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Department of Primary Industries

CowTime Tracking Survey 2009

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Executive Summary

Executive Summary

Background and methodology

The CowTime Tracking Survey 2009 aims to provide information on milk harvesting equipment currently used on dairy farms and to explore practices implemented in relation to milk harvesting and animal handling. The degree of awareness and participation in online and personally delivered programs is explored in the survey, along with the impact of participation.

The survey consists of 300 Computer Assisted Telephone Interviews (CATI) with a random sample of dairy farmers operating in a double up dairy (100 interviews), swing over dairy (100 interviews) or rotary dairy (100 interviews). Survey respondents were selected randomly from a list of levy payers provided by Dairy Australia and interviewed from a central, supervised call centre in a Melbourne suburb. Survey results are compared with those reported on in 2004[(1).]

Additional information in this report is sourced from in-depth interviews conducted with Shed Shake up day participants over the past four years.

Key survey findings

- Awareness of the CowTime program has grown since 2004 to 92% of respondents. Promotion of the program through print media and milk companies has proven successful.
- Seventeen percent (17%) of respondents have had involvement with at least one aspect of CowTime. One day clinics and Shed Shake up days have been attended by 17% of all respondents, while 8% have used the Milking Monitor or some other aspect of CowTime's website.
- Involvement with CowTime has resulted in changes to milk harvesting systems of at least half those attending. CATI results suggest 55% have made an alteration to their system as a result of attending a course, clinic or Shed Shake up day, but in-depth interviews conducted with Shed Shake up day participants shortly after the session indicate the proportion is more likely to be 68%. There is also a proportion of CowTime participants (16%) who anticipate changing some aspect of their milk harvesting system in the future due to information presented.
- Currently 36% of respondents have no complaints about their milk harvesting system, but others are not completely satisfied.
- Less than half the respondents (42%) have upgraded their milk harvesting system in the past five years. Changes made by this group have typically included updating equipment or extending the dairy. Despite this, 33% of all respondents believe their dairy's performance is limited – mainly by the number of clusters available (16%) or a shortage of labour (13%). Currently, the 'average' dairy farm milks 9.4 cows per cluster and has 1.7 people working in the dairy at any given milking.
- New dairies have been built in the past 15 years by 13% of respondents. Among others, 21% believe their dairy would benefit from a substantial upgrade and 30% believe a partial upgrade is required. Overall, 17% of respondents would like to build a new dairy.
- Of note, some respondents who have recently built a new dairy say they are not satisfied with their milk harvesting system and clearly have made some poor decisions.
- Forty percent (40%) of dairies now have automatic cluster removers (ACRs) – a significantly higher proportion than 2004 (28%). Use of ACRs is likely to increase further, with 15% of respondents saying this is the first equipment they would install if they were to improve their milk harvesting system.
- There has also been significant growth in the use of electronic identification (EID) over the past five years. It is now used in 19% of dairies compared to 13% in 2004. Most use EID for computer assisted feeding, but 12% also use if for auto drafting and a further 9% say that in the event of upgrading their system auto drafting would be the first thing they installed.
- A significantly higher proportion of dairies are fitted with a plant washing system with automatic chemical dosing compared to 2004 (34% compared to 21%) and the use of automatic plant wash systems has also increased substantially (from 17% to 30%).
- While more than half respondent yards are still cleaned using only a hose (55%), there has been an increased in the proportion using hydrant was systems (up 9 points to 13%).
- Exfoliation gloves are now used on 26% of farms (was 20% in 2004), although an arguably high proportion (40%) knows about these gloves but chooses not to use them.

(1) CowTime External Evaluation 2004 *Down To Earth Research*

- Cow handling methods appear to have improved slightly compared to five years ago. Currently, although 76% of respondents say milkers leave the pit or milking area to push cows onto the platform, the proportion doing this more than three times a milking has fallen from 34% to 25%. There is also a slight improvement in the proportion of respondents with herringbone dairies saying they rarely wait for cows to milk out (from 30% to 38%). Similarly the average number of cows to go round twice on a rotary dairy platform has fallen from 35 cows to 30.
- Injuries to milkers remain arguably high, occurring on 19% of farms over the past 12 months. While many injuries have not resulted in lost labour time, there are a number of milkers who have missed more than 3 milkings due to injuries incurred.

Conclusions and recommendations

- Clearly, CowTime has had an impact on the industry and is not only linked to improvements in milk harvesting systems but also to providing an opportunity for dairy farmers to interact and discuss all aspects of dairy farming – an important finding when the industry is faced with a growing number of challenges.

- There is still a proportion of dairy farms experiencing difficulties with their milk harvesting systems – many of whom have not yet attended a Shed Shake up day or benchmarked their performance using the Milking Monitor. It would be beneficial to continue making CowTime information available to dairy farmers either by extending the program or incorporating it into other extension packages.

- Automated systems are becoming increasingly more common, but a large proportion of dairy farmers still use manual systems. In-depth interviews conducted with Shed Shake up day participants over the past four years have highlighted the fact CowTime is seen as an independent – and therefore credible source – of information, particularly on automated systems and this factor should be considered when deciding on the future of CowTime.

- Further evidence that CowTime information continues to be needed by the industry lies in the finding not all dairy farmers building new dairies recently are satisfied with their system.

- Injuries to milking staff continue to occur on dairy farms and clearly information and assistance to reduce this needs to be a focus for the future.

Main report

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1. Survey background and methodology

The main aim of the CowTime Tracking Survey is to provide data on milk harvesting practices, procedures and equipment used on Australian dairy farms and compare data with that collected in 2004.

The Survey also measures awareness of the CowTime project and explores effectiveness of the program in encouraging better practices linked to stock handling, milk harvesting, energy consumption and OH&S factors.

Most of the information collected in this study will be used to update the benchmarking data available to dairy farmers as part of the Milking Monitor. That data is not examined in great detail in this report.

To obtain data for the study, 300 Computer Assisted Telephone Interviews (CATI) were conducted with a random sample of dairy farmers across Australia. Names for the survey were sourced from Dairy Australia's levy payers database.

All interviews were conducted by Market Metrics in accordance with Australian Standard ISO 20252 guidelines. Interviewing commenced on Monday 23 March 2009 and was completed on Tuesday 31 March 2009 using a formal questionnaire (see Appendix).

Interviewers worked from Market Metrics' fully supervised telephone bank in Frankston. Pam Watson from DTER thoroughly briefed the interviewers working on the project prior to fieldwork commencing.

Average interview length was 25 minutes, with good co-operation from dairy farmers participating in the survey. The response rate was a high 68% overall.

To ensure the study included a robust sample of different shed types, interviews were evenly split among dairy farmers with double-up, swing over or rotary dairies, with 100 conducted in each segment. To ensure a representative sample from each State, quotas were set on the number of interviews to achieve in each. Interviewing commenced in States with the smallest number of interviews to achieve, with Victoria the last State interviewed. This was done so that interviews with respondents from farms with specific shed types were being sought in the State with the largest number of dairy farmers.

The final sample includes the following:

state	number of interviews achieved			
	swing over dairies	double up dairies	rotary dairies	total
Victoria	39	62	85	186
New South Wales	26	17	5	48
Queensland	15	11	0	26
South Australia	4	6	4	14
Western Australia	4	3	2	9
Tasmania	12	1	4	7
Total	100	100	100	300

No solid data is currently available on the number of each shed type in Australia, but call analysis data revealed the following proportions for each shed type:

shed type	number called	% of total
Swing over	314	59%
Double up	114	22%
Rotary	100	19%

To provide further insight into aspects of the CowTime program considered most useful, this report also includes some feedback obtained from Shed Shake up participants over the past four years via in-depth interviews conducted by Down To Earth Research.

2. Definitions and report notes

NFI
Readers will notice '(nfi)' typed after some tabulated responses from survey participants. This means 'no further information' and indicates that respondents could only offer a general response to the question asked and despite interviewers probing carefully (without prompting), more specific details were not forthcoming.

Sample bases
Throughout this report, bases used for measuring various aspects vary. Readers should note that bases are identified in all report sections and tabulations.

Statistically significant differences
In this report, only statistically significant differences at the 95% confidence level as well as trends in data are commented on. Proportion tests were used to determine significant differences between segments. If no reference is made of a difference between segments, the reader can safely assume it is not statistically significant.

3. Sample demographics

3.1 Age

age	% of respondents			
	total	double up dairies	swing over dairies	rotary dairies
18-29 years	3%	5%	3%	2%
30-39 years	14%	10%	12%	20%
40-49 years	28%	14%	33%	36%
50-59 years	30%	40%	28%	23%
60-69 years	20%	19%	16%	17%
70+ years	5%	7%	5%	3%

3.2 Production system

production system	% of respondents			
	total	double up dairies	swing over dairies	rotary dairies
Seasonal calving	38%	35%	40%	39%
Split calving	32%	25%	21%	51%
Year round calving	5%	40%	39%	10%

3.3 Peak production month

month	% of respondents			
	total	double up dairies	swing over dairies	rotary dairies
January	2%	1%	2%	2%
February	1%	1%	1%	0%
March	1%	2%	0%	0%
April	1%	0%	0%	2%
May	2%	1%	2%	2%
June	2%	1%	2%	4%
July	3%	2%	4%	2%
August	4%	2%	6%	4%
September	15%	19%	16%	10%
October	35%	35%	30%	41%
November	28%	33%	24%	27%
December	7%	3%	13%	6%

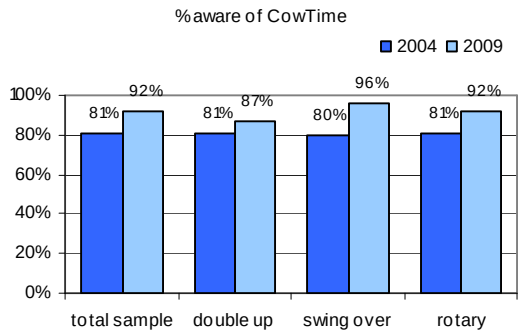
Survey results

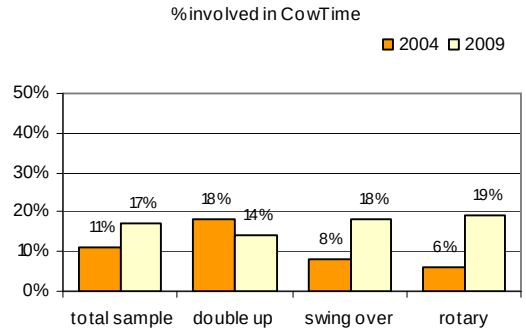
4. CowTime program

4.1 Awareness of and involvement in CowTime (CATI survey)

Question asked:
Q52. Have you heard of the program CowTime?
Q53. How do you know about the CowTime program?

CowTime program	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Aware of program	92%	87%	96%	92%
Source of awareness:				
Involved in program:	17%	14%	18%	19%
Used milking monitor	1%	1%	0%	1%
Attended one day clinic	12%	14%	11%	10%
Attended Shed Shake up day	5%	4%	4%	7%
Attended 3 day course	2%	1%	0%	4%
Used website	7%	6%	5%	9%
Australian Dairy Farmer	46%	43%	48%	47%
General media	27%	27%	27%	26%
Factory newsletter	21%	21%	21%	22%
Farm adviser/machine technician	6%	6%	8%	4%
Radio	6%	6%	3%	8%
Other farmers	5%	10%	2%	4%
Direct contact from CowTime	4%	2%	5%	6%
Industry bodies/DPI/RDP	4%	3%	6%	3%
Target 10	3%	3%	5%	2%
Farmer groups/conferences	3%	5%	4%	1%
Family member	1%	1%	2%	1%
Field days	1%	2%	0%	1%
Other	1%	1%	0%	1%





Key findings

- Awareness of CowTime has increased a significant 11 points since 2004, from 81% to 92% of all respondents.
- Respondents were made aware of CowTime by an average of 2 means. Awareness was mainly created by Australian Dairy Farmer (46% mentioning), other general media (27%) and factory newsletters (21%).
- Seventeen percent (17%) of respondents have been involved in CowTime either through attending a workshop or Shed Shake up day or using the website and/or milking monitor. This proportion is also significantly higher than in 2004 (11%).
- Of note, all 22 respondents not satisfied with their milk harvesting system have heard of CowTime, but only 1 has attended a one day clinic and 1 other has used the Milking Monitor.

Implications

Exposure through print media and factory newsletters in particular has resulted in widespread awareness of CowTime and now almost one in five dairy farms have had at least one person involved in the program.

4.2 Drivers to participate in Shed Shake up day (depth interviews)

Question asked:
Q. What made you decide to go along to the Shed Shake up day?

drivers to attend shed shake up day	% depth interview participants mentioning
Pits 'n' People 2005:	
To keep up to date	40%
To find solutions to difficulties being experienced	35%
Reputation of Shed Shake up days	25%
To benchmark against industry standard	2%
Watts 'n' Your Dairy 2006:	
To find out ways to reduce power bill	36%
To learn new things (general)	34%
Reputation of Shed Shake up days	14%
Need new system	8%
To benchmark against industry standard	8%
Shorter Milking Secrets 2007:	
To learn how to reduce milking time	58%
Reputation of Shed Shake up days	32%
To access information from professionals	16%
To keep up to date	8%
New to industry	6%
Recommended by other farmers	6%
Go With The Flow 2008:	
To learn about stock handling	27%
Reputation of Shed Shake up days	27%
Advertisements	23%
To learn about cow flow	20%
To get ideas which are inexpensive to implement	10%
Building/renovating the dairy	10%

Key findings

- Drivers to attend Shed Shake up days held over the past 4 years have typically included interest in the subject presented (often due to difficulties being experienced), reputation of these sessions and benchmarking against the industry.
- Several attendees also anticipated picking up tips to make their job easier, with comments similar to the following:

  "I figure that if you are milking 14 times a week, then finding out anything that can make it quicker has got to be worthwhile!" Shorter Milking Secrets 2007

- The promotion of Shed Shake up days also stimulated participation:

  "I was given a sheet with a case study showing how this couple had got better at handling their cows by going along to a Shed Shake-up day and I thought I might be able to improve my stock handling skills." Go With the Flow 2008

Implications

Clearly the topics covered by CowTime have been areas where dairy farmers are either experiencing difficulties or are keen to be updated. It is also clear CowTime has a good reputation in the industry and this is also stimulating interest in attending sessions.

4.3 Impressions of Shed Shake up day (depth interviews)

Questions asked:

Q. What were your impressions of the day? Was there anything you found particularly interesting or useful? Was it worth your while to attend?

main point of interest	% depth interview participants mentioning
Pits 'n' People 2005:	
Learning about aspects of OH&S	44%
Having the opportunity to discuss topic with other farmers	42%
Visiting another dairy	35%
Learning about cow behaviour/cow handling	25%
Learning how to improve working conditions	10%
Hearing confirmation of current practices	
Watts 'n' Your Dairy 2006:	
Learning about hot water systems available	60%
Learning about cooling systems	32%
Learning about recycling water	26%
Learning about heat recovery systems	24%
Learning washing up techniques	12%
Shorter Milking Secrets 2007:	
The MMOT concept	78%
Having the opportunity to discuss topic with other farmers	42%
Timing aspects of milking	26%
Learning about wash down techniques	24%
Visiting another dairy	24%
Being instilled with confidence to try different techniques	22%
Hearing research results	22%
Learning about cow behaviour/cow handling	16%
Learning how to be more efficient	16%
Hearing confirmation of current practices	14%
Go With The Flow 2008:	
Learning about cow behaviour/cow handling	63%
Visiting another dairy	30%
Learning how to improve cow flow	23%
Having the opportunity to discuss topic with other farmers	23%
Presenter/structure of the day	13%
Learning about cleaning up techniques	3%

Key findings

- Almost all the people interviewed said it was worth their while to attend a Shed Shake up day due to learning something useful.
- In the Pits 'n' People sessions, respondents valued learning about aspects of OH&S, cow behaviour and how to improve their working conditions.
- Being provided with information on the most efficient equipment, water heating and cooling methods had the most impact on Watts 'n' Your Dairy attendees.
- The Maximum Milk Out Time concept was deemed interesting by the vast majority of Shorter Milking Secrets attendees.
- Learning about cow behaviour and handling was mentioned by 63% of respondents as an aspect of Go With The Flow they particularly enjoyed.
- Several Shed Shake up participants also mentioned the value of visiting another dairy as well as having the opportunity to interact with other dairy farmers:

  "I liked being able to visit another dairy. We usually all milk at the same time, so you don't get the chance to see how other people do things. So it was good to actually stand in someone else's dairy and hear about the difficulties they were having and listening to other people explaining how they solved similar problems." Pits 'n' People 2005

"I also think that when it has been a really tough year like it has, it's really important to have days like this to give people an opportunity to get off the farm and talk with others, especially if they're feeling really down. It makes you feel more positive about things."

Shorter Milking Secrets 2007

Implications

Shed Shake up days are valued for the information provided and the program's structure. Of particular interest has been information provided on cow behaviour and handling, the Maximum Milk Out Time concept, hot water systems available and OH&S aspects.

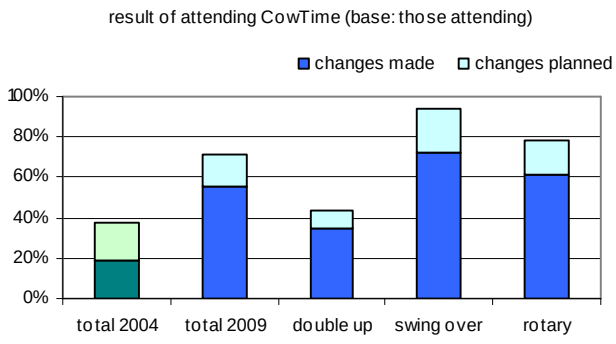
5. CowTime impact on dairy farmers

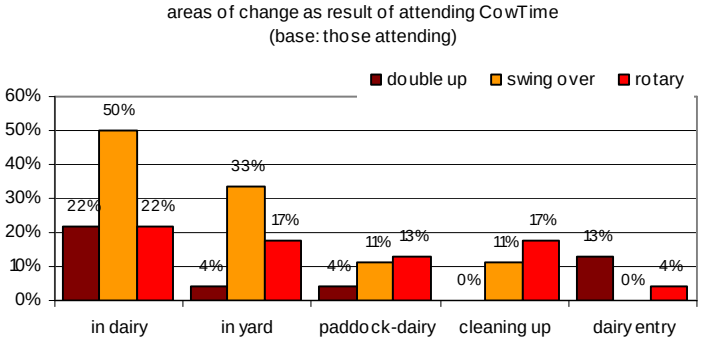
5.1 Impact of CowTime program (CATI survey)

Question asked:
Q54. Have you implemented any changes as a result of CowTime information of suggestions?
Q55. Did you make any changes in the following areas as a result of CowTime information or suggestions?
Q56. What changes were made in …?
Q57. Which of the following areas are you planning to make changes in as a result of CowTime information or suggestions?
Q58. What changes are you planning to make?

implemented change	% of respondents involved in CowTime			
	total (n = 64)	double up dairies* (n = 23)	swing over dairies* (n = 18)	rotary dairies* (n = 23)
Made changes	55%	35%	72%	61%
Plan to make changes	16%	9%	22%	17%
Net: made or plan changes	70%	43%	94%	78%
Changes made:				
In the dairy	30%	22%	50%	22%
In the yard	17%	4%	33%	17%
Paddock to dairy	9%	4%	11%	13%
Cleaning up	9%	0%	11%	17%
Dairy entry	6%	13%	0%	4%
Changes planned:				
In the dairy	8%	9%	22%	17%
Cleaning up	5%	4%	1%	0%
Dairy entry	5%	4%	1%	0%
In the yard	3%	0%	1%	4%
Paddock to dairy	3%	0%	1%	4%

**Caution: small sub sample*





Key findings

- Fifty-five percent (55%) of respondents involved in some aspect of CowTime have made changes to their milk harvesting system as a result and a further 16% plan to in the future. In comparison, in 2004 19% of respondents attending a CowTime session or using the website made changes and another 19% had changes planned.
- Overall, 30% of respondents involved in CowTime made changes in the dairy, namely:
  - Not milking out slow milkers (3 respondents)
  - Improved cow handling (1)
  - Improved lighting (1)
  - Installed stall gates (1)
  - Installed rubber mats in dairy (1)
  - Improved the exit (1)
  - Swapped from using hot water to cold (1)
  - Less noise (1)
  - Installed thermometers (1)

- Changes to the yard were made by 17%, namely:
  - Installing non slip surfaces (3 respondents)
  - Better lighting (2)
  - Installed backing gate (1)
  - Improved backing gate (1)
  - Removed backing gate (1)
  - Built single entry lane into dairy (1)
  - Let cows come into dairy by themselves (1)
- Paddock to the dairy changes were made by 9%, namely:
  - Allow cows to walk at own pace (2 respondents)
  - Improved cow flow (nfi) (2)
  - Less noise (1)
  - Improved laneways (1)
  - Improved bottleneck areas (1)
- Nine percent (9%) made alterations to cleaning up methods, namely:
  - Installed automatic cleaning system (1 respondent)
  - Increased water flow (1)
  - Use exfoliation gloves (1)
  - Put velcro around piping as an abrasive (1)
  - Hosing less due to cows manuring less (1)
- Four respondents made changes to the dairy entry as follows:
  - Allow cows to cow in on their own (1 respondent)
  - Improved lighting at entry (1)
  - Improved laneway to entry (1)
  - Changed gates to improve cow flow (1)
- Nine (9) respondents plan to make changes as a result of their involvement with CowTime, namely:
  - Improving laneways (2 respondents)
  - Improving the yard (2)
  - Building an entrance race (1)
  - Installing automatic cup removers (1)
  - Installing automatic identification (2)
  - Recycling hot water (1)
  - Installing automatic drafting system (1)
  - Recycling yard wash water (1)
  - Installing flood wash system (1)
- Of the two respondents not satisfied with their milk harvesting system who have been involved with some aspect of CowTime, one subsequently made changes to their dairy entry while the other has plans to improve this area.

Implications

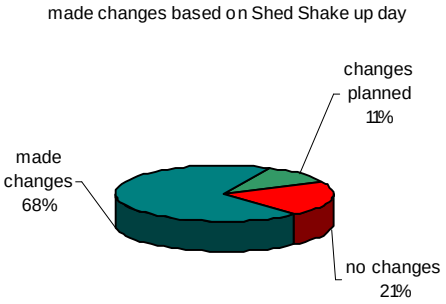
CATI survey results suggest CowTime has encouraged most dairy farmers who have participated in the program to make changes. The actual proportion of attendees making changes may actually be higher than the CATI survey suggests however. In-depth interviews conducted with Shed Shake up participants each year since 2004 revealed that with more careful probing than is possible in a CATI survey, respondents often recalled small changes such as using exfoliation gloves for cleaning or increasing wash down hose diameters. The next section of this report highlights in-depth interview results.

5.2 Impact of attending Shed Shake up day (in depth interviews)

Questions asked:

Q. Have you made any alterations to your milk harvesting system based on anything covered on the day?

implemented change	% depth interview participants mentioning
Made changes	68%
Plan to make changes	11%
Net: made or plan changes	79%



Key findings

- Approximately two thirds of the Shed Shake up day in-depth interview participants (68%) said they made changes to their milk harvesting systems as a result of information presented on the day and a further 11% intended to make changes at some stage.
- Changes were linked to the following:
  - Pits 'n' People:
    - Easing stressful situations
    - Work routine times
    - Safety in the dairy
    - Working conditions
  - Watts 'n' Your Dairy:
    - Wash routines
    - Minimising heat loss
    - Efficient machinery use
    - Updating equipment
    - Machinery maintenance
  - Shorter Milking Secrets:
    - Implementing Maximum Milk Out Time
    - Improving cow flow
    - Wash routines
    - Increasing automation
    - Putting cups on slow cows first
    - Improved cow comfort
  - Go With The Flow:
    - Giving cows time to come into the dairy without being pushed
    - Ensuring dairy is calm/quiet environment
    - Not using poly pipe
    - Installing non slip surfaces
    - Improving yard
    - Upgrading equipment

Implications

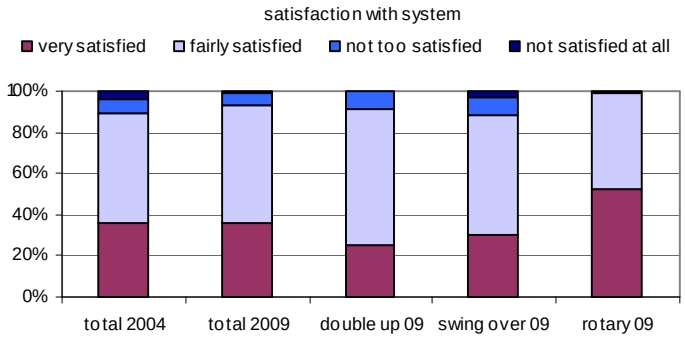
Shed Shake up days have successfully encouraged change among the majority of those attending.

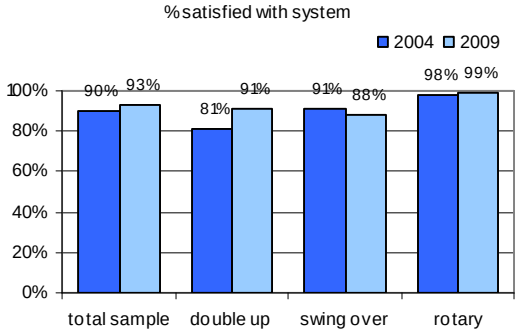
6. Attitudes towards milk harvesting

6.1 Satisfaction with milk harvesting system (CATI survey)

Question asked:
Q45. Overall, how satisfied are you with your milk harvesting system? Would you say you are … read out

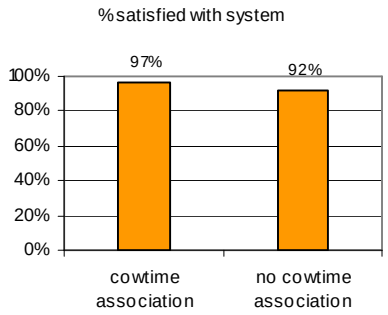
satisfaction level	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Very satisfied	36%	25%	30%	52%
Fairly satisfied	57%	66%	58%	47%
Not too satisfied	6%	9%	9%	1%
Not satisfied at all	1%	0%	3%	0%
Net: satisfied	93%	91%	88%	99%
Net: not satisfied	7%	9%	12%	1%





Key findings

- The vast majority of respondents (93%) are fairly to very satisfied with their milk harvesting system. This proportion is slightly higher than 2004 when 90% were satisfied. A relatively low 36% however are *very satisfied*.
- Similar to 2004, respondents with rotary dairies are significantly more likely than their counterparts with double up or swing over dairies to say they are *very satisfied* with their system (52% compared to 25% and 30% respectively).
- While most respondents with swing over dairies are satisfied with their system, it is notable they are the group most likely to be **not** satisfied (12%).
- Among respondents who have been involved with the CowTime program, 97% are satisfied with their system – slightly higher than those who have had no involvement (92%).



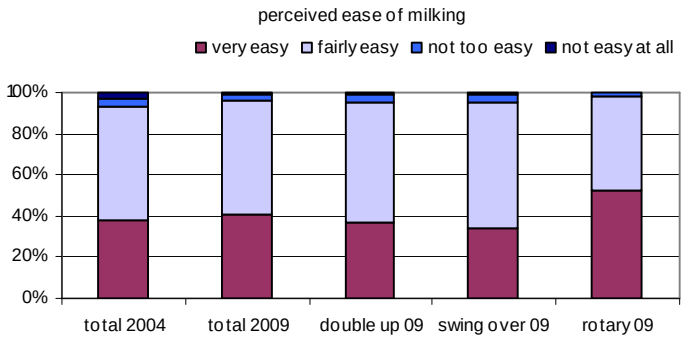
Implications

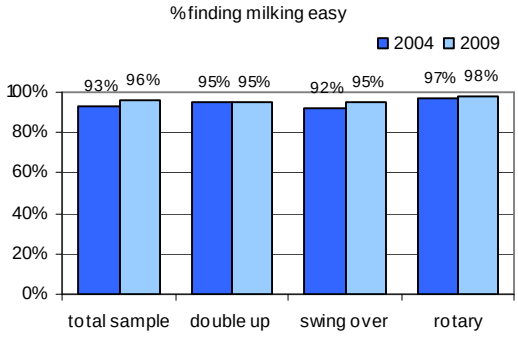
Most dairy farmers are fairly satisfied with their milk harvesting system, but there is a proportion who are clearly dissatisfied. Other sections of this report reveal these farmers are less likely to have EID systems and/or automatic cup removers. They typically put through more cows per cluster than others. They are less likely to use exfoliation gloves or have sophisticated yard wash systems. Their cow handling skills also need improving, with most leaving the pit or milking area at least twice as well as waiting for cows to milk out almost every side.

6.2 Perceived ease of milking (CATI survey)

Question asked:
Q63. How easy do you personally find milking? Would you say it is … read out

level of ease	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Very easy	41%	37%	34%	52%
Fairly easy	55%	58%	61%	46%
Not too easy	3%	4%	4%	2%
Not easy at all	1%	1%	1%	0%
Net: easy	96%	95%	95%	98%
Net: not easy	4%	5%	5%	2%





Key findings

- Approximately 4 in 10 respondents find milking *very easy* (41%) and a further 55% say milking is *fairly easy*. These findings are similar to 2004 when proportions were 39% and 55% respectively.
- Only 12 respondents do not find milking easy – 5 have a double up dairy, 5 have a swing over and 2 work in a rotary. Eight have not attended a CowTime session while 4 have. Two respondents said they are working in very old sheds which impacts on their ease of milking.
- Fifty-two percent (52%) of respondents with rotary dairies find milking *very easy* – a significantly greater proportion than among respondents with swing over dairies (34%) or double up dairies (37%).
- Of note, 97% of respondents who have not had association with CowTime find milking either *very easy* (43%) or *fairly easy* (54%) – potentially providing insight into why they have not attended.

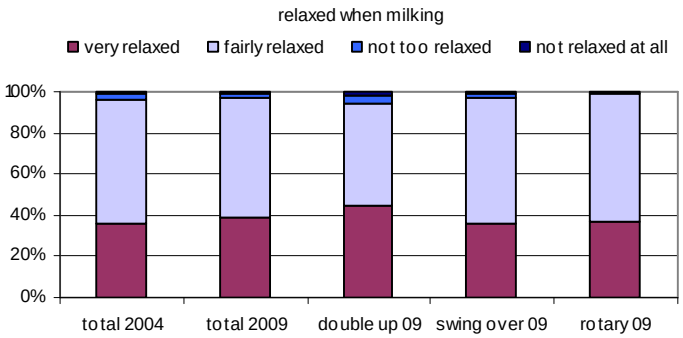
Implications

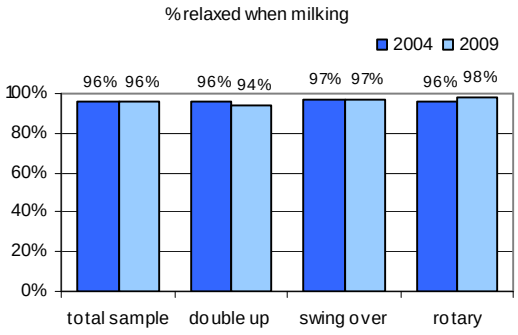
Most dairy farmers continue to find milking fairly easy, but there continues to be room for improvement, with only four in ten believing it to be *very* easy.

6.3 Whether relaxed when milking (CATI survey)

Question asked:
Q64. How relaxed are you normally when you're milking? Would you say you are … read out

relaxed	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Very relaxed	39%	45%	36%	37%
Fairly relaxed	57%	49%	61%	61%
Not too relaxed	2%	4%	2%	0%
Not relaxed at all	1%	2%	1%	1%
Net: relaxed	96%	94%	97%	98%
Net: not relaxed	3%	6%	3%	1%





Key findings

- In line with 2004 results, 96% of respondents say they are relaxed when milking – 39% *very relaxed* and 57% *fairly relaxed*.
- Respondents with double up dairies are slightly more likely than their counterparts with swing over or rotary dairies to say they are *very relaxed*.
- Only 10 respondents are not relaxed when milking and notably 8 of this 10 have not attended a CowTime session.

Implications

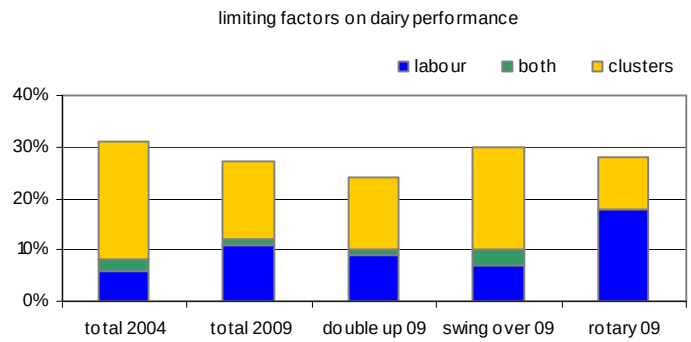
Most dairy farmers are relaxed when milking, but again there is evidence of room for improvement with only four in ten saying they are *very* relaxed.

7. Dairy upgrades

7.1 Perceived limitations of dairy performance (CATI survey)

Question asked:
Q62. Is your dairy performance limited by any of the following?

limitation	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Shortage of labour	11%	9%	7%	18%
Number of clusters	15%	14%	20%	10%
Both shortage of labour and number of clusters	1%	1%	3%	0%
Net: shortage of labour	13%	10%	10%	18%
Net: number of clusters	16%	15%	23%	10%
Shed design	2%	4%	1%	1%
Yard size	1%	2%	0%	0%
Cost of improvements	2%	0%	3%	2%
None of the above	67%	69%	64%	67%



Key findings

- More than one quarter of respondents (27%) believe their dairy performance is limited by a shortage of labour and/or the number of clusters available. A further 6% say they are limited by their shed design, yard size or the cost of improvements, while the remaining 67% believe their dairy performance is not limited by any of these things.
- Compared to 2004, a significantly higher proportion of respondents say they are limited by a shortage of labour (13% compared to 7%) and a significantly lower proportion says the number of clusters is limiting (16% compared to 24%).
- In double up and swing over dairies the number of clusters is the most commonly mentioned limiting factor, while in rotaries it is shortage of labour.
- Among the 22 respondents dissatisfied with their milk harvesting system, 11 say they are limited by the number of clusters and 4 say shortage of labour is a limiter.

Implications

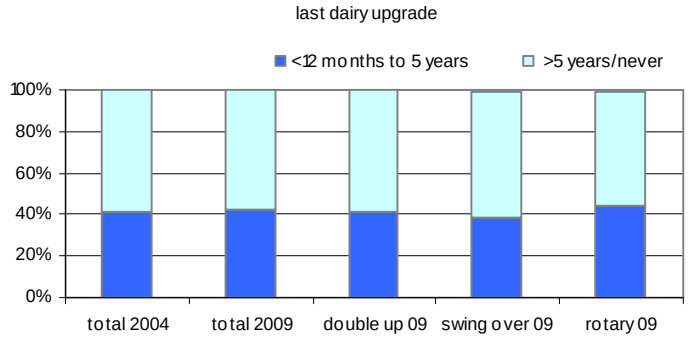
Approximately three in ten dairies are limited by either a shortage of labour or clusters.

7.2 Last upgrade (CATI survey)

Questions asked:
Q46. When was your dairy last upgraded by updating or extending the building or equipment?
Q47. What type of changes were undertaken? *Q48. What impact has this had on your milk harvesting system?*

length of time since last upgrade	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
12 months ago or less	17%	14%	15%	22%
Up to 2 years ago	7%	8%	5%	7%
Up to 3 years ago	8%	8%	6%	9%
Up to 4 years ago	5%	2%	7%	5%
Up to 5 years ago	5%	9%	5%	1%
Between 5 and 10 years ago	27%	31%	24%	25%
Between 10 and 15 years ago	16%	10%	23%	16%
More than 15 years ago	11%	15%	13%	6%
Never been upgraded	4%	3%	1%	8%
Can't recall/don't know	1%	0%	1%	1%
Net: <12 months to 5 years	42%	41%	38%	44%
Net: >5 years/never	58%	59%	61%	55%

type of change undertaken and impact	% of respondents making changes (n = 288)			
	total	double up dairies	swing over dairies	rotary dairies
Updated equipment	41%	42%	44%	35%
Built new dairy	31%	22%	25%	48%
Extended the dairy	26%	34%	36%	8%
Additional equipment	26%	35%	22%	21%
Improved/extended yards	4%	4%	3%	4%
Take less time	67%	73%	66%	62%
Milk more cows per hour	55%	57%	55%	54%
Reduced costs	44%	42%	38%	52%
Easier/safer working conditions	9%	9%	8%	11%
Less stress on cows/increased production	8%	7%	10%	7%
Reduced amount of labour needed	5%	3%	3%	10%
Better milk quality/lower cell counts	3%	3%	3%	4%
Healthier cows (nfi)	1%	0%	2%	2%



Key findings

- Forty-two percent (42%) of respondents have upgraded their dairy in the past 5 years (no change from 2004) and 17% have made an upgrade change over the past 12 months – significantly higher than in 2004 when 11% had made changes to their dairy in the previous year.
- Of note, 31% of respondents making a change built a new dairy – including 3 respondents who are currently not satisfied with their milk harvesting system.
- Taking less time at milking, milking more cows per hour and/or reducing costs are the main outcomes of upgrading the dairy.

Implications

More than half respondent dairies have not been upgraded over the past five years.

7.3 Future upgrades (CATI survey)

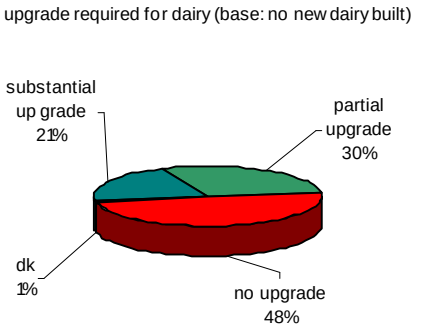
Questions asked:
Q49. Would you say your dairy currently needs an upgrade?
Q50. If you were to improve or upgrade your milk harvesting system, what is the first thing you would do?
Q51. Why would you like to make those changes? Would it be to … read out

whether upgrade needed	% of all respondents not building a new dairy in past 15 years (n = 210)			
	total	double up dairies	swing over dairies	rotary dairies
Yes, substantial upgrade	21%	28%	27%	5%
Yes, partial upgrade	30%	34%	25%	32%
No need for upgrade	47%	35%	47%	63%
Don't know	1%	3%	1%	0%

improvement or upgrade would make	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Build new dairy	17%	28%	18%	5%
Install cup removers	15%	7%	13%	25%
Extend/improve platform/pit	10%	12%	9%	9%
Install auto drafting	9%	4%	9%	15%
Increase number of clusters	8%	6%	14%	3%
Upgrade/install new milking machinery	5%	7%	3%	5%
Extend/alter/improve yard	5%	4%	9%	2%
Install flood wash/better yard wash	3%	2%	4%	4%
Install computerised ID system	3%	5%	2%	3%
Hire more labour	3%	1%	3%	4%
Build rapid exit	3%	3%	5%	0%
New milk vat	2%	3%	2%	2%
Install auto feeders	2%	2%	1%	3%
Install auto was for milking machine	2%	3%	0%	3%
Install stall gates	2%	1%	4%	0%
Improve labour use	49%	41%	48%	57%
Better working environment	45%	47%	49%	38%
Better for cow health	43%	41%	43%	45%
Shorten milking time	42%	46%	54%	27%
Potential to cut costs or increase profits	32%	34%	31%	30%
Milk more cows	21%	24%	25%	15%
Water saving/environmental factors	1%	0%	1%	2%

Key findings

- Just over half the respondents who have not built a new dairy over the past 15 years (52%) believe their dairy needs an upgrade and for 21%, a substantial upgrade is required.
- More than 10% would like to build a new dairy (17%), install cup removers (15%) or make changes to the platform or the pit (10%).
- Improving labour use, the work environment, cow health and length of milking times are the key areas where respondents would like to make changes.



Implications

In line with the finding that more than half respondent dairies have not been upgraded in the past five years, half believe an upgrade is in order.

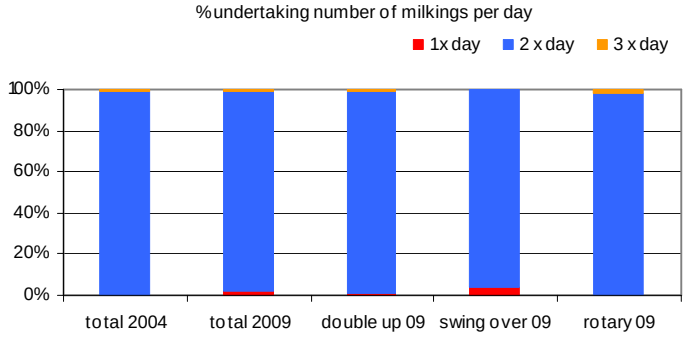
There is substantial desire to improve labour use, improve working environments and shorten milking times by upgrading the dairy.

8. Milk harvesting systems

8.1 Number of daily milkings (CATI survey)

Question asked:
Q7. How many times a day was the herd milked during the peak of the 2008 season?

times a day	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Once per day	2%	1%	4%	0%
Twice per day	97%	98%	96%	98%
Three times per day	1%	1%	0%	2%



Key findings

- As expected, the vast majority of respondents milk their herd twice per day (97%). There is however a small proportion milking once per day (2%) or three times per day (1%).
- Of note, in 2004 no respondents milked once per day but 6 respondents this year have implemented that system.
- All 12 respondents not finding milking easy milk their herd twice per day.

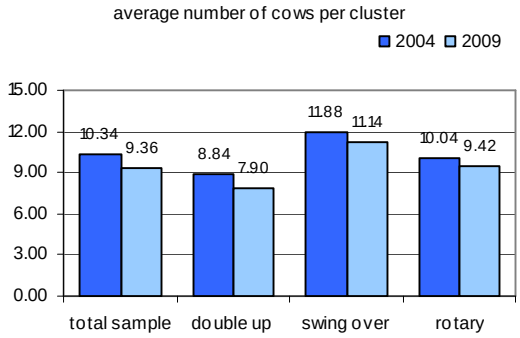
Implications

As expected, the vast majority of dairy farms milk twice per day, but results indicate a slight shift to once a day milking.

8.2 Number of clusters versus number of cows (CATI survey)

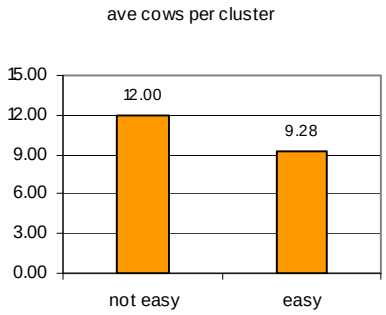
Questions asked:
Q6. During (month of peak milking), what was the maximum number of cows you milked?
Q2. How many clusters are there in your dairy?

production system	% of respondents			
	total	double up dairies	swing over dairies	rotary dairies
Average number of cows milked	264.9	169.8	177.2	447.6
Average number of clusters	28.3	21.5	15.9	47.5
Average cows per cluster	9.4	7.9	11.1	9.4



Key findings

- The average number of cows milked at the peak of the season in respondent herds is 265. There is substantial range however, from an average of 170 cows milked in double up dairies to 448 milked in rotaries.
- On average, 28 sets of clusters are available in dairies, ranging from a low 16 sets in swing over dairies to 22 in double up dairies and 48 in rotaries.
- The 'average' swing over dairy accommodates 11.14 cows per cluster during the peak of the season, rotaries 9.42 and double up dairies 7.90.
- The average number of cows per cluster is slightly lower in respondent herds than in 2004 when it was 10.34. This result is reflected across all dairy types.
- Of note, among the 12 respondents who do not find milking easy, the average number of cows per cluster is 12.00 In comparison, among respondents finding milking easy, the average cows per cluster is 9.28.
- Similarly, respondents not satisfied with their milk harvesting system average 10.96 cows per cluster while those satisfied average 9.28.



Implications

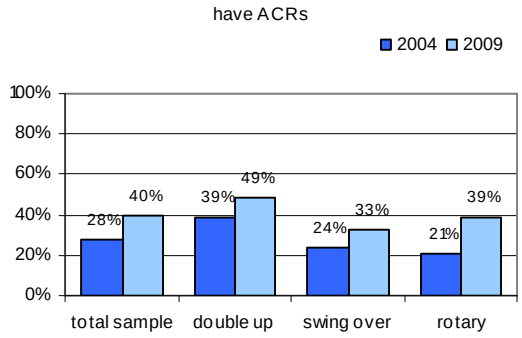
Survey results suggest that although there has been an increase in the average herd size over the past five years, the average number of cows per cluster has fallen slightly. Other sections of this report reveal a number of dairies have been extended and more equipment added, but this result may also be due in part to the equipment profile of those leaving the industry.

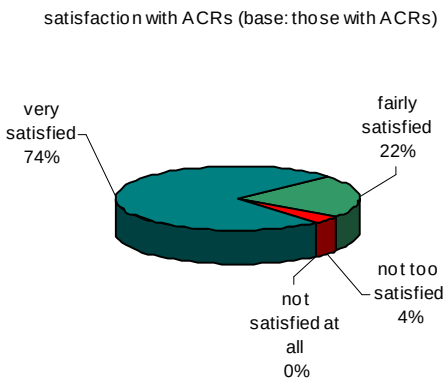
8.3 Automatic cluster removers (CATI survey)

Questions asked:
Q38. Do you use automatic cluster removers or ACRs/automatic take offs?
Q39. How satisfied are you with ACRs? Would you say you are … read out

automatic cluster removers	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Have ACRs	40%	49%	33%	39%

satisfaction with automatic cluster removers	% of respondents with ACRs			
	total	double up dairies	swing over dairies	rotary dairies
Very satisfied	74%	69%	79%	77%
Fairly satisfied	21%	29%	15%	18%
Not too satisfied	4%	2%	6%	5%
Not satisfied at all	0%	0%	0%	0%
Net: satisfied	96%	98%	94%	95%
Net: not satisfied	4%	2%	6%	5%





Key findings

- The proportion of respondent dairies fitted with automatic cluster removers (ACRs) has increased significantly since 2004 – from 28% to 40%.
- Approximately three quarters of respondents (74%) are *very* satisfied with the ACRs installed, while a further 22% are *fairly* satisfied.
- Eight (8) of the 22 respondents not satisfied with their milk harvesting system have automatic cluster removers and 7 are satisfied with them.

Implications

There has been a substantial increase in the use of ACRs since 2004 and satisfaction with this equipment is very high.

8.4 Use of EID and auto drafting (CATI survey)

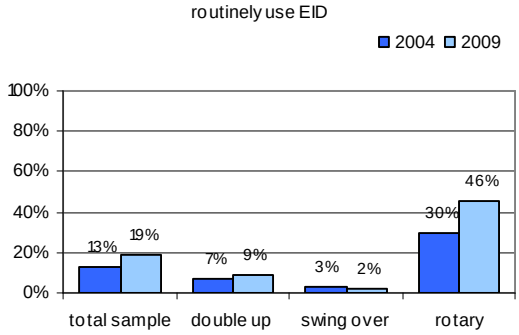
Questions asked:

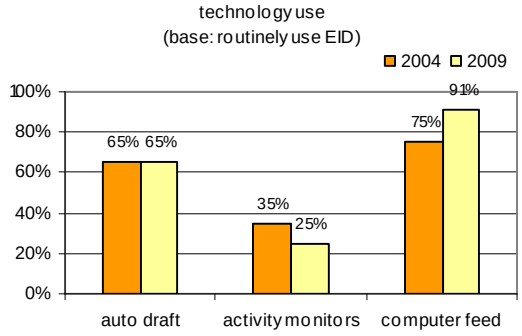
Q33. Do you routinely use Electronic Identification or EID as part of your milking system – and I mean not just for herd testing?
Q34. Do you have computer operated auto drafting?
Q35. How satisfied are you with the auto drafting? Would you say you are … read out
Q36. do you use activity monitors for heat detection?
Q37. Do you have computer assisted feeding?

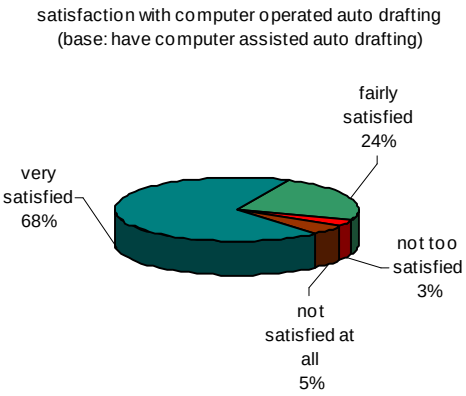
EID use	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Routinely use EID	19%	9%	2%	46%

auto drafting use	% of respondents routinely using EID (n = 57)	
	total	rotary dairies
Have computer operated auto drafting	65%	65%
Use activity monitors for heat detection	25%	26%
Have computer assisted feeding	91%	9%

satisfaction with auto drafting	% of respondents with auto drafting (n = 37)	
	total	rotary dairies
Very satisfied	68%	67%
Fairly satisfied	24%	23%
Not too satisfied	3%	3%
Not satisfied at all	5%	7%
Net: satisfied	92%	90%
Net: not satisfied	8%	10%







Key findings

- The proportion of respondents routinely using EID has risen a significant 6 points since 2004 (from 13% to 19%). This technology is now used in 46% of rotary dairies.
- Similar to 2004, 65% of respondents who routinely use EIDs have computer operated auto drafting and while the vast majority is either *fairly* to *very* satisfied with their system, it is notable that 5% are *not satisfied at all* and a further 3% are *not too satisfied*.
- Only one quarter of respondents who routinely use EIDs also use activity monitors for heat detection.
- The vast majority however (91%) have computer assisted feeding.
- Among the 22 respondents not satisfied with their milk harvesting system, only 1 routinely uses EID. This person does not have automatic drafting nor do they use activity monitors but they do have computer assisted feeding.

Implications

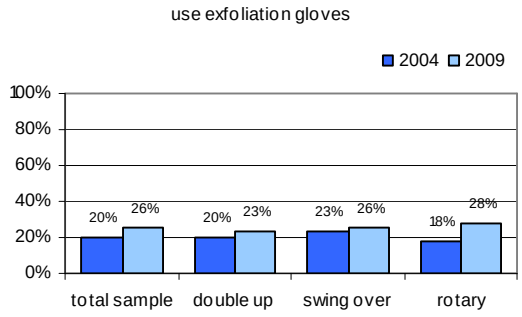
Approximately one in five respondent dairies are fitted with EID systems. Almost all of these dairies have computer feeding systems and most have auto drafting. Satisfaction with the system is widespread, but there is a proportion having difficulties with the system.

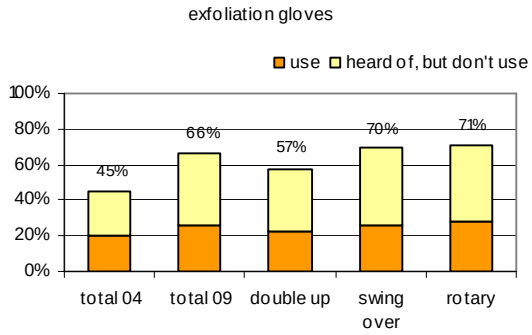
9. Cleaning systems

9.1 Use of exfoliation gloves (CATI survey)

Questions asked:
Q25a. Are exfoliation gloves or similar used to help clean the clusters?
Q25b. Have you heard of exfoliation gloves?

exfoliation gloves	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Use exfoliation gloves	26%	23%	26%	28%
Heard of, but do not use	40%	34%	44%	43%
Not heard of	34%	43%	30%	29%





Key findings

- Compared to 2004, a slightly higher proportion of respondents now use exfoliation gloves (26% compared to 20%).
- Despite this arguably low proportion, 66% of respondents are aware exfoliation gloves can be used, a significant 21 points higher than 2004 (45%).
- Only 4 of the 22 respondents not satisfied with their milk harvesting system use exfoliation gloves.

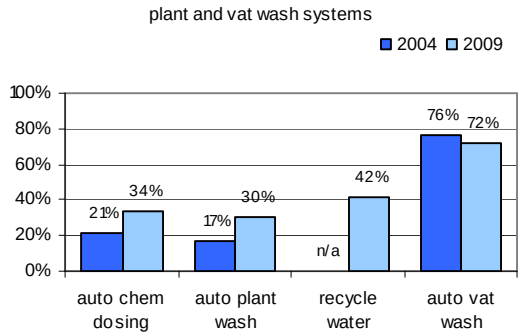
Implications

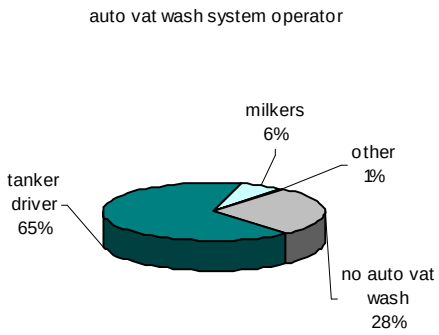
Awareness of exfoliation gloves has increased substantially over the past five years, but there appears to be a lack of appreciation of achievable time savings with their use in cleaning equipment.

9.2 Plant and vat wash systems (CATI survey)

Questions asked:
Q26. Does the plant wash system have automatic chemical dosing so there is no handling of chemicals?
Q27. Do you have an automatic plant wash system where the operator presses a button and the whole process is controlled by machine without any other human intervention?
Q27a. Are you using a water recycling system?
Q28. Do you have an automatic vat washing system?
Q29. Who operates the auto vat washing system? Is it … read out

wash system	% of respondents			
	total	double up dairies	swing over dairies	rotary dairies
Plant wash system has automatic chemical dosing	34%	18%	22%	62%
Have fully automated plant wash system	30%	16%	21%	54%
Using water recycling system	42%	39%	37%	49%
Have automatic vat washing system	72%	61%	65%	91%
Have auto vat washing – operated by tanker driver	65%	54%	51%	90%
Have auto vat washing – operated by milkers	6%	7%	11%	1%
Have auto vat washing – operated by someone else	1%	0%	3%	0%





Key findings

- Over the past five years, there has been significant growth in the proportion of dairy farms with a plant wash system that has automatic chemical dosing (up 13 points to 34%) and/or an automatic plant wash system where the operator presses a button and the whole process is controlled by machine (up 13 points to 30%).
- More than seven in 10 farms have an automatic vat washing system (72%) which is mainly operated by the tanker driver.
- Among the 22 respondents not satisfied with their milk harvesting system, 13 have an automatic vat washing system but only 3 have a plant wash system with automatic chemical dosing.

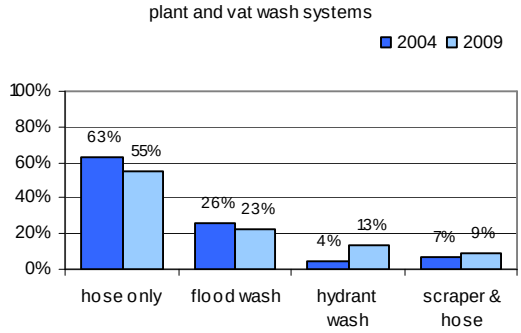
Implications

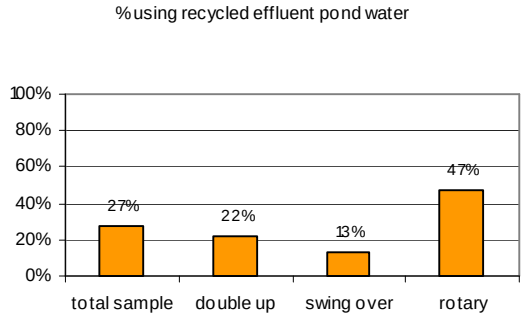
Automatic chemical dosing and plant wash systems appear to be gaining popularity.

9.3 Yard wash systems (CATI survey)

Questions asked:
Q44. What system is used to clean the yard?
Q44a. Are you using recycled effluent pond water?

yard wash system	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Hose only	55%	72%	67%	26%
Flood wash	22%	6%	6%	53%
Hydrant wash	12%	9%	12%	15%
Scraper and hose	9%	11%	12%	3%
Scraper only	1%	1%	2%	0%
Scraper and hydrant wash	1%	1%	0%	1%
Scraper and flood wash	1%	0%	0%	2%
Net: hose	64%	83%	79%	41%
Net: flood wash	23%	6%	6%	55%
Net: hydrant	13%	10%	12%	16%
Use recycled effluent pond water	27%	22%	13%	47%





Key findings

- In the vast majority of double up and swing over dairies, yards are cleaned with a hose (72% and 67% respectively). In rotary dairies however, more than half (55%) are cleaned with a flood wash system).
- Since 2004, the proportion of respondents using hydrant wash systems has increased by a significant 9 points, from 4% to 13%.
- Seventeen (17) of the respondents not satisfied with their milk harvesting system clean the yard with a hose only and 4 use a scraper and a hose. The other has a flood wash system.
- Overall, 27% of respondents use recycled effluent pond water, but the incidence is significantly higher among those with a rotary dairy (47%) compared to those with a swing over (13%) or double up (22%).

Implications

The practice of cleaning yards with a hose only is still widespread in double up and swing over dairies, while most rotaries have a flood wash system installed. The use of hydrant wash systems is still rare, but appears to be on the increase.

Recycled effluent pond water is used on approximately one quarter of farms, but is more likely to be found on those with rotary dairies than on others.

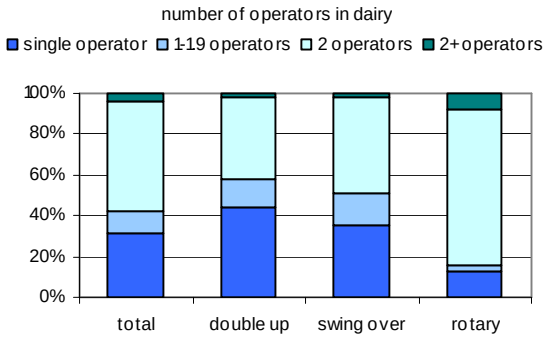
10. Cow handling

10.1 Number of operators normally milking in the dairy (CATI survey)

Questions asked:

Q14. How many operators normally milk in the dairy at a milking? If a person is only present for some of the time, count that person as a fraction of a person.

number of operators	% of respondents			
	total	double up dairies	swing over dairies	rotary dairies
Single operator	31%	44%	35%	13%
1 to 1.9 operators	11%	14%	16%	3%
2 operators	54%	40%	47%	76%
2+ operators	4%	2%	2%	8%
Mean	1.67	1.50	1.59	1.93



Key findings

- Overall, 31% of respondent dairies have a single operator, 54% have 2 operators and 11% have between 1.1 and 1.9.
- The mean value for double up dairies is 1.5 operators, swing over dairies 1.59 and rotaries 1.93.
- Among respondents not satisfied with their milk harvesting system, 8 out of the 22 are sole operators in the dairy, 5 have assistance occasionally, while the remaining 9 have an additional full time person working with them.

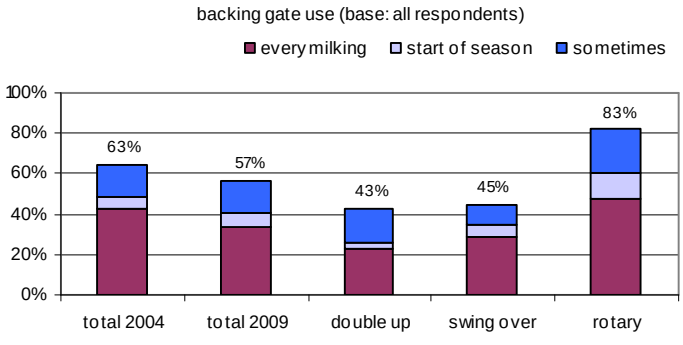
Implications

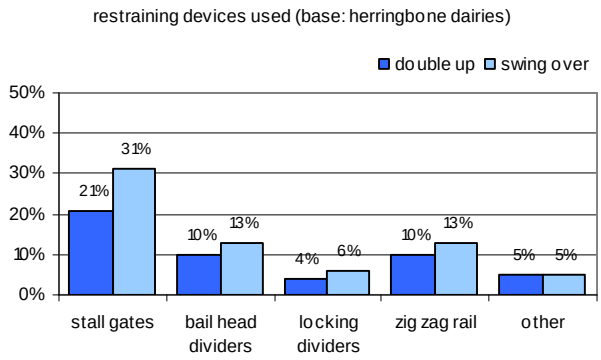
Most dairies are operated by two people, but almost one third run with a single operator only.

10.2 Use of cow confinement equipment (CATI survey)

Questions asked:
Q10. Do you use a backing gate? *Q11. How often do you use a backing gate? Would that be … ?*
Q40. If herringbone dairy: In the dairy, do you have equipment that confines cows to a particular space such as …

dairy confinement equipment used	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Use backing gate	57%	43%	45%	83%
Use at every milking	33%	23%	29%	48%
Use only at start of season	7%	3%	6%	12%
Use sometimes	16%	17%	10%	22%
herringbone restraints	**% of respondents with herringbone dairies (n = 200)**			
Stall gates	22%	21%	31%	n/a
Bail head dividers	12%	10%	13%	
Zig zag rail	12%	10%	13%	
Locking dividers	5%	4%	6%	
Some other restraining device	5%	5%	5%	
None of the above	47%	49%	44%	





Key findings

- Compared to 2004, a slightly lower proportion of respondents use a backing gate (57% compared to 63%).
- Use of backing gates is most common among respondents with rotary dairies (83%).
- Most respondents who use a backing gate do so at every milking.
- Just over half of herringbone dairies (53%) have a device to confine cows in the dairy.
- Stall gates are the main restraining devices used to confine cows in herringbone dairies (31% of swing overs and 21% of double ups).
- Of note, 9 of the 21 respondents with herringbone dairies dissatisfied with their milk harvesting system do not have equipment to confine cows to a particular space.

Implications

Most dairies have some sort of restraining device for cows. The vast majority of rotaries are fitted with backing gates, while double up dairies and swing overs have a variety of systems.

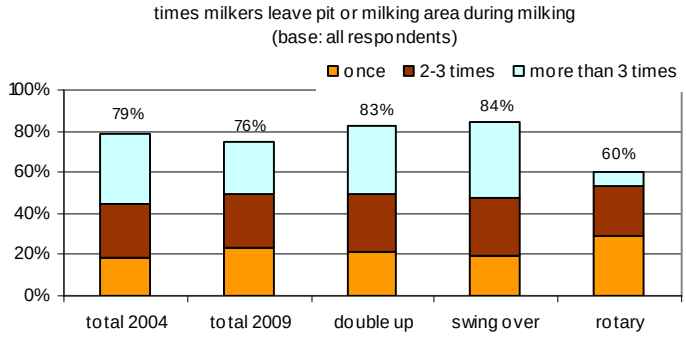
10.3 Incidence of operators physically moving cows (CATI survey)

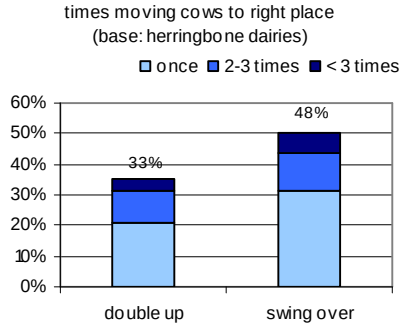
Questions asked:

Q19. During the peak of milking, how often does the milker leave the pit or milking area during milking to push cows onto milking platform?

Q20. If herringbone dairy: Do you need to spend time getting cows to stand in the correct place on the milking platform?

operators physically move cows	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Milkers never leave pit	24%	17%	16%	40%
Milkers leave pit once per milking	23%	21%	19%	29%
Milkers leave pit 2-3 times pr milking	27%	29%	29%	24%
Milkers leave pit more than 3 times per milking	25%	33%	36%	7%
herringbone operators	**% of respondents with herringbone dairies (n = 200)**			
Never spend time getting cows to stand in correct place	60%	67%	52%	n/a
Get cows to stand in correct place once per milking	16%	8%	24%	
Get cows to stand in correct place 2-3 times per milking	14%	17%	10%	
Get cows to stand in correct place more than 3 times per milking	11%	8%	14%	





Key findings

- Approximately three quarters of respondents (76%) say milkers leave the pit or milking area at least once a milking to push cows onto the milking platform. This proportion is only slightly lower than 2004 when the proportion was 79%. There has, however, been a significant fall in the proportion leaving the pit or milking area more than 3 times a milking (from 34% to 25%).
- Respondents with rotary dairies are significantly more likely than their counterparts with double up and swingover dairies to say milkers *never* leave the pit to push cows up.
- In 40% of herringbone dairies, milkers spend time getting cows to stand in the correct place on the milking platform. Sixteen percent (16%) of respondents with herringbone dairies say this occurs only once per milking, but 14% say it occurs 2-3 times and a further 11% say it happens more than 3 times per milking.
- Twenty (20) of the 22 respondents dissatisfied with their milk harvesting system say milkers leave the pit at least twice a milking to push cows onto the platform. Among the 21 with herringbone dairies, 10 say milkers spend time getting cows to stand in the correct place on the platform at least twice per milking.

Implications

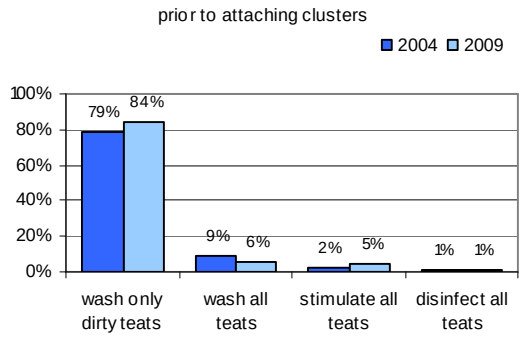
Although there is still a large proportion of farms where milkers leave the pit or milking area to push cows up, survey results reveal this is becoming less frequent.

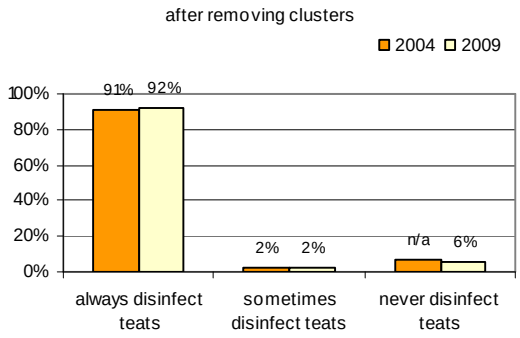
10.4 Cleaning and disinfecting cow teats (CATI survey)

Questions asked:
Q16. Before attaching clusters, do you routinely … read out
Q17. After removing the clusters, do you routinely disinfect your cows' teats?
Q18. How do you disinfect them?

cleaning/disinfecting teats	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Strategically wash only dirty teats before attaching clusters	84%	85%	84%	84%
Wash all teats	6%	7%	7%	3%
Disinfect all teats	1%	0%	2%	1%
Stimulate all teats	5%	4%	8%	2%
None of the above	8%	7%	5%	12%
Always disinfect teats after removing clusters	92%	88%	90%	98%
Sometimes disinfect teats	2%	3%	2%	0%
Never disinfect teats	6%	9%	8%	2%

disinfecting method	% of respondents disinfecting teats (n = 281)			
	total	double up dairies	swing over dairies	rotary dairies
Hand held spray wand	83%	88%	88%	73%
Automatic spray	15%	10%	7%	27%
Dip cup	3%	3%	5%	1%





Key findings

- The vast majority of respondents strategically wash only dirty teats prior to attaching clusters (84%) – this proportion is slightly higher than 2004 (79%). Most also disinfect teats after removing clusters (92%).
- Although the proportion of respondents stimulating all teats remains low in absolute terms (5%), it is significantly higher than in 2004 (2%).
- Disinfecting teats is typically done by hand held spray wand (83% of respondents who disinfect), while 15% have an automatic spray system. The remaining 3% use a dip cup.
- There is little difference in these results between those satisfied with their system and those dissatisfied.

Implications

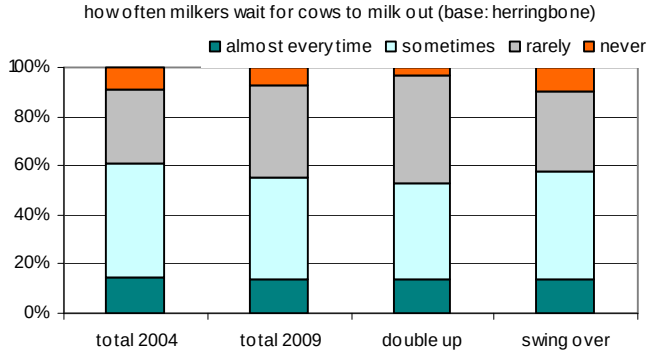
The proportion of dairy farmers washing all teats prior to attaching clusters has decreased to a very low level, with the vast majority now washing only dirty teats.

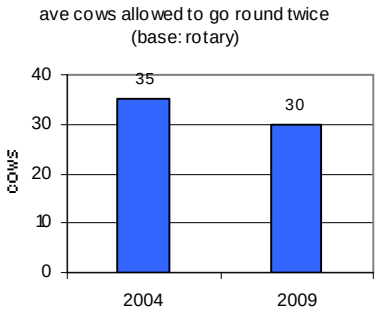
Nearly all farms undertake the practice of disinfecting teats after removing clusters and this is typically done using a hand held spray wand.

10.5 Frequency of waiting for cows to milk out (CATI survey)

Questions asked:
Q21. How often do milkers have to wait for cows to milk out? Would you say … read out?
Q22. If rotary dairy: How many cows were allowed to go around twice at a typical milking during the peak of the season?

frequency of waiting for cows to milk out	% of respondents with herringbone dairy (n = 200)			
	total	double up dairies	swing over dairies	rotary dairies
Almost every side	14%	14%	14%	n/a
Sometimes	42%	39%	44%	
Rarely	38%	44%	32%	
Never	7%	3%	10%	
Average number of cows allowed to go round twice at a typical milking	n/a	n/a	n/a	30 cows





Key findings

- Since 2004 there has been little change in the proportion of respondents waiting for cows to milk out (93% compared to 91%). A slightly higher proportion however says this now happens rarely (38% compared to 30%).
- Respondents dissatisfied with their milk harvesting system are twice as likely as their satisfied counterparts to say they wait for cows to milk out *almost every side*.
- An average of 30 cows are allowed to go round twice in rotary dairies – slightly fewer than 2004 when the average was 35 cows.

Implications

While in many double up and swing over dairies milkers wait for cows to milk out, there is some evidence to suggest this is occurring slightly less frequently than in 2004. Similarly, slightly fewer cows are allowed to go round twice in rotary dairies.

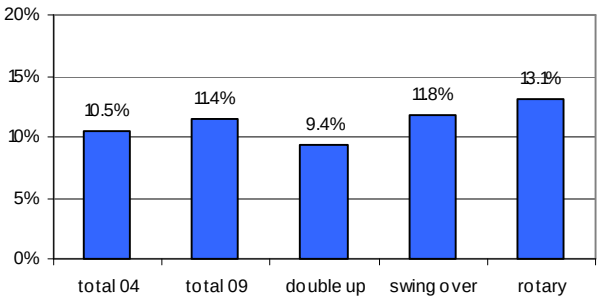
10.6 Frequency of cows manuring in the dairy (CATI survey)

Questions asked:
Q23. During the peak of the season, what proportion of the milking herd manured in the shed on average?
Q24. And would you say that number is … read out

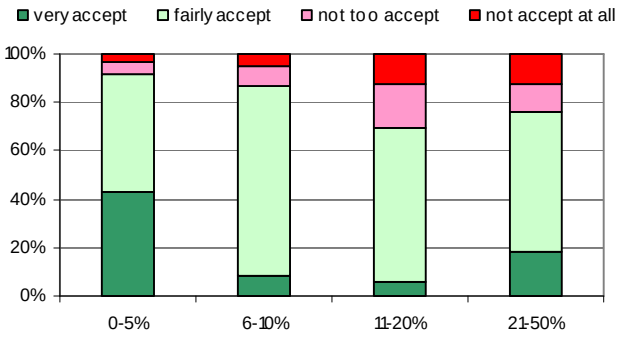
proportion of cows manuring in dairy	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
0-5%	53%	56%	45%	58%
6-10%	20%	27%	28%	6%
11-20%	11%	8%	11%	13%
21-50%	11%	7%	12%	15%
>50%	3%	1%	3%	3%
Average proportion	11%	9%	12%	13%
Very acceptable	28%	28%	27%	29%
Fairly acceptable	58%	61%	53%	61%
Not too acceptable	9%	8%	14%	5%
Not acceptable at all	5%	3%	6%	5%
Net: acceptable	86%	89%	80%	90%
Net: not acceptable	14%	11%	20%	10%

acceptability	proportion manuring in shed				
	0-5%	6-10%	11-20%	21-50%	>50%
Very acceptable	43%	8%	6%	18%	11%
Fairly acceptable	49%	79%	64%	58%	44%
Not too acceptable	5%	8%	18%	12%	44%
Not acceptable at all	3%	5%	12%	12%	0%

average proportion of herd manuring in dairy



acceptability of proportion manuring in dairy



Key findings

- On average, 11.4% of respondents' milking cows manure in the dairy – slightly higher than in 2004 when the average was 10.5%.
- Regardless of the proportion manuring in the shed, 28% say it is *very* acceptable and a further 58% say it is *fairly* acceptable.
- Of note, 55% of respondents who say more than half their herd manures in the dairy believe this is acceptable. Interestingly, 8% of those saying 5% or less of the herd manures believe this is unacceptable.
- Respondents who have had some association with CowTime have a lower proportion of the herd manuring in the dairy (7.7% on average) than those who have not been involved with CowTime (average 12.4%).
- Although only 10 respondents say they are not relaxed while milking, it is notable they say an average 20% of the herd manures compared to an average 11% in herds of respondents relaxed.

Implications

Survey results reveal that while the 'average' respondent accepts arguably high proportions of cows manuring in the shed, CowTime participants have significantly reduced the incidence of this occurring.

11. Dairy staff

11.1 Employed staff (CATI survey)

Questions asked:
Q59. Does the farm employ off-farm labour or staff to milk?
Q60. Do you employ staff to milk … read out

	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Employ staff	61%	46%	49%	87%
For every milking	34%	19%	28%	56%
Monday to Friday	3%	1%	2%	6%
8 to 12 milkings per week	2%	1%	3%	2%
4 to 7 milkings per week	4%	5%	3%	3%
A few milkings on a weekend	9%	7%	8%	13%
A couple of weeks per year	4%	6%	3%	4%
A couple of days per year	4%	6%	2%	3%

Key findings

- Six in ten respondent dairy farms (61%) employ off farm staff to milk cows. The proportion varies significantly from 87% with rotary dairies to 46% with double up dairies.
- On 34% of farms, labour is employed for every milking – again ranging from 56% with rotary dairies to 19% with double up dairies.

Implications

Survey results reveal a substantial number of farms employ off farm labour to assist with milking cows.

11.2 Incidence and impact of milker injury (CATI survey)

Questions asked:
Q65. Have any injuries occurred to you or your staff during milk harvesting in the last 12 months?
Q66. Did the person or people who sustained the injury miss any milkings as a result?
Q67. How many milkings were missed in total?

injuries occurred to staff	% of all respondents			
	total	double up dairies	swing over dairies	rotary dairies
Injuries have occurred	19%	19%	16%	22%

milkings missed	% of all respondents from farms where staff have been injured while milking (n = 57)			
	total	double up dairies*	swing over dairies*	rotary dairies
Milkings missed as result	35%	32%	44%	32%
1 or 2 milking missed	9%	11%	13%	5%
3 to 10 milkings missed	11%	0%	13%	18%
Up to 1 week missed	2%	0%	0%	5%
More than 1 week missed	7%	11%	6%	5%
More than 4 weeks missed	7%	11%	13%	0%

**Caution: small sub sample*

Key findings

- Injuries have occurred to milking staff on 19% of respondent farms and on approximately one third of these farms (or 20 farms interviewed), staff missed work as a result.
- While only 1 or 2 milking were missed on 5 of these farms, on the remaining 15 farms, injuries resulted in at least 3 milkings and up to 4 weeks of work missed.

Implications

Injuries linked to milking cows have occurred on almost one in five dairy farms over the past 12 months, resulting in lost labour time.

Appendix: Questionnaire

Appendix: Questionnaire

COWTIME TRACKING STUDY

Dairy quotas:
Double-up dairy ---------- 100
Rotary dairy ---------- 100
Swing-over dairy ---------- 100

State:
VIC -------- 1 NSW ------ 2 QLD ------- 3 SA --------- 4 WA --------- 5 TAS ------- 6

Introduction:
Good afternoon/evening, my name is (NAME) from Down To Earth Research, we're conducting a study for Dairy Australia. Could I please speak to (NAME ON LIST)?

Re-introduce if necessary

We've been commissioned to speak to dairy farmers on several aspects relating to their milk harvesting process. The purpose of the study is to gather information to help the CowTime project team provide the type and level of support required by the industry.

If you agree to participate in the study, everything you tell me will be kept strictly confidential. All the information we collect will be pooled together and an overview of the results will be provided to the industry.

Would you be able to give me 20 minutes of your time to answer some questions to help with this project?

Arrange call back time if requested.

For quality control purposes, the interview may be monitored by my supervisor. If you prefer the interview not to be monitored, could you please tell me.

Firstly, I'd like to ask if you are the person on the farm who manages the milk harvesting.

If no, locate correct person and re-introduce if necessary

All the questions which follow relate to the time of maximum milk flow, or the peak of the season in the last 12 months. This includes milk in the vat and calf milk.

Firstly, I'm going to ask you some general questions about the farm.

Q1. How would you best describe your milking shed? Would you describe it as … *Read out*

A swing over herringbone ----------	1	continue
A rapid exit swing over herringbone ----------	2	continue
A double up herringbone ----------	3	continue
A rapid exit double up herring bone ----------	4	continue
A rotary ----------	5	continue
A walk thru ----------	6	thank and end
Other----------	7	thank and end

Q2. How many clusters are there in your dairy? ☐

If herringbone shed (Q1 = 1, 2, 3 or 4), ask:
Q3. How many cow milking positions are there in your shed, that is in total, both sides of the shed? ☐

Q4. How would you describe your production system? Do you calve … *Read out*

On a seasonal basis, where most of the herd calves in one main group each year ----------	1
Year round, with cows calving in most months ----------	2
On a split calving basis, where your herd calves in two or three batches ----------	3

Q5. During 2008, in which month did your cows produce the most milk?

January 2008 ---------- 1
February 2008 ---------- 2
March 2008 ---------- 3
April 2008 ---------- 4
May 2008 ---------- 5
June 2008 ---------- 6
July 2008 ---------- 7
August 2008 ---------- 8
September 2008 ---------- 9
October 2008 ---------- 10
November 2008 ---------- 11
December 2008 ---------- 12

Q6. And during (month from Q5), what was the maximum number of cows you milked? [ ]

Q7. How many times a day was the herd milked during the peak of the 2008 season?

1 x per day ---------- 1
2 x per day ---------- 2
3 x per day ---------- 3
Other *(Specify)* ---------- 4

Q8. During (month from Q5), how many litres of milk per day did your herd produce? And by that I mean the total litres in the vat, plus any discarded or calf milk in a 24 hour period. [ ]

Logic check same as NDFS 09

Q9. In minutes, what was the average labour time required to bring the herd to the dairy for milking? [ ]

Minutes

The next questions are about getting the cows into the dairy at milking

Q10. Do you use a backing gate?

Yes ---------- 1 continue
No ---------- 2 go to Q12

Q11. How often do you use the backing gate? Would that be … *read out*

At every milking ---------- 1
Only at the start of the season ---------- 2
Sometimes ---------- 3
Other (specify) ---------- 4

If herringbone dairy (Q1 = 1, 2, 3 or 4), ask:

Q12. Does your dairy have an entrance race?

Yes ---------- 1 continue
No ---------- 2 go to Q14

If dairy is herringbone with entrance race or rotary (Q12 = 1 or Q1 = 5), ask:

Q13. How long is the entrance race to your dairy?

[ ] metres [ ] cow lengths

Response in metres or cow lengths
Range 1 – 15 metres
Range 0 – 7 cow lengths

Ask all:
The next questions are about the milking process

Q14. How many operators normally milk in the dairy at a milking?
If a person is only present for some of the time, count that person as a fraction of a person, that is 0.5 if they are there for half the time.

operators

If only one milking per day (Q7 = 1), ask:
Q15. During (month from Q5) – at the peak of production, how many minutes did it take from first cups on to last cups off?

minutes

Go to Q16

Logic check:
If rotary dairy (Q1 = 5), range is:
3.5 to 7 cows (from Q6)
per cluster (from Q2)
per hour (from Q15)

If swing over (Q1 = 1 or 2), range is:
4.5 to 10 cows (from Q6)
per cluster (from Q2)
per hour from Q15)

If Double up (Q1 = 3 or 4), range is:
3.5 to 7 cows (from Q6)
per cluster (from Q2)
per hour from Q15)

If milking twice per day (Q7 = 2), ask:
Q15b. During (month from Q5) – at the peak of production, how many minutes did it take from the first cups on to the last cups off for the morning milking?

minutes

Logic check as above

Q15c. And how many minutes did it take for the afternoon or evening milking?

minutes

Logic check as above

GO TO Q16

If milking three times per day (Q7 = 3), ask:
Q15d. During (month from Q5) – at the peak of production, how many minutes did it take from the first cups on to the last cups off for the first milking for the day?

minutes

Logic check as above

Q15e. And how many minutes did it take for the second milking?

minutes

Logic check as above

Q15f. And how many minutes did it take for the third milking?

minutes

Logic check as above

Ask all:

Q16. Before attaching clusters, do you routinely … *read out*

Wash all teats	1
Strategically wash only dirty teats	2
Disinfect all teats	3
Stimulate all teats	4
None of the above	5

Q17. After removing the clusters, do you routinely disinfect your cows' teats?

Yes, always	1	continue
Yes, sometimes	2	continue
No	3	go to Q19

Q18. How do you disinfect them?

Dip cup	1
Handheld spray wand	2
Automatic spray (no person required)	3
Other (Specify)	4

Q19. During (month from Q5), how often does the milker leave the pit or milking area during milking to push cows onto the milking platform? Would that be … *read out*

Never	1
Once per milking	2
2 – 3 times per milking	3
More than 3 times per milking	4

If herringbone dairy (Q1 = 1, 2, 3 or 4), ask:

Q20. Do you need to spend time getting cows to stand in the correct place on the milking platform? *Read out*

Never	1
Once per milking	2
2 – 3 times per milking	3
More than 3 times per milking	4

Q21. How often do milkers have to wait for cows to milk out? Would you say … *read out*

Almost every side	1
Sometimes	2
Rarely	3
Never	4

If rotary dairy (Q1 = 5), ask:

Q22. How many cows were allowed to go around twice at a typical milking during (month from Q5)? _____ cows

Ask all:

Q23. During (month from Q5), what proportion of the milking herd manured in the shed on average? _____ %

Q24. And would you say that number is … *Read out*

Very acceptable ---------- 1
Fairly acceptable ---------- 2
Not too acceptable ---------- 3
Not acceptable at all ---------- 4

The next questions I will ask are about the machine cleaning

Q25a.Are exfoliation gloves or similar used to help clean the clusters?

Yes ---------- 1 go to Q26
No ---------- 2 continue

Q25b. Have you heard of exfoliation gloves?

Yes ---------- 1
No ---------- 2

Q26. Does the plant wash system have automatic chemical dosing so that there is no handling of chemicals?
Yes ---------- 1 continue
No ---------- 2 go to Q28

Q27. Do you have an automatic plant wash system where the operator presses a button and the whole process is controlled by machine without any other human intervention?
Yes ---------- 1
No ---------- 2

Q27a. Are you using a water recycling system?

Yes ---------- 1
No ---------- 2

Q28. Do you have an automatic vat washing system?

Yes ---------- 1 continue
No ---------- 2 go to Q30

Q29. Who operates the auto vat washing system? Is it … *read out*

The milkers ---------- 1
The tanker driver ---------- 2
Someone else *(Specify)* ---------- 3

If only one milking per day (Q7 = 1), ask:

Q30a. During (month from Q5), what was the average labour time in minutes taken to clean the milking machines - just the machines, not the inside of the shed.

minutes

Range 1 – 60 minutes
go to Q31a

If two or more milkings per day, (Q7 = 2 or 3), ask:

Q30b. During (month from Q5), what was the average labour time in minutes taken to clean the milking machines after the first milking for the day - just the machines, not the inside of the shed?

minutes

Range 1 – 60 minutes

Ask all:

Q31a. And during (month from Q5), what was the average labour time taken to clean the inside of the shed (the platform, bails, etc)? Again, that needs to be in minutes.

minutes

Range 1 – 60 minutes

Q31b. And what was the average labour time in minutes taken for yard wash down?

minutes

Range 1 – 60 minutes

If vat cleaned by someone other than tanker driver (Q29 = 1 or 3), ask:

Q31c. And, on average, how much labour time in minutes was required each day to clean the milk vat?

minutes

Ask all:

Now I'd like you to consider the whole milk harvesting process, from getting the cows in for milking right through until after the cleaning up….

If only one milking per day (Q7 = 1), ask:

Q32a. During (month from Q5), what time did you usually start getting the cows in for milking?

Q32b. During (month from Q5), what time did you usually finish cleaning up after milking?

If two milkings per day (Q7 = 2), ask:

Q32c. During (month from Q5), what time did you usually start getting the cows in for the morning milking?

am

Q32d. During (month from Q5), what time did you usually finish cleaning up after the morning milking?

am

Q32e. And what time did you usually start getting the cows in for the evening milking?

pm

Q32f. What time did you usually finish cleaning up after the evening milking?

pm

If three milkings per day (Q7 = 3), ask:

Q32g. During (month from Q5), what time did you usually start getting the cows in for the first milking?

am

Q32h. During (month from Q5), what time did you usually finish cleaning up after the first milking?

am

Q32i. And what time did you usually start getting the cows in for the second milking?

Q32j. What time did you usually finish cleaning up after the second milking?

Q32k. What time did you usually start getting the cows in for the third milking?

Q32l. What time did you usually finish cleaning up after the third milking?

Now I have a few questions about your milk harvesting facilities….

Q33. Do you routinely use Electronic Identification or EID as part of your milking system and I mean not just for herd testing?

Yes ---------- 1 continue
No ---------- 2 go to Q38

Q34. Do you have computer operated auto drafting?

Yes ---------- 1 continue
No ---------- 2 go to Q36

Q35. How satisfied are you with the auto drafting? Would you say you are … *read out*

Very satisfied ---------- 1
Fairly satisfied ---------- 2
Not too satisfied ---------- 3
Not satisfied at all ---------- 4

Q36. Do you use activity monitors for heat detection?

Yes ---------- 1
No ---------- 2

Q37. Do you have computer assisted feeding?

Yes ---------- 1
No ---------- 2

Q38. Do you use automatic cluster removers or ACRs/automatic take offs?

Yes ---------- 1 continue
No ---------- 2 go to Q40

Q39. How satisfied are you with the ACRs? Would you say you are … *read out*

Very satisfied ---------- 1
Fairly satisfied ---------- 2
Not too satisfied ---------- 3
Not satisfied at all ---------- 4

If herringbone dairy (Q1 = 1, 2, 3 or 4), ask:

Q40. In the dairy, do you have equipment that confines cows to a particular space such as … *read out*

Stall gates	1
Bail head dividers	2
Locking devices	3
Zig zag rail	4
Some other restraining device	5
None of the above	6

If no computer assisted feeding (Q37 = 2), ask:

Q41. Do you give individual cows different amounts of concentrate in the dairy or do you feed them as a batch?

Individual feeding	1	continue
Batch fed	2	continue
Do not feed in dairy	3	go to Q44
Other	4	continue

Q42. Is the feed dispensed automatically or does it require manual intervention?

Automatic – no labour	1	continue
Manual intervention	2	go to Q44
Don't know	3	go to Q44

Q43. What type of automatic feeding do you have? *Read out*

Single action by operator who pulls a chain or pushes a button	1
Computer controlled, no human interaction required	2
Other (specify)	3

Ask all:

Q44. What system is used to clean the yard?

Scraper and hose	1
Hose only	2
Flood wash	3
Hydrant wash	4
Other *(specify)*	5

Q44a. Are you using recycled effluent pond water?

Yes	1
No	2

And some general questions about your attitudes to milk harvesting and future goals….

Q45. Overall, how satisfied are you with your milk harvesting system? Would you say you are … *read out*

Very satisfied	1
Fairly satisfied	2
Not too satisfied	3
Not satisfied at all	4

Q46. When was your dairy last upgraded by updating or extending the building or equipment?

12 months or less ago	1	
Up to 2 years ago	2	
Up to 3 years ago	3	
Up to 4 years ago	4	
Up to 5 years ago	5	
Between 5 and 10 years ago	6	
Between 10 and 15 years ago	7	
More than 15 years ago	8	
Never been upgraded	9	go to Q49

Q47. What type of changes were undertaken?

New dairy	1
Extended the dairy	2
Updated equipment	3
Put in more equipment	4
Other *(specify)*	5

Q48. What impact has this had on your milk harvesting system? *Read out …*

Use less time ---------- 1
Milk more cows per hour ---------- 2
Reduce costs ---------- 3
Other *(specify)* ---------- 4

If new dairy not mentioned as upgrade (Q47 = not 1), ask:
Q49. Would you say your dairy currently needs an upgrade?

Yes, a substantial upgrade ---------- 1
Yes, a partial upgrade ---------- 2
No need for upgrade ---------- 3
Don't know ---------- 4

Q50. If you were to improve or upgrade your milk harvesting system, what is the first thing you would do?

Build a new dairy---------- 1
Hire more labour ---------- 2
Install more clusters ---------- 3
Install cup removers ---------- 4
Install stall gates---------- 5
Install auto drafting---------- 6
Others [specify] ---------- 7
Don't know ---------- 8

Q51. Why would you like to make those changes? Would it be to …*read out*

Improve use of labour ---------- 1
Shorten milking time ---------- 2
Milk more cows ---------- 3
Better working environment ---------- 4
Potential to cut costs or increase profit---------- 5
Better for cow health ---------- 6
Other (Specify) ---------- 7

Ask all:
Q52. Have you heard of the program *CowTime*?

Yes ---------- 1 continue
No ---------- 2 go to Q59
Unsure ---------- 3 go to Q59

Q53. How do you know about the *CowTime* program?

Used the milking monitor ---------- 1
Attended a one-day clinic ---------- 2
Attended a shed shake-up day ---------- 3
Attended the 3 day course ---------- 4
Used the website ---------- 5
Australian dairy farmer ---------- 6
Radio ---------- 7
General media ---------- 8
Farm adviser / machine technician ---------- 9
Other farmer ---------- 10
Family member ---------- 11
Direct contact from cowtime ---------- 12
Other *(Specify)* ---------- 13

If used milking monitor or attended CowTime session (Q53 = 1, 2, 3, 4 or 5), ask:
Q54. Have you implemented any changes as a result of *CowTime* information or suggestions?

Yes ---------- 1
Not yet, but probably will ---------- 2
No ---------- 3 go to Q59

If made changes (Q54 = 1), ask:

Q55. Did you make any changes in the following areas as a result of *CowTime* information or suggestions? *Read out*

Paddock to dairy ---------- 1
In the yard ---------- 2
Dairy entry ---------- 3
In the dairy ---------- 4
Cleaning up ---------- 5

For all areas in which changes have been made, ask:

Q56. What changes were made in (from Q55)?

.....
.....

If planning to make changes (Q54 = 2), ask:

Q57. Which of the following areas are you planning to make changes in as a result of *CowTime* information or suggestions? *Read out*

Paddock to dairy ---------- 1
In the yard ---------- 2
Dairy entry ---------- 3
In the dairy ---------- 4
Cleaning up ---------- 5
None ---------- 6

For all areas in which changes are planned, ask:

Q58. What changes are you planning to make in (from Q57)?

.....
.....

And some general questions about your work load….

Q59. Does the farm employ off-farm labour / staff to milk?

Yes ---------- 1 continue
No ---------- 2 go to Q61

Q60. Do you employ staff to milk … *Read out*

For every milking ---------- 1
A few milkings on a weekend ---------- 2
Only a couple of weeks per year ---------- 3
A couple of days per year ---------- 4
Other---------- 5

Q61. Are you normally physically involved in milking?

Yes, always ---------- 1
Yes, mostly ---------- 2
Yes, sometimes ---------- 3
No ---------- 4

Q62. Is your dairy performance limited by any of the following … *read out*

Shortage of labour ---------- 1
Number of clusters ---------- 2
Both ---------- 3
Other---------- 4

Q63. How easy do you personally find milking? Would you say it is … *read out*

Very easy ---------- 1
Fairly easy ---------- 2
Not too easy ---------- 3
Not easy at all ---------- 4

Q64. How relaxed are you normally when you're milking? Would you say you are … *read out*

Very relaxed ---------- 1
Fairly relaxed ---------- 2
Not too relaxed ---------- 3
Not relaxed at all ---------- 4

Q65. Have any injuries occurred to you or your staff during milk harvesting in the last 12 months?
Yes ---------- 1 continue
No ---------- 2 go to Q68

Q66. Did the person or people who sustained the injury miss any milkings as a result?

Yes ---------- 1 continue
No ---------- 2 go to Q68

Q67. How many milkings were missed in total *Read out.*

1 or 2 milkings missed ---------- 1
3 to 10 milkings missed ---------- 2
Up to 1 week of missed milkings ---------- 3
More than 1 week of missed milkings ---------- 4
More than 4 weeks of missed milkings ---------- 5

I just have some questions about you and then we're finished.

Q68. Record gender. *Do not ask*

Male ---------- 1
Female ---------- 2

Q69. Which age bracket do you fall in to? Are you ?…

18 – 29 ---------- 1
30 – 39 ---------- 2
40 – 49 ---------- 3
50 – 59 ---------- 4
60 – 69 ---------- 5
70 or older ---------- 6

Q70.And what would be your postcode there? _____

That's all the questions I have to ask you.

Thank you so much for your assistance. The information you've given me will be pooled with information received from other dairy farmers and will help the CowTime team to better understand milk harvesting systems currently in place.

As part of our quality control procedures, someone from our project team may re-contact you to validate of couple of your answers, so could I please confirm that your name is (NAME).

In case you missed it earlier, my name is (NAME) from Down To Earth Research.