



## Lactation Preparation

There are three stages that effect significantly, lactation performance. 1) How cows are finished in regard to body condition and mineral reserves. 2) Nutrition in the early dry period and lead feeding. 3) Early lactation nutrition. Obviously any underfeeding during lactation will nullify benefits gained from good management of the above three stages.

Before we start on Stage 1 – finishing cows, I need to make a statement in regard to milk production in the last trimester (last 100 days of lactation). Our productivity is severely hand-strung by many erroneous “beliefs”; one of which is the assumption that late lactation cows are incapable of sustaining relatively high levels of milk production.

The genetic potential for milk production of the average Australian dairy herd is well beyond what the vast majority actually achieve, simply from underfeeding both quantity and the nutrient profile of what is offered; but no more so, than in late lactation. Our comfortable complacency to let cows go into ‘self-management’ mode in late lactation costs us dearly in lost milk production/profit during this period, but also negates preparation for next lactation.

I have witnessed 5 and 6 litre jumps in production from unseasonal rain induced pasture growth, or exceptional turnip crop production, as we have seen this summer in SW Vic, defying the belief that late lactation cows cannot milk at high levels of production. My experience with mixer wagon/feed pad scenarios also verifies the genetic potential for high production right up to dry off.

In a review published in the Journal of Dairy Science, November 09, Roche and associates (DairyNZ Ltd) summed up finishing cows succinctly: “... there is relative consistency in associations among calving and BCS, and BCS change on milk production, postpartum anestrus, the likelihood of a successful pregnancy and days open, the risk of uterine infection, and the risk of metabolic disorders.” They went on to comment that lower calving BCS was associated with reduced production and reproduction, while excessive BCS reduced early lactation dry matter intake and milk production and increased risk of metabolic disorders.

From both perspectives of plain production/profit, through to predisposing of our cows to calving problems, maintaining vigilance through late lactation nutrition to ensure ideal dry off BCS will profit both current and next lactation.

Although opinions vary on what is ideal dry off BCS, and in actual BCS assessment, well roundedness over skeletal structure without loss of visible skeletal structure is between 4.5 and 5 on a 1 to 8 scale. Well fed cows with good nutrient balance will comfortably achieve this score by virtue of hormonal changes associated with gestation, without our intervention. In autumn calving herds, frequently late summer rations are low in crude protein, and especially by-pass protein, facilitating excessive energy partitioning to BCS rather than a better balance between BCS and milk production. This is often compounded by BCS loss in early dry period due to energy intake being insufficient for maintenance and pregnancy.

BCS is both visible and well accepted as a necessity for productive cows, even if variations occur with negative impacts on health and productivity. However, an area frequently not scrutinised and not so visible, is mineral nutrition. Mineral nutrition would be without doubt the area most neglected in late lactation.

Although the trend has decreased in recent years, the removal of minerals from grain mixes in late lactation has been widespread. It has been further driven this year by low milk prices in an effort to reduce costs. Unfortunately, mineral induced health and production issues are rarely connected due to the time lapse between removal of minerals from the ration and the consequent disease/productivity event. The assumption from no observed reaction to mineral removal is highly deceptive. Likewise, the assumption that the cow is back in calf and dropping in milk production and therefore has no need for supplementary minerals enhances our obsession to cut costs.

Late lactation is a time of preparation for pregnant cows. Certainly mineral supplementation will be in excess of production needs if it is maintained at early/mid lactation levels. This surplus is essential to enable storage of the excess for early lactation when intake cannot meet demand. It is exactly the same preparation as is BCS increase through the same period.

Macro minerals such as calcium, magnesium and phosphorous are redeposited in skeletal structure for re-absorption in early lactation. Milk fever cows are sound testimony to blood calcium deficiency, although calcium restriction can be a contributor, which we'll discuss next month. Sub-clinical milk fever is far more damaging to both cow and profit, and does go unnoticed. Without adequate redepositing of these elements into bones in late lactation we are essentially giving our cows osteoporosis.

Trace elements likewise need to be stored for rapid access in early lactation and rely on late lactation surplus to avail storage in body fat. Vitamins also are stored, in excess of immediate need, in body fat. A lack of these elements can adversely affect production, and especially health, to an extent equal to the deficiency of either energy or protein. The probability of improved milk prices in 2010, coupled with a need to shore up the finances of our dairy business, should drive us to utilize all possible options for high producing herds next lactation.