

FEEDING MANAGEMENT FROM THE LATE DRY PERIOD TO EARLY LACTATION

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Take home messages

- Feeding programs at the time of calving should form part of a whole-of-lactation plan.
- Linking the various times in cows' lactation cycles with smooth changes in diet usually requires management of animals in distinct groups.
- A focus on diet quality throughout the lactation and body condition score management are key principles.

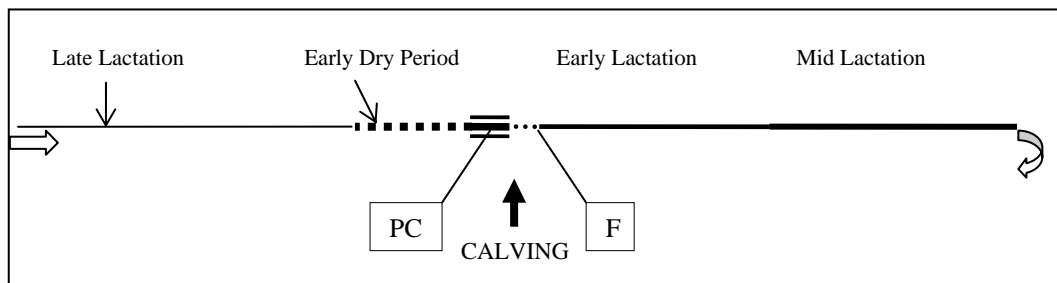
Background

The purpose of this paper is not to review the literature and current knowledge about feeding cows at and about the time of calving, but to highlight the fundamental points from the cows' perspective and to identify the practical steps that can be taken on Victorian dairy farms.

There is a great deal of published information on feeding strategies and programs for dairy cows from the last two weeks before calving into lactation. These strategies have been linked to production levels at peak and throughout the lactation (milk volume and milk components), maintaining and managing body condition score and influencing animal health levels. These health issues include "milk fever" (hypocalcaemia), ketosis, ruminal acidosis, lameness, retained foetal membranes, displaced abomasa and commencement of reproductive cyclically after calving; all of great importance to the dairy farmer.

To a dairy farmer managing their stock, it can appear that there are a number of conflicting theories and strategies from which they must choose. "Who's right?" "What's the best thing for me to do on my farm?". Let's try and work through some of these issues.

The lactation cycle



This diagram represents the 365 days of a cow's lactation cycle to scale in length. Each day is represented by the same length of line;

- Early lactation, 90 - 100 days, immediately after calving, including the first week which is identified separately (F = Fresh Cow).

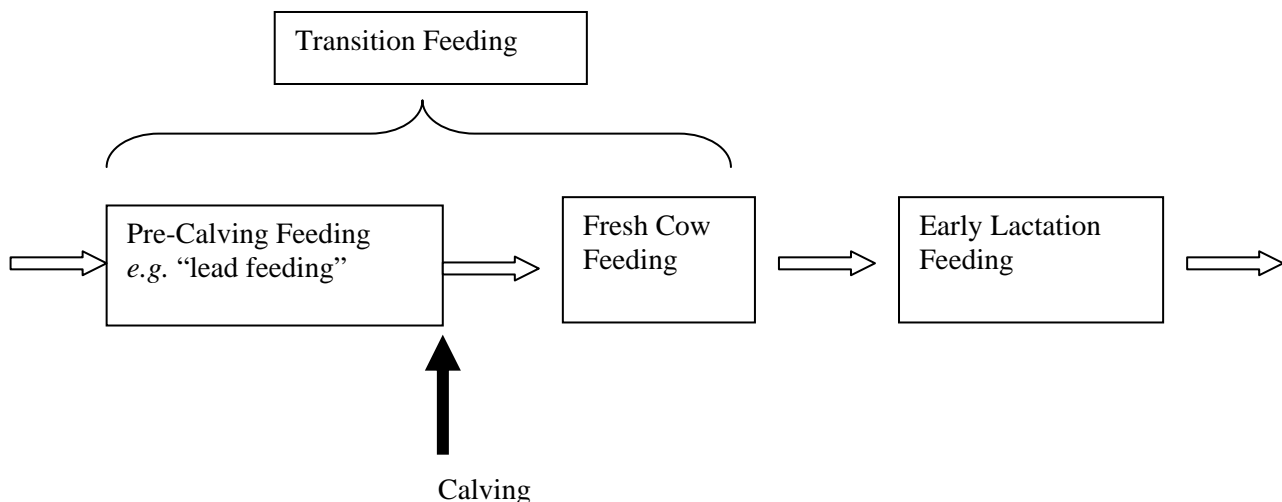
- Mid lactation, 3 months
- Late lactation, 4 months
- Early dry period, 6 weeks
- Pre-calving (PC) period, 2 weeks

It should be obvious from this diagram that the two weeks immediately prior to calving are a relatively small part of the entire length of line (made more obvious here by thickening the line). One of the most important factors often overlooked (in the author's experience) is the vital importance of linking pre-calving nutrition with nutrition throughout the entire year, especially the early dry period and late lactation. Discussions of pre-calving nutrition can be too quick to focus on minerals and additives in the 14 days immediately before calving, neglecting the months prior to this. For example, cows fed poor quality (low energy and crude protein) hay for the weeks prior to entering the calving pad cannot be expected to be "restored to full vitality" in less than 14 days.

Leading up to the pre-calving period

The "storage" of energy within a cow is best described by Body condition score (BCS; 1 – 8 scale); live weight is not a good measure of the energy retained within a cow for productive purposes. This is amply discussed in "The Condition Magician" (Condition Magician, Second Edition; Department of Primary Industries, Victoria, 2003) and "The InCalf Book" (The InCalf Book for dairy farmers, Dairy Australia, 2003). The ideal situation is to dry cows off in the level of body condition in which they are planned to calve; cows should not gain or lose much condition over the dry period for optimal productivity after calving. In practice, this often requires differential feeding of dry cows groups and is difficult to achieve for every individual cow. Keeping the variability around the target condition level as small as possible is the key. Cows entering the pre-calving period in a wide range of body condition will produce quite variable results.

The quality of the forages and hay fed through the early dry period are of major importance to the impact of a feeding program around the time of calving and yet the lowest quality hay available (commonly called "dry cow hay"!) is often utilised. Concentrates can often be of great value fed in the early dry period, yet this can often be left too late; to the last few days before calving.



Pre-calving period

The key aims of the feeding program in the two weeks just prior to calving should be to:

- Maintain stable rumen fermentation conditions
- Stimulate maximal feed intake by the cow. The more a cow eats coming up to calving, the more she will eat after calving
- Adapt cows to the early lactation ration (as far as possible)
- Reduce the risk of animal disease (*e.g.* “milk fever”, ketosis)

The exact order of these priorities vary with each farm – and hence the program adapted by each farm is likely to be subtly different. It is therefore quite unlikely that every dairy farm will adopt the same feeding and management programs for pre-calving cows.

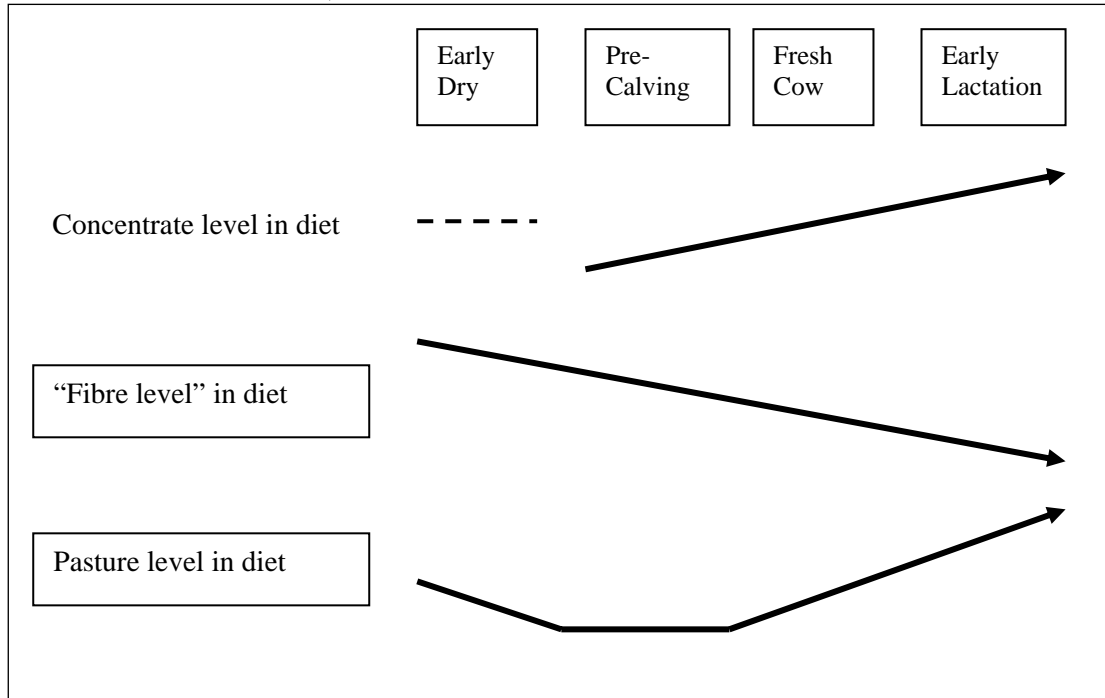
Stimulating and maintaining stable rumen conditions is usually the most important aim. Without the rumen operating optimally just before calving (and then into the lactation), the cow will not be able to meet the huge nutritional demands of the late-term calf and then the udder when it “switches on” to produce colostrum and milk. If the cow’s rumen is not functioning well, feeds will not be broken down by the rumen bacteria quickly enough to then stimulate the cow to feed again. Anything which causes feed intake to fluctuate at this time is detrimental, and yet this is commonly not controlled well. Some examples of things to consider are:

- Poor quality drinking water; low levels of drinking water availability
- Poor quality “dry cow hay” (*e.g.* mouldy, containing contaminants) or inadequate feed space per cow at feeders
- Fluctuating levels of grain or pellet intake for individual cows (and heifers)
- Concentrate mixes (poor tasting chemicals mixed through grains) which cause fluctuations in cow intake levels.

Although the saying “*ad-lib*” feeding is quite entrenched in our industry and acknowledged as being important in feeding cows, the meaning “freely, as desired” needs to be revised and revisited. Too often, cows are not being encouraged to eat as much of a high quality diet as they should be just prior to calving.

To promote optimal pasture intake after calving, the prevention of ruminal acidosis is paramount. Acidosis control begins in the pre-calving period - by increasing the concentrate proportion from the dry cow diet closer to that in the lactating cow diet. At the same time, the “fibre level” of diet will need to be decreased, to adapt the cow to the diet that she will encounter in the milking herd.

This can be illustrated as;



Fresh cow management

The idea is to reduce the strain on the dairy cow, and the bacteria within her rumen, by moving gradually and smoothly through these dietary changes. It is the author's opinion that a fresh cow management group is vital in making the best transition from dry to lactating cow. This group has an intermediate ration between the pre-calving and lactation rations.

| | Pre-calving diet | Fresh cow diet | Early lactation ration |
|--|--|---|--|
| Concentrate (grain or pellets). | 3 kg pre-calving concentrate per head per day. | 3 – 4 kg lactation ration (in dairy). | 4 - 5 kg lactation ration (in dairy). |
| Fibre source | <i>Ad-lib</i> fibrous cereal hay (high quality oaten hay). | 3 – 4 kg high quality hay (sub or lucerne). | Some fibrous pasture hay if any hay at all |
| Silage and other feeds in the lactation ration | <u>Where possible</u> (<i>e.g.</i> maize silage BUT NOT lucerne) to part-level of lactation diet. | As per lactation diet | Lactation diet. |
| Pasture | Minimal (grassy) pasture – where possible as part of feeding program | High quality pasture, close to dairy. | <i>Ad-lib</i> high quality pasture – and management to eat more and more each day! |

Weights (kg) are on a fresh weight basis.

Cows benefit greatly from the special care in the “fresh group” for the first few milkings after calving, until their milk is suitable to send to the factory. Cows that are not eating fully (*e.g.* difficulty calving, retained membranes, calving injuries, mild ketosis and so on) benefit greatly from staying in this group until they are ready to join the far more competitive milking herd. In the author’s opinion, the line between the fresh cow and milker group is a critical management decision point. This is the line over which cows should only cross when they are confirmed to have successfully made the transition from dry to milking cow.



Mark Burgemeister has worked as a dairy cattle veterinarian in the irrigation region of northern Victoria for sixteen years. He and his wife operate their own company (Thinking Cows Pty Ltd), which provides independent farm analysis to dairy farmers throughout Northern Victoria.

Mark is an Australian qualified workplace trainer and provides training services to two TAFE colleges, the DPI as well as to his farming clients. Mark is an accredited adviser and trainer for the Countdown DownUnder, Top Fodder and InCalf programs, and has been involved with the development of the Top Fodder and InCalf training programs.

At present Mark is undertaking his Masters’ in epidemiology and biostatistics through the University of Melbourne. Mark is committed to helping the dairy industry grow through high quality animal care as well as carefully considered feeding and management programs.