The GEORGE Farm Vets

March 2022

Transition Success

Dairy cattle go through many changes and from the day of drying off to reaching peak yield in the following lactation post-calving. I am going to discuss what these changes are and the challenges they present. I will then follow this up with what we can do optimise performance in this period and avoid health issues.

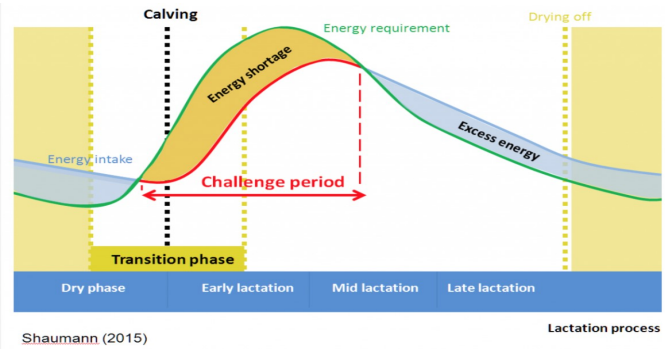
Energy and Diet Changes

Most cows will go from producing 15 litres to zero on the day of drying off. Their energy requirements immediately half (80 MJ for maintenance and 80 MJ to produce 15 litres of milk). Their diet that day will immediately change to a higher fibre, lower energy density diet. There are many different approaches to feeding dry/transition cows. In my opinion the optimum strategy is to have a far off dry diet and a separate transition diet.

The far-off dry cow just needs enough energy for maintenance. Feeding any more in this period will cause the cow to increase in body condition and this will cause issues later on.

In the three weeks before calving cows need more starch in their diet. The starch causes rumen papillae to elongate, this elongation increases the surface area off the rumen lining. In turn, this increases the buffering capacity of the rumen which will help the cow eat a higher energy diet post-calving without being at high risk of acidosis. Cows in this period also need:

- Adequate protein for colostrum production
- Enough fibre in the diet to ensure a good dry matter intake (DMI), roughly 12kg, training the rumen for high dry matter intakes post-calving



From graph (above) you can see that the energy requirement (green line) is much above the energy intake (red line) in the period post-calving

MEETINGS COMING UP

Getting to know your soils:
Sustainability group
16.3.22—11am - venue TBC
Demonstrating some easy tests we can all carry out to understand our current soil health.

Farmers with Pride:
(NEW group this year!)
6.4.22—10am - @ the Practice
Workshop on the importance of team communications with REALsucess Paul Harris

Beef Farm Walk:
27.4.22—11am @ New House Farm, Charfield, GL12 8JL
Focusing on beef nutrition and finishing diets, efficiency and sustainability

At calving the DMI will drop by 30-40% (to roughly 8kg DMI) and then, over the next month post-calving, this will be steadily increasing getting to 20-25kg DMI. Immediately post-calving, milk production has started and increases at a far greater rate than the DMI; therefore, during the first month the cow will experience negative energy balance, usually at its worst 2 weeks post-calving.

The Udder

The udder goes through 3 stages in the dry period:

1. A 21 day process of involution and remodelling starting 2 days after drying off.
2. Steady state, the length of this determined by the length of dry period you are using, over 2 weeks for this stage is optimal for future milk production.
3. The process preparation for the next lactation involving redevelopment and colostrum formation, this takes roughly 2 weeks.

Stages 1 and 3 are the times at which the udder is most vulnerable to mastitis, in stage 2 the udder is in a high immunity state, lengthening this stage can help the udder cure infections that were there pre-drying off. From this you can see that the udder would benefit most from a dry period length of 8 weeks (56days).

Calcium Requirements

Once milk production begins the calcium requirements for the cow sky rockets. There is 1.22g in every litre of milk. Milking cow diets are usually very well supplemented in Calcium, but similar to energy demands post-calving, we have a shortfall. To cover this cows release calcium stored in their bones. The problem with this method is that the time from when the cow signals more calcium is needed to when it starts to be released from bone is 48hrs. This 48hr gap is what leads to clinical milk fever post-calving.

Social Changes and Calving Stress

Both of these cause huge amounts of stress. Reduction of stress during the whole transition period is vitally important. Whenever a cow is stressed she will be eating less and be suppressing her immune system due to cortisol being released in response.

Recommendations For Ensuring a Good Transition

LDA with Will B (young Will)

Body Condition Management (BCS)

Cows should be dried of at 2.5 to 3.5 BCS and this should not go up or down during the dry period. Any changes up or down in condition whist dry will likely lead to problems post-calving. Cows calving in fat have:

- More calving issues (tears, haemorrhage)
- Increased risk of Milk fever
- Increased LDA and Ketosis risk
- Poorer fertility
- Increased risk of retained foetal membranes (RFMs)

Thin cows will have a greater risk of lameness and RFMs.
Making management decisions 4 weeks pre-calving with your fat or thin cows can help prevent problems. Thin cows can be moved onto the transition diet earlier and kept on straw yards post calving to reduce lameness risk. Fat cows can be given Kexxtone, pumped post-calving with propylene glycol and given special attention to make sure DMI is maintained.

Manage rumen fill

Key rules to follow are,

- 75cm feed space per cow in transition
- Fresh feed given daily
- Passageway/feed troughs fully cleaned out daily
- Feed pushed up regularly to ensure availability

Food being pushed up by our very own Mike Sandiford, Usually a mechanical method is deemed more efficient

Water

- 10cm linear water access per cow
- More than one water access point per pen
- Always fresh and clean

Diet formulation and strategy

The transition diet needs to meet the requirements discussed earlier of energy, fibre, starch and protein and be palatable enough that the cows eat it well.

Calcium

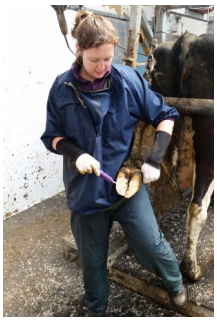
The best way to avoid clinical milk fever is to activate the absorption of calcium from bone pre-caving. This can be done by,

- Restricting dietary calcium pre-calving
- Binding the calcium in the transition (x-zelit)
- Feeding a DCAB diet. In very basic terms we are acidifying the cows blood by feeding a lot of anions (Chloride and sulphide) this in turn requires the cow to produce calcium which binds with these anions to reduce the acidity, therefore activating the bone absorption pre-calving.
- A partial version of the above by adding Magnesium Chloride to the transition ration, this contains the chloride to do the DCAB bit and supplements Magnesium at the same time.

The other option is to supplement calcium straight after calving using calcium boluses.

Space in transition

On straw yards cows need 1m^2 per 1000 litres milk production. In cubicles we need at least 1 cubicle per cow. In all year round herds the number of cows calving per week fluctuates, this means you need 130%-140% of your average requirements. Allowing this space will reduce cow stress, increase DMIs and reduce mastitis risk.



Target Lameness

- Avoid thin cows
- Maintain digital dermatitis control over the dry period
- Routine trim and treatments pre-drying off
- Ensure no score 3 cows!

Group Management

In order to reduce the stress of social changes try and keep as stable groups as possible. When moving cows from one group to another, move in pairs as a minimum. This will avoid hierarchical stress.

Calving Stress

To reduce cow stress at calving,

- Avoid moving her at the wrong time (too early or late)
- Or avoid moving at all (Johne's control may prevent this)
- Less than 1 in 20 calving's should be assisted

Care of the Freshly Calved Cow

They will need:

- A drink
- Milking cow diet put in front of them straight away providing energy and calcium
- Pain relief if needed (if in doubt, the answer is yes)
- Monitoring feed intakes with intervention if low

Much of this information was taken from a course I did with Owen Atkinson from Dairy Veterinary Consultancy.

Wishing you all well,

Will S (old Will)