



## The Post-Calving Challenge

By far, the greatest challenge we face in the lactation of a cow, is meeting her nutritional needs post-calving. The first 100 days of lactation will set the pattern and profit potential for the remaining 200 days.

Peak milk, around 100 days, is to be our focus. When peak milk occurs at 150 days, due to spring pasture flush we have certainly 'missed the boat' in productivity and profit potential. We have probably only just got her back in calf instead of at 80 days post-calving, due to inadequate energy to meet her genetic potential for milk production and reproduction; the two key paradigms of dairy farm profit.

The ration goals to enable a fully fed post-calving cow are simple.

- 1) Energy – 11.5 MJME. 2) Protein – 19% CP. 3) Fibre – 32% NDF.
- 4) Intake – Unrestricted. How to provide such a ration we will discuss shortly.

Based on a 600 kg Holstein cow, assuming the above ration specifications, intake is then the critical issue. This is simply a management issue, to allow cows sufficient pasture to maximise their genetic and lactational status potential for maximum intake.

At an intake of 18 kgs DM (dry matter) our cow would produce 25 lts. At 22 kgs DM intake (near her capacity) she would produce 34 lts. The extra 4 kgs DM pasture costs around 60c and produces an additional \$2.34 of milk (9 lts @ 26c)

This is where many farms miss out big-time on lactation profit. The maintenance cost is the same for the cow at 25 lts as it is at 34 lts. The extra milk is clearly just milk over feed cost, an extra \$1.74 profit/cow/day. On an average 250 cow herd this is \$435 extra profit/day. Put another way, at 25 lts it cost 12c/lit to produce, at 34 lts it cost 10.5c/lit to produce, due entirely to maintenance cost for our cow being fixed.

This is based on feed intake only, add to this production, at a healthy ½ kg live weight loss for 100 days, another 3 lts from body fat metabolism. The fully fed cow is the most productive, and healthy!

The underfed cow is at high risk of metabolic disorders and their inherent impact on milk production and health.

Assuming we have had our cows under a good transition management program, the genetic and lactational drive to produce milk will induce excessive fat mobilisation if she does not have access to adequate pasture, predisposing her to the following problems.

The underfed cow will mobilise greater than ½ kg live weight trying to meet her energy shortfall from lower dry matter intake. Excessive fat mobilization will cause fatty liver syndrome and ketosis, and obviously impaired liver function. Immune function will also be compromised leaving her vulnerable to mastitis and metritis. A rumen not fully extended with feed will enable displaced abomasum to be a high risk.

The effects of low energy have been covered above with below optimum dry matter intake. Inadequate energy density of even 22 kgs DM intake will produce the same result. The total ration must average 11.5 to 12 MJME/kgDM. Protein needs to be balanced also for peak performance and health. Crude protein lower than 19% will impact on dry matter intake and induce the problems described above. Excessive protein also has a cost. It will drive production harder increasing the risk of inadequate energy to meet production and promote excessive fat mobilisation. Surplus nitrogen in the rumen requires energy to convert it to ammonia for excretion via the urine, furthering the negative energy problems. High blood nitrogen levels impact on conception rates. This multitude of problems can be easily avoided with a well balanced ration of unrestricted intake.

A ration of 17 kgs DM quality pasture (3 leaf stage), 0.7 kgs DM hay for good rumen mat and function, and 5 kgs of a quality grain mix will provide our cow with the nutrient for 22 kgs DM intake. A quality grain mix by my definition is; quality wheat at 80%, canola meal at 15%, and a complement of lime, MagOx, salt, trace elements and a good rumen modifier such as Rumensin/Tylan. This ration is very well balanced and very conducive to both production and cow health.

A word on achieving a 17 kg DM pasture intake: As I have written in the past, cows can only eat about 4 kgs DM forage at a meal. The 'meal principle' is imperative to achieve this level of intake without wasting pasture. To split the days paddock in half with a strip fence, allowing the cows' access to the second half around lunchtime will both stimulate appetite from natural competitiveness, but also offer a fresh area of pasture uncontaminated by cow's manure, urine or simply trampling.

Finally, to ensure all is going to plan, we have a series of indicators for daily observation to help us know we are on track; our daily milk tanker slips, or faxes/email. Firstly, total litres, if they drop our herd has not had enough to eat the day before. BF% tells us fibre is inadequate either from the ration or acidosis has reduced fibre digestion. Protein % falls (below 3.25) indicate energy deficiency or low by-pass protein. Lastly, manure tells all. A 5 to 6 cm manure pat of good consistency indicates good rumen function and efficient feed conversion. Excessive fibre in manure indicates protein deficiency, while looseness is telltale of acidosis.

One other test I would dearly love to see milk companies perform for its enormous value in this same process is MUN - Milk Urea Nitrogen. It could be readily done in the factory laboratory and help us know when we have excessive protein in the ration. Last year we sampled pasture monthly with crude protein variations from extremes of 34% to 18%. The impact of this nitrogen content over 17 kgs of DM pasture is massive. The implications for good ration balancing and feed efficiency are substantial. Fertility would also be improved through managing protein surpluses.