

Hunter Valley farm trials

by Associate Professor Yani Garcia

Six Hunter Valley dairying families are working to break through the barriers to increase their farm's productivity.

Working with Industry and Investment (I&I) advisers Anthea Lisle and Kerry Kempton the group is among the first dairy farmers to apply FutureDairy's Complementary Forage System (CFS) under commercial conditions.

A CFS involves allocating a portion of the farm to intensive production to increase productivity from home-grown feed. It usually involves cropping, sometimes double or triple cropping.

Crops may include a legume for nitrogen fixation, a bulk crop such as a cereal or maize for silage, and a brassica (forage rape) to break pest and disease cycles.

The CFS is an option for farmers who have already achieved high levels of pasture utilisation and are unable to access more land or water.

Farmers trialling the CFS are Ian and Maria Simpson, the Williams family, George and Elizabeth Allen, Ross and Cheryl McDarmont and Tim Freeman, Rodney and Stacy Richardson, and David and Cindy Butler.

Each of the farms is being monitored fortnightly to track milk production and feed consumption. The results will help identify the management practices that are critical to success of the CFS under commercial conditions.

This Info Sheet features Ian and Maria Simpson who dairy near Denham, south west of Muswellbrook.

Ian and Maria Simpson

The CFS suits Ian and Maria Simpson because they are keen to increase production but have limited land.

Their year-round calving herd currently peaks at 220 cows. The Simpsons plan to increase that to 270 in 2010 and 330 in 2012, and see the CFS as a way to help achieve their goal.

The Simpsons want to increase average per cow production from their current 8000 L/cow to 10,000 L/cow, while at the same time reducing their reliance on purchased feed.

To achieve their production targets and improve profitability, the Simpsons plan to increase both the amount of home-grown feed and its utilisation.

Their target home-grown feed utilisation is about 40,000kg DM/ha from irrigated crops. That's where the CFS fits in.

In previous seasons the Simpsons have grown maize for silage on a 10ha block leased from a neighbour and used their irrigated land to grow ryegrass and oats.

The installation of two more centre pivots this January brought the total irrigated area to 82ha on the home farm.

The CFS plan will help the Simpsons maximise feed utilisation from irrigated blocks. The table outlines the planned crops for the coming year.

Cropping plan 2010: Ian and Maria Simpson

Block	Area	Winter crop	Summer crop
1	15ha	brassica/short term ryegrass	Maize for silage
2	15ha	ryegrass/oats	A crop for hay
3	20ha	oats/ryegrass	BMR sorghum for grazing

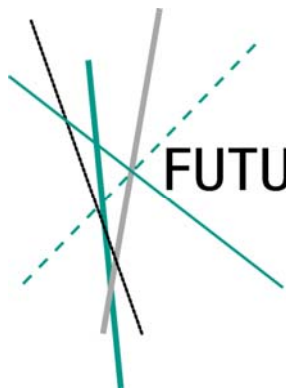
An additional 25ha of irrigated land with perennial ryegrass and clover provides feed for grazing most of the year (except the hottest three months).

Being an intensive system, the cost of inputs is high but the potential yield means the cost in \$/t DM is comparable to pasture.

The Simpsons have experience with growing maize and double cropping. What is new for them is the brassica and putting it all together to increase feed utilisation per hectare.

Research

Research at the University of Sydney Camden campus has shown that the CFS can achieve high levels of forage utilisation; and is economically viable and environmentally sustainable.



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Because it relies less on bought-in feed, the CFS is relatively less sensitive to changes in the price of grain.

At the Camden trials, about a third of the farm area was allocated for growing a complementary forage rotation, with the rest used for pasture (kikuyu over-sown with short rotation ryegrass every autumn).

The complementary forage area was either double cropped (Persian clover and maize) or triple cropped (forage rape, legume and maize).

Over the past two seasons the CFS has achieved more than 25t DM/ha of utilised forage across the whole farm, and nearly 30,000L milk/ha from home grown feed.

These results demonstrate that the CFS system is a feasible way to intensify a dairy system while maintaining minimum reliance on purchased feed.

The keys to success are good crop, grazing and feeding management.

The Hunter Valley farms will be monitored closely to identify the management practices that are critical to success under commercial conditions.

For more information

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Hunter Valley dairyfarmer Ian Simpson (left) with FutureDairy's Associate Professor Yani Garcia.

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 two priority areas – Precision farming (including automatic milking and innovations) and Feedbase (forages and feeding). These are the areas where there are opportunities to address the challenges related to water, land and labour resources.

For **Precision Farming** we are investigating technologies with potential to improve farm productivity, efficiency, labour management or lifestyle. FutureDairy is pioneering the development of pasture-based farming systems that use robotic milking for larger herds. Our research is conducted at Australia's first automatic milking system (AMS) research farm, at the Elizabeth Macarthur Agricultural Institute at Camden. Since mid-2009 we have been testing a new concept automatic milking system designed specifically for Australian conditions, while continuing to further develop the farming system around the milk harvesting equipment.

Our **Feedbase** goal is to develop sustainable dairying systems for the future, with the intensification of home-grown feed to enable more efficient use of land, water and grain. Our trials are being conducted at the University of Sydney's Corstorphine dairy farm and Mayfarm. The investigation is complemented with modelling and component field research in areas of forage production and utilisation.

We are investigating a complementary forage system (CFS) that involves triple cropping on 35% of the farm area and growing pasture on the remaining 65%. Our target is to produce more than 25t DM/ha/yr over the whole farm area, in a sustainable way. The three crops include:

- 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).

FutureDairy is now in its second phase. During the first phase, we used existing technology for automatic milking to test the feasibility of robotic milking in a pasture based system. The promising results paved the way for testing a new prototype AAMS with a larger herd during phase 2.

In the first phase, our Feedbase studies tested the feasibility of a complementary forage rotation grown on a small area, both under research and commercial conditions. Phase 1 combined technical research with social research and extension research. During phase 2 we are drawing upon that learning experience to improve our linkages with major extension groups.

Contact us

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