

## RESOURCE USE EFFICIENCY DRIVES THE SYSTEM

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### Take home messages

- Our dairy system has evolved over the last 10 years into a cut and carry/total mixed ration feeding strategy with some limited grazing
- The key profit drivers are derived from the wealth generation capacity driven by our ability to manipulate land, water and livestock resources to gain the maximum benefit
- We have found the Keenans “low energy high fibre” dry cow feeding strategy to improve cow health and dramatically reduce calving related health problems

Table 1. Our business background

Milking area	230 ha
Total irrigation area	620 ha
Water entitlement	1440 ML
Irrigation method	Gravity fed border check
Cows milked	1000
Calving pattern	Mostly Jan, May and Sep
Production	450 kg MS/cow
Pasture utilised	10-12 t DM/ha
Feeding system	Total mixed ration (TMR) supplemented with grazing

### **Evolution of our dairying system**

Our system has evolved over the last 10 years. It started with an understanding that feeding cows better would lead to a more profitable return. Grain feeding in the dairy commenced in 1989 and had greatly assisted overall farm profitability. We were confident that feeding cows even better via TMR would result in further gains in overall farm profitability.

I believe that cows are cows. The breeding program has used only progeny test bulls for many years. We have seen the same trends in infertility in our business that the wider dairy industry has experienced. As a result, we saw the expense of using proven semen as unsustainable.

Overall herd management has a major effect on cow health and ultimately, cow longevity. To date, all intensive dairy farming systems throughout Australia and possibly the world, including our own, have seen cow longevity compromised.

Pressure on irrigation water availability and the ever increasing cost of water has escalated significantly over the last 5 years. These pressures have led to a very significant re-evaluation of our forage production system. The summer pasture system has been replaced (mostly) with annual pasture, particularly Ryegrass.

To improve the utilisation of pasture we have implemented a “Cut and Carry” system. The equipment purchased was also appropriate to be used for silage production.

Our adoption of Cut and Carry has allowed us to utilise land that is too far away to be grazed. We are now able to efficiently harvest forage from up to 7 km from the dairy. The increased amount of forage grown on-farm has virtually eliminated (with the exception of straw) the need for bought-in forage.

Cut and Carry has greatly reduced the opportunity for pasture wastage that occurs during grazing. Given the economic reality of higher input costs, pasture wastage by fouling and trampling during grazing is a loss we believe to be unacceptable. This type of wastage is virtually eliminated in the Cut and Carry system.

Grazing for the milking herd is now used to supplement TMR feeding as well as providing an economical, cleaner living standard for cows. TMR feeding has allowed us to cover our feed pad and loafing area. Since having the covered feed pad we have had a constant production level throughout the year and the effects of heat stress has been minimised.

A high capacity stock trough water supply system that supplies quality water has also played an important part in making our system work effectively. Our feeding and housing system facilitates some protection against the effects of a wet winter, both for cows and pasture. Every season a wet winter gets one year closer!

Because of our reliance on stored forage, particularly silage, our harvesting and storage processes must be of the highest standard.

The importance of good people skills has become even more important in recent years. A strong desire to have excellent relationships with both our staff and suppliers has proven to be vitally important to our business.

My personal ambition and determination that this business must succeed should also not be underestimated.

### **The key profit drivers to our business**

The wealth generation capacity of all dairy farmers is driven by their ability to manipulate the land, water and livestock resources to gain the maximum benefit.

Like dairy farmers everywhere, we are ultimately in the business of converting feed into milk. Profitability in our business is not based on the amount of dry matter harvested or the amount of money paid per tonne of feed bought onto the farm, but is driven primarily by the efficiency of turning all feed (in whatever form) into milk. Studies show that 70% of margin improvement obtained on farms comes from Feed Conversion Efficiency (FCE) improvement and the other 30% comes from feed cost per tonne dry matter savings (Coleman et al., Knowledge Agriculture 2005). To date, our FCE has been

around 87 to 95 grams milk solids (fat and protein) per kg of dry matter fed. We are now aiming for 108 grams per kg of dry matter fed. The significance of this improvement will have an enormously positive effect on the profitability of our business regardless of commodity prices.

Improvements in FCE can only be achieved through good rumen and overall cow health. With our intense system of farming we have some extra ability to control these factors. We have to be vigilant in addressing all aspects of cow management, however rumen health is an area where I believe we can make the biggest gains.

Better rumen health plays a critically important role in minimising health issues at calving and ensuring we position the cows to get back in calf. Traditionally our fertility results have been poor and health issues at calving have been very significant. These problems have occurred despite our implementation of the “Close up” to calving concept complete with anionic salts and full DCAB balance.

### **An altered strategy**

Frustrated and anxious to rectify the rumen health problems Keenan, our nutritional advisers since 1996, approached us in October 2005 about a radical new mindset about how dry cows should be fed. Immediately we were interested. The results they had achieved elsewhere in the world and their recently acquired knowledge of why it worked, led us to implementing the new concept immediately.

Keenan refer to it as the “Low Energy High Fibre” dry cow strategy. The program basics are as follows:

1. Commence at drying off
2. One ration strategy for whole dry period. High straw rations at ‘Close-up’ can cause intake issues, especially if cows calve early
3. Provide low energy/high fibre ration
4. Ration specification; 9MJ ME/kg DM, 13%CP. Comprises approx. 50% chopped straw, 30% lactation forage, 20% lactation concentrate
5. Straw must be coarse & well chopped (4 – 8 cms). Wheat straw preferable. Hay is not a suitable alternative.
6. Supply as TMR and feed *ad libitum*
7. Straw must be well incorporated into mixed ration. Providing long straw in ring feeder is not an option

How does this program work?

- It decreases potassium intakes and therefore prevent milk fever
- It improves rumen fill, fibre mat, and efficiency of fermentation – prevent Displaced Abomasums (DA) and acidosis
- It stabilises dry matter intake (DMI) particularly the large drops immediately pre and post calving

- “Fat cow” type responses to excessive energy consumption (insulin resistance, fatty liver, ketosis...) are prevented

Does it work? **Yes, most definitely.** We are now into our second calving since implementation and provided the strategy is strictly adhered to, it works.

Obviously it is too soon to accurately assess the medium and long term benefits of the system, however given the improvements to individual cow health at calving time that we have already seen, I have no doubt that the long term benefits will be substantial.

For our business that employed the DCAB balancing and “Close up” strategies for over 10 years, the calving related and fertility problems got worse year on year. By spring 2005, calving related cow health problems were of near epidemic proportions despite feeding 250 grams of anionic salts and achieving excellent DCAB! Something about our management had to change. The need was urgent and immediate.

In due course, I believe that all intensive forms of dairy farm management will implement the “Low Energy High Fibre” dry cow feeding strategy. If strictly implemented, it works and works very well.

In conclusion, I strongly believe that no dairy farmer (or nutritionist) who intensively feeds cows will be able to ignore the evidence that will build up over the next year or two as more and more dairy farmers experience the benefits of using the “Low Energy High Fibre” dry cow feeding strategy.