

## Jersey once-a-day milking trial

Waimate West Demonstration Farm, Taranaki

By Dawn Dalley, Dexcel Regional Scientist

### A Dexcel Trial aiming to optimise production from Jersey cows milked once-a-day.

In June 2004 the LIC once-a-day (OAD) selection index was used to identify and select cows from the Waimate West Demonstration Farm herd that were best suited to OAD milking. These selected animals were milked OAD for the full season ("OAD" herd). The remaining cows were milked twice-a-day (TAD) until the end of January and then milked OAD to the end of the season ("OAD/TAD" herd).



The OAD herd averaged 268kg MS/cow and 1165 kg MS/ha over the 3 years of the project. This compares with 314kg MS/cow and 1236kg MS/ha for the TAD/OAD herd. The difference in production between the herds equates to a 15% decline in per cow and 6% decline in per ha production with full season OAD milking. Production per ha by the TAD/OAD herd was 5.5% higher than that achieved by the farm in the three years prior to the trial when TAD milking all season was used. The OAD herd achieved an empty rate below 5% for all 3 years of the trial while the TAD/OAD herd empty rate ranged between 4 and 9%. Both herds achieved average annual somatic cell counts below 210,000 cells/ml indicating that high quality milk can be produced in OAD milking systems.

### The project identified a number of issues that can affect the successful implementation of OAD milking:

1. Farmers changing to OAD milking should ensure that their milk pump and milk line can cope with the increase in milk flow at milking from OAD herds.
2. Farm staff will need to accept that OAD cows will take longer to milk at each milking than TAD cows.
3. If adopting part season OAD the management of the transition to OAD milking is critical to ensure production losses are minimized. The switch to OAD milking should occur prior to a feed shortage and before the decline in pasture quality in summer.
4. The stocking rate needs to ensure that sufficient, high quality, pasture and supplement are available through summer and autumn. Cows milked OAD appear to be more sensitive to restrictions in feed during the summer months and production is less likely to improve following the provision of high quality autumn pasture.
5. Good post-peak feed management can result in a very flat lactation curve that compensates for lower peak production with OAD milking.

The project has demonstrated that selected, high breeding worth Jersey cows milked OAD can consistently produce 1150 kg MS/ha from a self contained pasture-based system in Taranaki. ●

Funded by MAF Sustainable Farming Fund

## Accuracy in body condition scoring

By Brian Dela Rue, Dexcel Research Engineer

### A body condition scoring novice, using the Dexcel Condition Scoring Made Easy booklet, showed the value of a clear point of reference when she achieved the most accurate result of 16 assessors.

Body condition score (BCS) is a subjective measure of a cow's nutritional status that has particular importance in reproductive success. Dexcel is investigating the value of accurate information on cow condition and the potential of objective measures using new and existing technologies. The first stage has been to assess accuracy of the current visual measurement method.

#### What degree of accuracy is considered acceptable?

As a rule of thumb our Dexcel BCS expert recommends that 90% of scores should be within  $\pm 0.5$  BCS units of the actual value.

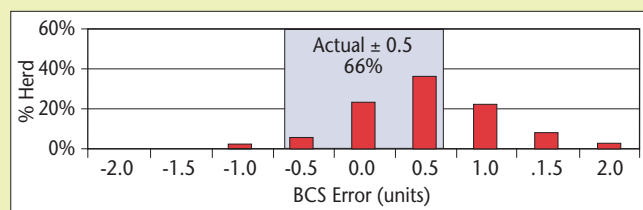
#### Are farmers able to reliably achieve this accuracy?

The assessed group of 16 included 8 BCS trained assessors with a range of experience, and 8 novice assessors. Forty cows with a BCS range of 3.5 to 6.5 units, as determined by our BCS expert, were visually scored in the paddock on two occasions.

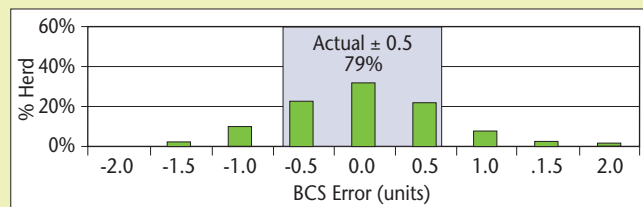
#### Results

- Overall, the group achieved 72% of scores within  $\pm 0.5$  units of the expert scores
- Novices performed slightly better than experienced assessors, with individual results suggesting that experienced assessors may lose their calibration over time
- A novice who used the BCS booklet as a reference was the most accurate and consistent (95% and 97% within target range)
- The highest percentage of correct scores (actual value) was 49%.

#### Trained Assessors



#### Novice Assessors



This snapshot of condition scoring accuracy suggests that:

- 90% within  $\pm 0.5$  units is an achievable but challenging target
- A visual BCS reference may significantly improve accuracy for both experienced and inexperienced assessors
- Individual cow assessment using visual scoring is labour intensive
- To improve accuracy above current levels an objective assessment should target >50% correct scores and >90% within  $\pm 0.5$  units

The economic value of more accurate information will now be determined and the options for objective assessment methods or decision support tools for visual assessment considered. ●

Funded by Dairy InSight

# Across the ditch – What can we learn from Australian milking studies?

By Jenny Jago, Dexcel Senior Scientist

## A new Dexcel-led project, aiming to identify ways of improving the efficiency of milking in herringbone and rotary dairies, will build on the results of recent Australian studies.

Over a season milking requires more labour, in terms of man hours, than any other task in a farming operation. Observations on ten Waikato dairy farms during February 2006 found that on larger farms milking an average of 584 cows twice a day, milking took just under 13 hours (counting all labour input from fetching cows to cleaning up and shutting away). Smaller farms, milking an average of 159 cows, required 4.5 hours per day for milking. There was a large range in performance indicating that some farms can improve efficiency by focusing on the use of technology and their operational approach to milking management.

Australian researchers have been searching for ways to improve milking management and have recently focussed on the end point of milking. They found that removing the cups from the slowest 20% of cows in the herd at a fixed time, rather than according to milk flow, could substantially reduce milking time without compromising yield. Further, they found in extensive studies on commercial farms that there appeared to be no negative consequences on udder health and somatic cell count. The studies were carried out on cows in mid to late lactation.

A new Dexcel-led project, aiming to identify ways of improving the efficiency of milking in herringbone and rotary dairies, will build on the results of the Australian studies and determine the implications for New Zealand farmers. The first stage will be to establish a benchmark of current performance by gathering data from a much larger sample of farms. This will be achieved by a combination of survey and observational studies during peak lactation. ●

Farmers interested in taking part in the milking efficiency study can contact Jenny Jago at [jenny.jago@dexcel.co.nz](mailto:jenny.jago@dexcel.co.nz)



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# Accelerometer technology for oestrous detection?

By Jacqueline McGowan, Dexcel Research Technician, Jenny Jago, Dexcel Senior Scientist and Chris Burke, Dexcel Scientist

## Accelerometer technology allows accurate recording of multiple cow-behaviours and has potential as an oestrous detection tool.

Oestrous detection is one of the most labour intensive and skilled tasks performed on dairy farms and getting it right is important. Missed heats are estimated to cost the New Zealand dairy industry \$65M each year through later calving, fewer days in milk and fewer heifer replacements.

Accelerometer devices such as the IceTag<sup>®</sup> shown in the photograph can record several behaviours simultaneously. These devices are strapped to a leg of the cow and record each second whether the cow is lying down, standing or moving, as well as counting steps taken. Dexcel has recently performed a series of studies with the IceTag<sup>®</sup> to measure multiple behaviours and determine the best indicators of oestrus.

The devices were attached to dairy cows and several predictors for oestrous detection were developed using the data collected throughout mating. Two predictors focused on behaviour between midnight and 5am, a period when cows are known to have consistently low activity and are mostly lying. At this time any increase in activity or decrease in lying should be most obvious. Other predictors looked at linking significant increases in activity to oestrus detected by observation at any time through a 24-hour period.

The most successful predictor using hourly activity data detected 93% of heats with only 18% false positives (for every 100 alerts given, 18 would be false alerts), the least successful, using lying data detected only 50% and had 36% false positives. Encouragingly, all predictors detected some true heats that were missed by intense visual observations.

While activity monitors are not new, the key difference with this technology is the range of cow behaviours that can be monitored and the intervals over which changes in behaviour can be measured.

As herds become larger, ways to assess cow health and reproductive state remotely will become essential allowing fewer people to manage more cows effectively. This study is part of a larger Dexcel research programme focused on applying new technology to increase labour efficiency on dairy farms. ●

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