Dairy feeding systems – rotary dairies

1. Introduction

Dairy shed feeding systems are designed to deliver concentrated feed during milking to supplement the cows' main diet. Because the platform rotates, a single feeder can be used in rotary dairies to fill each trough one at a time as it passes a fixed point. This significantly reduces the investment cost of delivering feed to cows on rotary platforms.

2. Interpretation and relevance to Australian conditions

Rotary dairies significantly simplify the feeding of concentrates to cows on the platform. However many farmers are now feeding greater quantities of concentrates in the stall as they strive for high per cow production. Normal rotation times of 8-10 minutes are usually adequate to allow cows time to consume up to 5kg while on the platform. A rotation speed dictated by the time required to feed the cows can significantly impact on milk harvesting productivity or result in overmilking and teat damage.

3. Relationship to CowTime goals

Many farms still believe that feeding in the parlour improves cow flow and milking productivity and so are reluctant to stop it. It is preferable to use good husbandry and efficient dairy entry design to maximise cow flow rates at milking time. However feeding in the stall does provide an incentive for cows to move onto the revolving platform. Keeping the cows occupied with feed in the stall may improve cow comfort and make them more accepting of less than ideal circumstances.

Rotary dairies provide a great opportunity to automate the feeding, effectively removing this task from the work routine.

4. Features to Consider

Issues to consider in planning a feeding system

Close consultation with an independent reputable nutritional adviser and planner is recommended before deciding on an appropriate feeding system. Some issues to consider are:

- Calving pattern – seasonal, semi seasonal or year round?
- What feeds will be fed through the system?
- What form will the feed be in- pellets or meal?
- How much time will cows have to consume the feed?
- How will the feeding impact on entry and exit of each group of cows?
- Herd production level.
- Variation in individual cow milk production performance in the herd.
- Desire to maximise yield per cow and per herd.
- Labour to operate the system at milking time.
- Labour & skill required to manage the system.
- Backup systems needed to cover down times and during electricity failures.
- Cost of technology compared to returns.
- Impact of feeding on cow health.
- Future goals of farm.

Types of systems available

Generally rotary feeding systems are designed to transport concentrate to a single hopper which delivers feed to a single point. The feed bins rotate under this delivery point to receive a feed allocation for each cow. For practical purposes the sophistication of the controller is the key variable between systems. It is more common for all cows to be fed the same amount but electronic ID and advanced controllers have made variable feeding rates an option to be considered.

Key features to look for

- Feeders that automatically fill (without operator intervention).
- Reliability and accuracy of the measurement of each dispensed measure.
- A robust design.

- An ability to change feeding rates for individual cows based on their electronic ID (or be compatible with or integrated into such a system in the future).
- A feeding operation that can not be upset by cows' actions or behaviour.
- Smart enough to withhold feed from empty positions and from those cows going around twice.
- Ability to function using farm-generated emergency power.

5. Potential challenges with implementation

Because each cow is provided with an individual stall, many of the problems associated with adverse effects on cow traffic flow are eliminated. However, feeding in the stall can have affect the ease of unloading because cows try to delay their exit to consume remaining feed. Operator occupational health and safety can be compromised by feed dust from rotary feed hoppers.

6. Robustness of this information

This general information is designed to support a farmer's own research on commercially available products. Product quality, manufacturing techniques and the technology used vary widely around Australia.

7. References and further reading

Product specific brochures.

CowTime Guidelines for milk harvesting - Chapter 4, 5 & 9. edited by Klindworth, D. et al (2003). Available on the CowTime website www.cowtime.com.au

Quick Note 3.2: Checklist for making changes to milk harvesting infrastructure