - ✓ 900 breeding females run in EWS, compared to 820 in LWS
  - ✓ AA stocking rate ↑ 6% in EWS
  - ✓ Cost of production ↓ 8% in EWS
    - Overhead expenses diluted by 10% ↑ kg LWT/ Ha
  - ✓ Operating profit (OP) increased by $100K (21%) to $550K in EWS
  - ✓ **15% increase in OP per DSE to $32.50/ DSE.**

Weaning process:

1. Yard wean for 5-7 days.
2. Cows left next to yard and walk off in 2-5 days.
3. Try to minimise dust to reduce pink-eye (water down yards, apply fly repellants).
4. Vaccinate (5 or 7-in-1) and drench (short acting injectable or oral drench).
5. Feed daily, ideally in feeders → better feedlot adaptation & reduce stress/ disease incidence in the feed yard.
6. Work weaners through yards (learning experience). Treat any disease.
7. Easier to train onto new feeding systems (silage, grain, TMR, etc.).

Practicalities of feeding weaners

- ✓ Use yard weaning process to educate weaners to new diet and feeding systems.
- ✓ If feeding grain or pellets – need access to roughage.
- ✓ Introduce slowly onto grain to prevent acidosis.
- ✓ Change rations slowly – the rumen needs to adjust to new feed (3-6 wks).
- ✓ Monitor for shy feeders.
- ✓ Draft weaners on weight, not sex - allows for more effective feeding.

Feeding rules of thumb

- ✓ Confinement of cattle saves up to 8 MJ ME/ day (10% energy saving).
- ✓ Utilisation of body reserves (80% conversion efficiency!)
  - ➢ 1 kg LW gain = 40 MJ ME (4 kg DMI)
  - ➢ 1 kg LW loss = 32 MJ ME (3.2 kg DMI)
- ✓ Must have feed values to do feed budgets!
- ✓ Cost must be calculated per DM component; freight of water is very expensive!!!

Feeding rules of thumb

Intake guidelines:

- ✓ ‘120’/ NDF = % of body weight in DM intake (kg/ hd/ day)
  - ➢ 1 % BW in DM = survival
  - ➢ 2 % BW in DM = maintenance
  - ➢ 3 % BW in DM = production

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Weaner nutritional requirements to gain 0.6 kg/day

Weaner Weight (kg)	ME (MJ) Total	CP (%)	DM Intake (kg DM)	Grain : Hay Ration	ME MJ/ kg
100 kg	46	18	4.0	65:35	11.6
150 kg	52	16	4.9	40:60	10.6
200 kg	58	14	5.8	25:75	10.0
250 kg	63	14	6.7	10:90	9.4
300 kg	67	12	7.5	0:100	9.0

The lighter the weaning weight the higher the required energy and protein density of the feed.

If this is done poorly, would be better to not have weaned…

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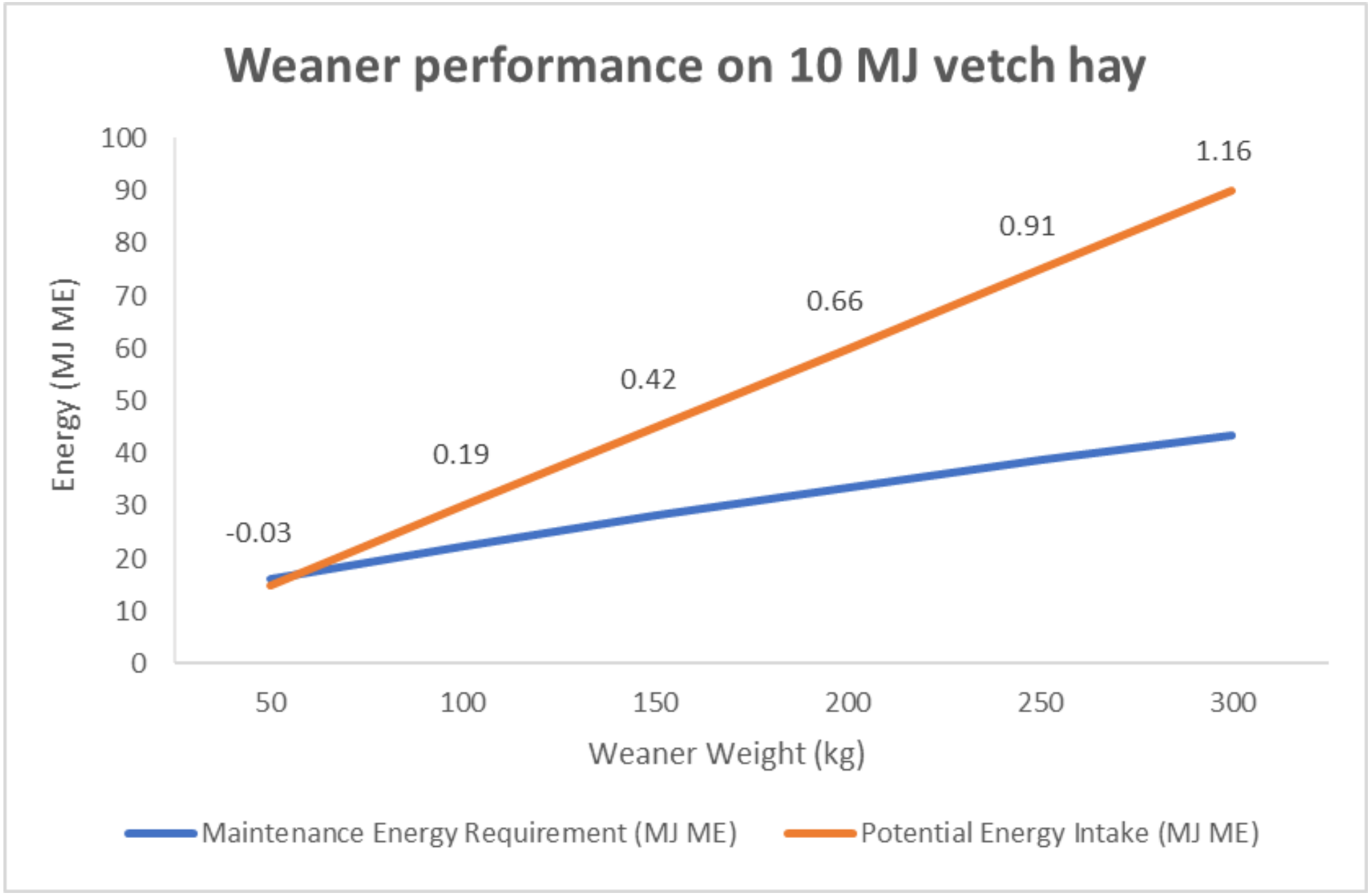

Vetch Hay

90% DM
10 MJ ME
22% CP
40 NDF

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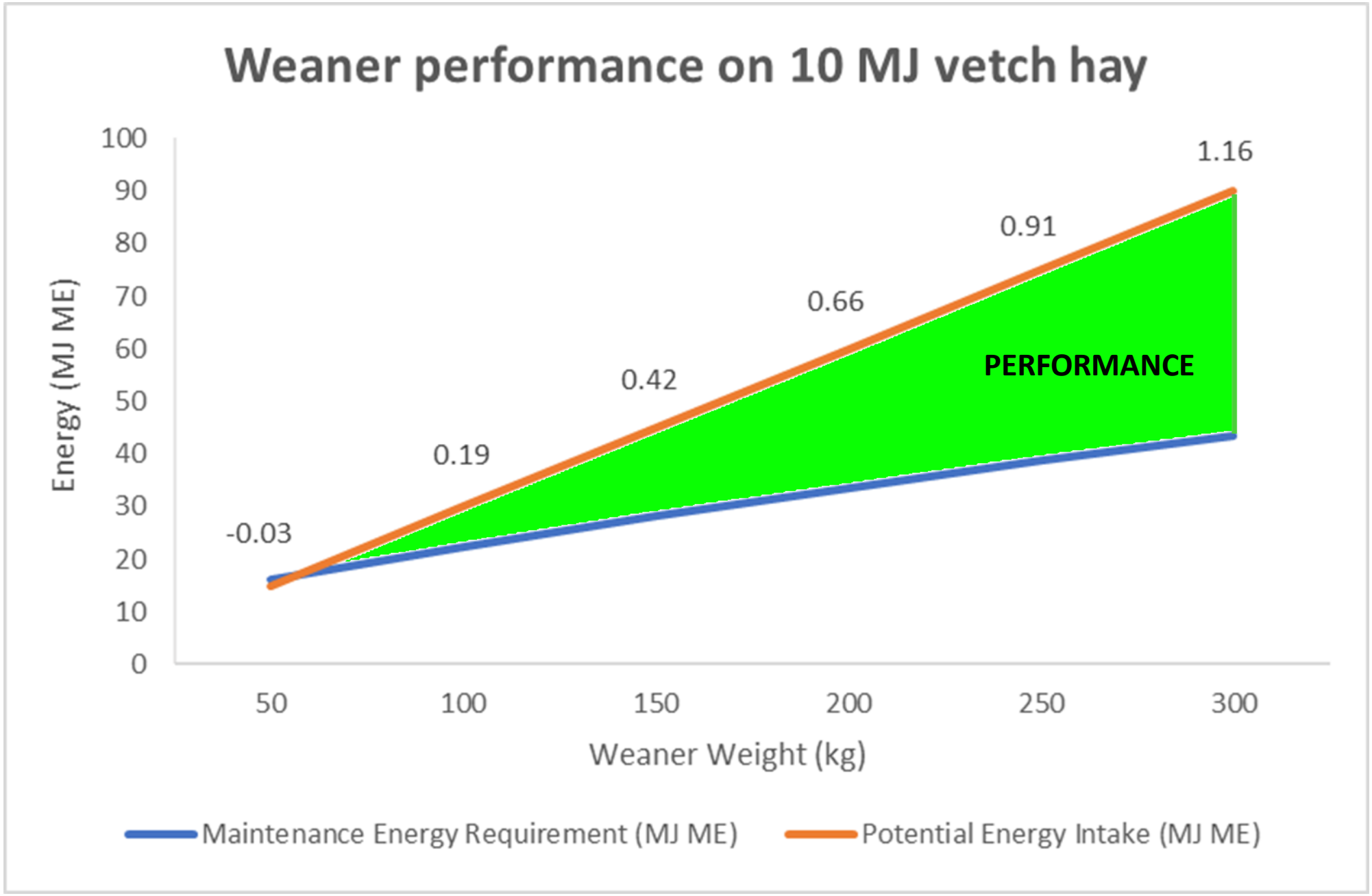

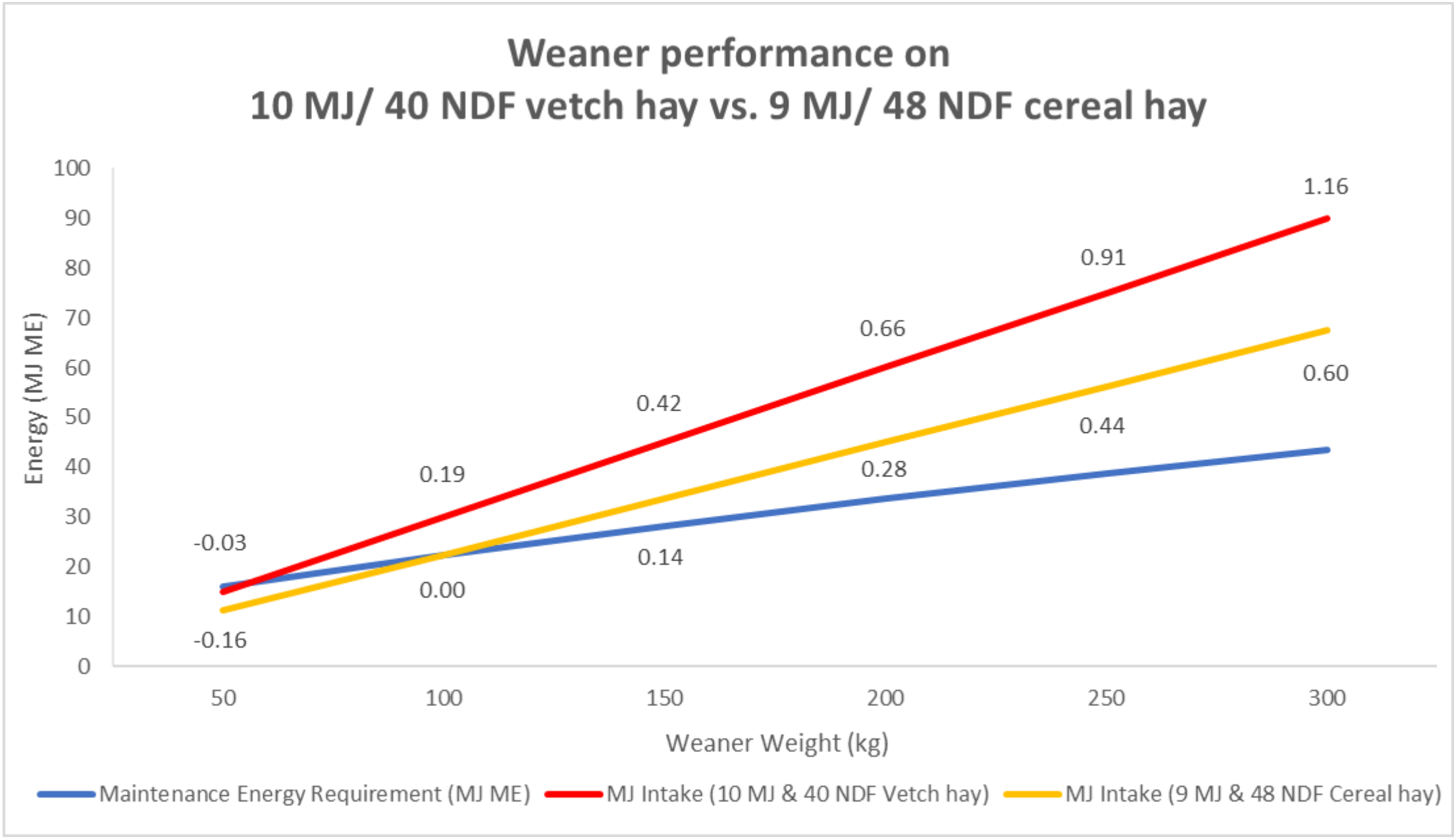

Vetch Hay

90% DM
10 MJ ME
22% CP
40 NDF

Cereal Hay

90% DM
9 MJ ME
9% CP
48 NDF

Top three take home messages

1. **Productivity is optimised by weaning between 4.5 and 7 months**.
2. The cow offers **<10% of calf requirement after the 6th month of lactation**. Resource costly to keep them together beyond this.
3. Lighter weaners require **higher quality feed**. Good outcomes rely on this being **well managed**.

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Tools, resources & training

1. MLA Feed Demand Calculator
2. HVC Livestock Requirements and Feed Calculator - Fact Sheets | HVC (holbrookvetcentre.com.au)
3. NSW DPI Feed Cost Calculator - Feed cost calculator (nsw.gov.au)
4. NSW DPI Drought App - Drought and Supplementary Feed Calculator (nsw.gov.au)

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Thank you

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