Maximum Milk Out Times (MMOT) for Rotary Dairies

1. Introduction

The purpose of this Quick Note is to describe a method of implementing Maximum Milk Out Times (MMOT) in rotary dairies.

2. Interpretation and relevance to Australian conditions

Most dairy farms are keen to find ways of reducing the time it takes to milk. MMOT is a low cost way for many farms to reduce their milking times. The basics of MMOT are explained in Quick Note 1.5.

3. Relationship to CowTime goals

MMOT provides one way to help make milking times shorter. The MMOT requires clusters to be taken off cows when they have finished milking **OR** according to a maximum time related to the milk yield. Research has show that the implementation of MMOT can increase the number of cows milked in an hour in the vast majority of Australian dairies. A part from the time savings the research has demonstrated no increase in mastitis and SSC plus no loss of milk yield. This means that the vast majority of slow milking cows do not need to go around twice nor does it mean that most need to be culled.

4. Implementing MMOT in an Rotary

Farmers will find many ways to implement MMOT to suit their milk harvesting systems. The following is only one example to consider.

The rotary dairy can be considered as a giant clock with the continuous milking process involved being particularly suited to applying MMOT. Farmers can simply set the platform speed to ensure the time required for a cow to move between the cluster on and the cluster off positions is equivalent to the appropriate MMOT. Only cows exempted as 'elite' cows are given the opportunity to go-around-again. The cups-off milker can move around to stand in a position to remove clusters when the majority of cows have finished (to prevent overmilking), only moving back towards the bridge to remove clusters from the odd slow milking cow that takes the full MMOT.

The productivity benefits come from potentially increasing the rotation speed to increase cows/hour throughput, and preventing too many cows from going around twice, therefore freeing up stalls for other cows.

Installing automatic cluster removers and automatic teat spraying provides an opportunity to make the rotary operable by milkers positioned only at the clustering up position. The savings from labour productivity gains can be very large. Retention bars are being fitted on some of these rotaries. The implementation of MMOT means that retention bars may not be necessary.

'Elite' cows need to be identified so that they are given an adequate milking duration according to their yields. If these 'elite' cows are exempted from the MMOT their milk yield should not be included when working out the average yield on the lead group.

Either way it is worth using a timer on these 'elite' cows to get an idea of how long it takes them to milk out in relation to the MMOT. Many high yielding cows have high flow rates and will be able to fully milk out quicker than some lower yielding cows.

5. Potential challenges with implementation

Situations that require caution:

Although the research has been quite comprehensive there are still situations in which it would be prudent to show caution before applying MMOT.

These are:
- herds with a high BMCC of over 400,000 cells/ml.
- high production herds (average group milk yields of over 20 litres per milking).
- applying MMOT based on average group yield prior to peak lactation. We recommend setting the MMOT based on the expected average milk yield that the group will achieve at peak.

How do you know that a MMOT regime is working?

There are three characteristics of herds where MMOT regimes are working well:
- Daily milk yield should be maintained.
- Not more than 20% of cows in the MMOT group should be truncated at a milking.
- Milking times (from first cups on to last cups off) should be reduced.

There are some simple checks that can be done to assess each of these characteristics which should give you some confidence that MMOT is working in your herd.

Daily milk yields should be maintained following introduction, although you may see a slight shift of milk from the AM to the PM milking in herds with an uneven inter-milking interval. To check that MMOT regime is providing a benefit you should note the time you start and finish four of the milkings prior to changing to MMOT, and record the litres in the vat for these two days. This will give you figures for:
- the average time for AM and PM milkings and,
- the average production per day (litres).

Change to MMOT and again monitor milk production and the time taken for four MMOT milkings.
Compare the average AM and PM milking times and the litres produced against your earlier figures. Yield should not have changed by more than what you would normally expect between days and you should notice some saving of time in the milkings where MMOT was being implemented. Time savings may not be noticed in the later stages of lactation.

6. Robustness of this information

The information presented in this Quick Note is supported by research and industry experience.

7. References and further reading

Clarke T, Cole D, & Greenall R. (2006) Shorter Milking Times - Technical Information Package for Advisers, October 2006. National Milk Harvesting Centre, DPI Ellinbank.

Clough, P.A., Westgarth, D.R. & Williams, D.F. (1973) In Proceedings of British Society of Animal Production 2:73.

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