

# FOREWORD

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## **I just couldn't believe the difference it made to my life when I upgraded my dairy a couple of years ago!**

There is no doubt about it – milking is a major part of running a dairy farm. In fact, for many of us it takes up more than half our working day and the infrastructure accounts for more than 25% of the total farm asset. This is a part of our business we really must run efficiently.

When I first looked at improving my 15-unit swingover I was confronted with the huge array of options. Getting reliable information was difficult and it was even more difficult to plan a system that would meet my needs rather than what was available off the shelf. Many of my dairy farmer friends have been in a similar situation – whether planning a whole new facility or just tweaking their existing system.

CowTime has been designed to guide farmers through the maze of information out there, so that they can come up with some changes that have real benefits – no matter what the budget.

My new system really is a pleasure to work in. It is very efficient and the cows come in to be milked without me leaving the pit. My old poly pipe is just gathering dust in the corner, my milk quality is great and getting in a relief milker is no trouble at all. This is what I had envisaged dairying should be like: a reasonable balance between time spent dairying and time with the family.

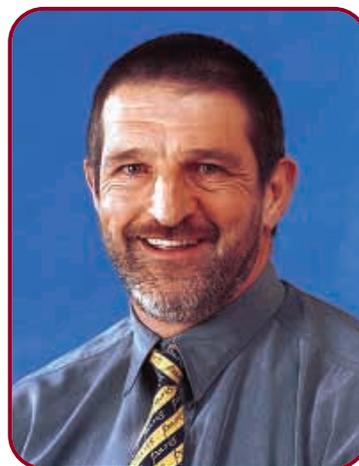
I have been involved with CowTime right through its development stage and trust that you will benefit from the hard work that many in the industry have put into the project. These guidelines are a good example of where farmers, researchers, farm advisers, the service sector and funding bodies have all had input into providing a quality resource for the farming community.

The CowTime Guidelines pull together information from many sources. They include information to help farmers evaluate their current milk harvesting system and explore the options for making a change to their milking process. Use them alone or in combination with other information sources as you plan your way to a better milk harvesting system.

Congratulations on taking the first step towards making milking easier.

**Chris Griffin**

Chair, CowTime Advisory Committee



# ADVISORY COMMITTEE

An industry consultative committee guides the CowTime project. Many different groups with milk harvesting interest and expertise are represented on the CowTime Advisory Committee. Their input and advice has greatly strengthened the project.

The CowTime team gratefully acknowledges the members of the committee for their commitment to making CowTime a useful resource for the Australian dairy industry.



**From left to right:**

**Back row standing:** Jeff Andrews (CowTime Technical Adviser, Queensland DPI), John Craven (Dairy Research and Development Corporation [DRDC]), Malcolm Boys (dairy farmer, Murray Dairy), Garry Pattison, (Bonlac Foods), Chris Griffin (dairy farmer, Chairman) and Rob Greenall (CowTime Project Manager, National Milk Harvesting Centre [NMHC]).

**Middle row standing:** Lee-Ann Monks (CowTime communications), Nives Milanovich (DRDC), Tony Dowman (NSW Agriculture), Carol Bate (Geoffrey Gardiner Foundation), Tom Davison (DRDC) and Diana Carr (CowTime Project Officer, NMHC).

**Front row seated:** Graeme Mein (DRDC), Darold Klindworth (CowTime Research Scientist, NMHC), Andrew Dickmann (DeLaval) and Rob Morton (DRDC).

**Absent:** John Furphy (Murray Goulburn Co-operative), David Harvey (dairy farmer, Dairy SA), Wes Judd (dairy farmer, ADFP), Peter Maguire (Westfalia), Bill Morgan (Australian Veterinary Association) and Greg Hewson (Warrnambool Cheese and Butter Factory Co.).

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# USING THE GUIDELINES

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This symbol provides directions to more information in other sections of the CowTime Guidelines or Quick Notes.



This symbol indicates a reference source. These sources may be books, websites or the contact details for organisations. Additional references are in the section **Further Assistance**.



Please take note of safety tip suggestions scattered throughout the CowTime Guidelines. These tips are not designed to be a complete list of hazards for auditing purposes.



This symbol is used to indicate summary points relating to each chapter.



CowTime Cost Cutters are quick and cheap changes that can improve labour productivity. They appear at the end of each chapter.



Case study farm minitored by CowTime.



*Information displayed in this way is a key message.*

*Text like this is a point of general interest.*

A number of key terms are contained in the glossary in the **Further Assistance** section.

# THE COWTIME PROJECT

CowTime is a national Australian dairy industry project aimed at 'making milking easier'. It encompasses milk harvesting research and extension from when the cows leave the paddock for milking right through to the cleaning up.

CowTime examines each step of the milking process to ensure the cows, people and facilities are working well together. In many cases a simple change in milk harvesting practices can make a big difference to milking productivity and lifestyle.

Making milking easier is all about getting the best from your cows, people and facilities.

The goals of the CowTime project reflect the project's main ambitions and focus on three key areas:

- increasing labour productivity;
- making milking easier; and
- building awareness of good stock handling.



Chapter 1 – The milk harvesting system, Chapter 7 – Learning from others.

A brief overview of how these goals relate to current best practice follows.

## Goal 1 – Increase labour productivity

*To increase the labour productivity of milk harvesting by 20% by June 2006.*

- In terms of labour productivity, it is important to have an idea of what it is possible to achieve with a really efficient milk harvesting system.

### What's possible?

What is it possible to achieve in each of the processes of milk harvesting? What are the top farms achieving from the paddock gate to cleaning up after milking?

*A surprising number of farmers do not think it is possible for a single milker to milk more than 100 cows per hour while maintaining excellent milk quality and working at a sustainable rate.*

### Paddock to yard

Getting the cows to and from the dairy can take longer than actually milking, particularly on large grazing farms. The aim is to minimise the labour input while presenting the cows in a calm and clean condition, well prepared for milking.

Getting the cows to the dairy without sending someone to fetch them is fairly uncommon at present. It may be ideal, but it is difficult to achieve when moving whole herds.

- In theory, cows will travel to and from the dairy unaided, usually encouraged by the prospect of getting feed or water, or a fresh grazing strip.
- The existence of automatic milking installations ('robotic milkers') in pasture-based systems suggests that the theoretical labour time required to get cows to and from the dairy is minimal.
- Many conventional farms use the natural behaviours of the cows and good laneway design to minimise their labour input at this stage.

### Top labour productivity – Paddock to yard

Cows' natural walking speed is between 2 km and 3 km per hour.

- About 25% of farmers surveyed (Johnston and Klindworth 2000) reported that they move their herds to the dairy at 2-3 km/hour.
- Probably of greater importance is the need to plan dairy farm layout so that the dairy is centrally located, to minimise walking distance.
- Dairy location will be critical for automatic milking installations.

### Dairy entry

There are substantial benefits to be gained from systems that encourage cows to enter the shed unaided.

- Animal welfare studies and practical experience confirm that cows will enter the dairy for milking willingly if they are comfortable with the experience of milking.
- Automatic milking installations rely on this fact, with many cows choosing to be milked more than twice per day when they have access to 'robots'.

### Top labour productivity – Dairy entry

In top-performing dairies, owners often stress that they never need to encourage cows onto the platform.

- These farmers use phrases like, "I never leave the pit directly to get a cow in".
- Remember "the more you chase the cows, the more you need to chase them".

### In the dairy

It is now possible to automate all the routine tasks involved in milking a cow.

- Cluster attachment is the most difficult to automate, but experienced milkers can attach a cluster in under 10 seconds.
- In conventional dairies, if cluster attachment is the only task left that is not automated, theoretical maximum throughputs in the dairy should range from 360 to 450 cows per operator per hour (assuming such activity can be maintained).

- Productivity in terms of litres per operator per hour could approach 9000 litres per operator per hour (if the milking machine is designed to handle it!).

### Top labour productivity – In the dairy

The in-dairy productivity of some of the top farms has been confirmed by monitors installed in the dairy to record performance over a few days. No doubt there are some farms doing even better than the examples below.

- Milk harvested as high as 2554 litres (245 cows) per operator per hour have been recorded in single-operator rotary dairies.
- Double up herringbones peaked at 1900 litres (150 cows) per operator per hour.
- Swingovers peaked at 1800 litres (130 cows) per operator per hour.

### Cleaning up

The aim is to reduce the labour time spent cleaning both the milking machine and yards to a minimum, while maintaining excellent quality standards.

- Automated machine cleaning systems can reduce the labour time used in machine cleaning to the time it takes to attach and externally clean the clusters (approximately 20 seconds per cluster).
- Automatic milking installations clean themselves with minimal labour input.
- Platform cleaning is easily automated on rotary platforms.
- Yard cleaning can be reduced to less than 30 seconds with flood washing.

### Top labour productivity – Cleaning up

Ten minutes of labour time is suggested as an achievable target for both machine and yard cleaning, although many top farmers do better.

- The most labour-efficient farmers spend less than 3 minutes on each of the machine and yard.



Industry performance graphs, p132.

## Goal 2 – Make milking easier, safer, more pleasant

*To make milking an easier, safer, more pleasant or more attractive occupation.*

Many good ideas to make milking easier, safer and more pleasant are hidden away on individual farms. Unlike many other aspects of dairy farming, information about milk harvesting practice has been slow to percolate through the industry. This is primarily because all dairy farmers milk at the same time, so they do not see each other in action.

Some farmers actually enjoy milking. For others, well, enjoyment may not be the right word, but at least they get the task done with minimal stress and in a reasonable time!

- Making milking easier, safer, more pleasant or a more attractive occupation is about getting the best from your cows, people and facilities through good organisation, good skills, appropriate facilities and serviceable equipment.
- What is 'easier' for one farmer may not be for another. It depends on the values of the individual.
- There is no such thing as the 'right' routine or the 'best' set up.

### What's possible?

The case study farmers contained in the CowTime Guidelines are leaders in the field of milk harvesting, with excellent productivity figures. They show the range of possibilities available to achieve easy, safe and more pleasant milk harvesting.



Case study farms, p138.

Most have implemented simple strategies. Not all have chosen the same path, but some common themes keep appearing:



Feature	Case study number
Good design and cow-flow	Double up – 3, 5, 6 Swingover – 1, 2, 5 Rotary – 3
Good stockhandling	Double up – 2, 3, 4, 5 Swingover – 1, 2, 3, 4, 5 Rotary – 1
Well-organised routine	Rotary – 1, 2, 3
Fully utilised labour, i.e. high clusters/operator	Double up – 1, 4 Swingover – 3, 4
Adoption of technology and automation	Double up – 2 Rotary – 2, 3

It is helpful to know that there are various ways to achieve the same end result. Most of these leading farmers have improved their milk harvesting system so that it is manageable within their farm operation. They have a working environment that is comfortable for themselves and their cows, it is well organised and safe to work in, and milking time is not stressful. This makes finding extra labour or a relief milker much easier.

These case study farmers, and many more around Australia, are proof that it is possible to make milking easier, safer, more pleasant and a more attractive occupation.

## Goal 3 – Good stockhandling

*To build awareness of the benefits of good stockhandling during milk harvesting.*

It was interesting to see that a prime reason that many of the case study farmers cited for their excellent performance was “good stockhandling”.

- Good stockhandling results in calm cows being presented for milking.
- Evidence is mounting to suggest that milk yields rise on farms implementing improved cow-handling skills. This is an added benefit, as less-fearful animals are easier and safer to handle.
- What is especially important to note is that many of the common human behaviours used on a day-to-day basis can induce powerful fear responses in cows.

### What’s possible?

Good stockhandling underpins a productive milk harvesting system. Many farmers never have to enter the cow yard while milking. Many do not need to use a backing gate.

- Cows that are well ‘let-down’ prior to clusters being attached have substantially shorter milking times. Minor changes here can save many minutes over a herd’s milking time.
- Calm cows are safer to handle and save time in the shed. Calm cows kick off cups less and don’t leave as much mess.
- Recent scientific evidence is beginning to back up the common belief that stockhandling is important for the productivity of dairy cows, as well as for their welfare.
- Studies on commercial dairy farms in Australia have recently found that improved stockmanship leads to increases in cow production of around 3%.

The case study farmers have seen that it is worth the effort to implement steps to improve stockhandling. It is a key factor in making milking easier.



Case study farms, p138.

# COWTIME GUIDELINES

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The CowTime Guidelines are a technical reference for Australian milk harvesting practice. They include information about all milk harvesting processes – from getting the cows from the paddock for milking, right through until after the clean up. They also examine many of the underlying principles that are inherent in an efficient milk harvesting system.

Although the guidelines are a stand-alone document, they are primarily intended to give technical information to farmers involved in CowTime activities in the various dairy regions of Australia.

- The CowTime Guidelines are designed to provide technical support to farmers who are planning a change to their milk harvesting system. They explain the principles behind good milk harvesting practice.
- They should enable the farmer to ask the 'right questions' of their milk harvesting advisers and suppliers.
- They will help make sure that any changes to the milk harvesting system are well thought out and will achieve the intended result.

The CowTime Guidelines are intended to be a reference tool.

- They are not intended to be a shed builder's guide.
- They do not compare different brands of equipment, although the attributes of various components are described.

## Other CowTime activities

The financial, farm management and lifestyle aspects of milk harvesting are central considerations in the design and structure of all CowTime activities and products. The CowTime project is much more than these guidelines and is designed to support farmers who are planning a change to their milk harvesting system. The main farmer-based activities are:



CowTime 'Milking Monitor' – a remote (fax and web-based) milk harvesting assessment service based on your own farm data.



CowTime Clinic – a short 2-hour 'check-up' workshop to assess your milk harvesting performance and scope for improvement.



CowTime Course – an intensive, 3-day group training course where farmers develop their own plan for improving their milking processes. The course provides the framework to investigate the various options for change available. The CowTime Guidelines are primarily intended to give further technical information to farmers undertaking the course and are used to provide technical depth to underpin the sound decision making.



CowTime 'On-farm' Advisor – for personalised advice on a fee-for-service basis.

## Website

Milk harvesting is a rapidly changing field and over time some of this information will be updated.

Check out the CowTime website for the latest version of the guidelines at [www.cowtime.com.au](http://www.cowtime.com.au)



CowTime Quick Notes are also available on the web on various milk harvesting topics for farmers and advisors.

