Dairy feeding systems - Herringbone

1. Introduction

Dairy shed feeding systems are designed to deliver concentrated feed during milking to supplement the cows' main diet. Herringbone dairies require the feed to be delivered to each stall position. This increases the complexity and cost of the equipment required.

Interpretation and relevance to Australian conditions

As Australian farmers strive toward higher production per cow, it is inevitable that increased levels of concentrates will be fed in the dairy. In many cases, labour costs and the need to maximise consumption of pasture provide the motivation to move the cows quickly through the dairy. In other cases, however, consumption of a certain amount of supplementation is mandatory and farms need to have dairies with sufficient units to allow cows time to eat all that they are offered.

Defining the feeding management needs of the farm is the first step in designing a suitable feeding system. This should take into consideration the quantity of feed and the cows' potential eating rates of that type of feed.

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 design to maximise cow flow rates at milking time. Good cow traffic systems with no in parlour feeding are perhaps the best for cows per hour because feed will always provide cows with a reason to delay their progress through the parlour. On the other hand, keeping the cows occupied with feed in the stalls may improve cow comfort and make them more willing to accept an environment that may be less than ideal.

4. Features of an in-dairy feeding system

Issues to consider in planning a feeding system

Before deciding on an appropriate feeding system a farmer must consider many issues. Some 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 with the returns.
- Impact of feeding on cow health.
- Future goals of farm.

Types of systems available

Herringbone feeding systems fall into three broad categories:

- Flat rate manual or automatic feeding.
- Dual feeding hoppers.
- Individual, variable rate feeding linked to electronic I.D. recognition.

Presentation styles

There are several styles of feeding vessels to choose from:

- Simple trough
- Trough with dividers;
- Individual feeding vessels;
- Feeders protected from unauthorised eating during loading and unloading of the platform such as in many stall gate systems; or
- Systems to prevent cows stealing feed from adjacent positions.

Choosing a suitable system

Perhaps in no other area of dairying are the choices and combination of technologies more varied. There is also considerable variation in opinion on the best nutritional program for Australian dairy cows. There is no one best system that suits every farm, every farmer, every herd, every environment, and every supply market. Close consultation with an independent reputable nutritional adviser and planner in the decision process is recommended.

Key features to look for

- Covered hoppers reduce contamination from vermin and birds.
- Feeding systems that prevent cow access to the feed bins during loading and unloading of the platform can reduce milking times.
- Individual feed bins will limit competition and aggression between cows and help cow spacing and cluster alignment.
- Feeders that fill automatically without operator intervention will save time and hassle during milking.
- Feeding controls should be within easy reach in the pit.
- Good precision and reliability in the measurement of feed allocations can reduce feed costs and wastage.
- Check maintenance requirements and how robust and reliable the equipment is.
- The matching of supplementary feeding to production using electronic ID and milk meters can optimise the herd's nutritional management. Check the availability and reliability of the system to integrate with production software to manipulate feeding rates.
- An easy method to recalibrate each feeder when feed type changes.
- Ability to function using farm-generated emergency power.

5. Potential challenges with implementation

The evaluation of potential side effects should be assessed before an investment in a feeding system is undertaken. Higher feeding rates can create problems with cow health and can affect the efficiency of pasture utilisation. Cow throughputs in the dairy can be reduced when high levels of concentrates are fed. Feeding systems can have a detrimental effect on cow flow when the cows have access to the feed bins during loading and unloading. Fighting and aggression can also increase when there is no separation between cows. This is common where there is a single trough. Larger cows will eat all their feed and steal from the cow beside her.
Some equipment is not as reliable as it should be. Check reliability with different feed types and in different environments and weathers.

Check that the system can be used manually while waiting for a breakdown service call.

Operator health and safety regarding dust from feed can be issue.

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