



Feeding systems: the choice is yours

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Australian dairy farmers can choose a feeding system to suit their personal situation and seasonal conditions with the confidence that high yields (per cow and per hectare) can be achieved from very diverse systems, with good management.

Farmers should not feel that their land or herd dictates their feeding system.

The flexibility comes mostly from the feeding system rather than the potential of the land or cow genetics.

FutureDairy's feeding studies confirm that the same cows can be managed on the same land in very different ways.

Different management approaches used by FutureDairy resulted in different levels of milk production per hectare, but all approaches can be profitable.

FutureDairy's results show that an intensive feeding system and one with relatively low grain supplements both have the potential to be very profitable. In both cases, the keys to success are good management and efficient pasture utilisation.

FutureDairy's feeding trials

FutureDairy's two-year feeding trial was conducted at Elizabeth Macarthur Agricultural Institute at Camden, NSW from March 2006 to March 2008.

It compared the physical and economic performance of four herds.

Two herds were run at a high stocking rate (peaking at 4.6 cows/ha) and two at lower rates (peaking at 3.1 cows/ha). Within each stocking rate, one herd was fed for medium production (~6,500L/cow/lactation) and one for high milk production (>9,000L/cow/lactation).

Table: FutureDairy feeding trials

	Medium stocking rate (3.1 cows/ha)		High stocking rate (4.6 cows/ha)	
	Medium production/cow (Target 6,500 L)	High production/cow (target >9,000 L)	Medium production/cow (Target 6,500 L)	High production/cow (target >9,000 L)
Actual milk production (L/cow)	8581	9577	8394	9417
Actual milk production/ha (L/ha)	21526	23904	31300	35988
Concentrates fed (t DM/cow)	1.0	1.9	1.1	2.6
Pasture utilisation (t DM/ha)	11.7	11.9	12.3	2.2

The table describes the different treatments for each group.

All herds grazed pastures based on kikuyu oversown with short rotation ryegrass (60% of the farm area) and perennial ryegrass (40%).

The 2006/07 drought meant that just 25-30% of the irrigation area was watered.

Results

All herds in FutureDairy's trials achieved higher production than expected despite limited irrigation availability during the 2007 drought. This was more marked for the two herds with 'lower' milk yield/cow. When these cows grazed increased amounts of quality pasture over the winter-spring period, their daily milk production averaged 26-27L/cow instead of the expected 20-22L/cow for a diet with low concentrates (1-2kg/cow).



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The results show very clearly that it is possible to achieve high milk production per cow and per hectare with relatively low input of concentrates and limited irrigation.

Equally a higher input system can be a profitable option for some farmers. A full economic analysis is being carried out with the two year dataset.

Simple management principles

The good news for dairy farmers is that the key management principles are the same, regardless of the chosen feeding system:

1. Feed pasture first and only top up with supplements to achieve target milk yield;
2. Quality is king.

Regardless of the level of supplements fed, pasture quality and utilisation have a major impact on production levels.

No matter how much grain is fed, don't lose sight of maximising pasture utilisation. High pasture utilisation goes hand in hand with high production, even when high levels of supplements are fed.

This is good news because improving pasture utilisation costs practically nothing. All it takes is an understanding of pasture management skills plus the commitment to monitor pasture growth regularly.

The simplest way to maximise pasture utilisation is to feed pasture first and only use supplements to top up requirements to achieve milk production targets. This ensures that supplements will be as additive rather than replace pasture.

Stocking rate must be high enough to ensure all pasture grown is utilised. For example, if the stocking rate is 1 cow per hectare, the maximum pasture utilisation would be only 5-6t DM/ha, assuming an all-grass diet.

These results highlight the potential and flexibility of pasture-based systems on Australian dairy farms.

For more information

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About FutureDairy

FutureDairy aims to help Australia's dairy farmers manage the challenges they are likely to face during the next 20 years. The challenges are expected to be related to the availability and cost of land, water and labour; and the associated lifestyle issues.

Our activities are structured around three priority areas – **Forages, Feeding and Innovations**. These are the areas where there are opportunities to address the challenges related to water, land and labour resources.

FutureDairy's approach is unique in that our work considers Science, Systems and People issues. In addition to conducting trials on research farms (**Science**), we explore how our findings work under commercial conditions on Partner Farms (**Systems**). We also use social research to help understand the social issues (eg labour, lifestyle and practical implications) involved in taking on new practices and technologies (**People**).

Our **Forages** work is all about producing more home grown feed from the same area of land. We are investigating the potential to concentrate resources (water, fertiliser and management). Our target is to produce more than 40t DM/ha/yr in a sustainable way. To achieve this we are trialling a 'complementary forage rotation' based on growing three crops a year:

- a bulk crop (eg maize);
- a legume for nitrogen fixation (eg clover); and
- a forage to provide a pest/disease break and to improve soil aeration (eg a brassica).

Our **Feeding** work is researching if it is more profitable to use extra bought-in feed to feed more cows (ie increase stock numbers) or to increase production per cow.

FutureDairy is investigating a number of **Innovations** that could improve farm efficiency, labour management and lifestyle. We have a major study on automatic milking systems (AMS), the obvious labour saving innovation. We are adapting automatic systems to be profitable and suitable for Australia's pasture-based, large herd situation.

We are also studying innovations that allow precision farming without increasing labour needs. Some examples include remote sensing of animal function and pasture status, and the use of video cameras to monitor paddock activities (eg calving) remotely via a computer.

Contact us

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