

Key Points:

- Farm layout should encourage voluntary cow movement.
- Important layout decisions include laneways, walking distances, feedpad location, and barriers.

Farm layout for automatic milking

By Kendra Kerrisk

Interest in automatic milking systems (AMS) is growing steadily in Australia. If you are considering an AMS for a grazing-based system, one of the first decisions will relate to farm layout.

Overseas AMS are based on systems where cows are generally housed indoors. FutureDairy has demonstrated that AMS can be incorporated into Australian grazing systems without compromising pasture utilisation, which is the key to the profitability of most Australian dairy businesses.

The vast majority of AMS installations in Australia are based on the following:

- Voluntary milking (most cows present themselves to the dairy for milking without needing to be fetched from the paddock);
- Distributed milking (the milking units are used evenly throughout the day and night; there are not periods where cows are waiting more than two hours the yard to be milked).

FutureDairy's experience with the Camden AMS has shown it is possible to manage the system with various levels of supplementation to achieve voluntary and distributed milkings.

Layout can affect cows' willingness to move to the dairy and around the farm and therefore will affect voluntary movement, milking distribution and pasture utilisation.

Most farm layouts will be suited to AMS, but there are four key areas to consider at the planning stage:

1. Distance to the furthest paddock
2. 'Barriers' to voluntary movement
3. Number of laneways
4. Feedpad.

Distance

Research conducted by FutureDairy has shown that the greater the distance between the paddock and the dairy, the longer the interval between successive milkings. By enlarge this is a direct result of the fact that it physically takes the cows longer to get to the paddock and to walk from the paddock back to the dairy.

FutureDairy hasn't investigated distances beyond 1.2km but is aware of commercial farms that have cows walking up to 2km to the furthest paddocks. Even if the far away paddocks create some challenges it is recognised that it is possible to manage paddocks that are less than ideal in location or orientation, if they represent a small proportion of the farm and if the operator is willing to provide cows with a little extra encouragement if/when required.

Management changes may include offering ensuring cows are voluntarily moving out of 'difficult' paddocks during day time hours when staff will be in a better position to encourage cow traffic and/or offering subsequent pasture allocations closer to the dairy to balance out the total walking distance in a 24-hour period.

Barriers

When planning an AMS farm layout, it is important to avoid potential barriers to voluntary movement.

It's simply not possible to achieve voluntary movement if cows are expected to cross a public road or railway line. River crossings, underpasses and the like are not necessarily a barrier to voluntary movement. A good guide is how willing or reluctant they are to cross when herded.

If cows need to be encouraged to move through an area of the farm when herded, it is likely to affect voluntary cow flow with an AMS.

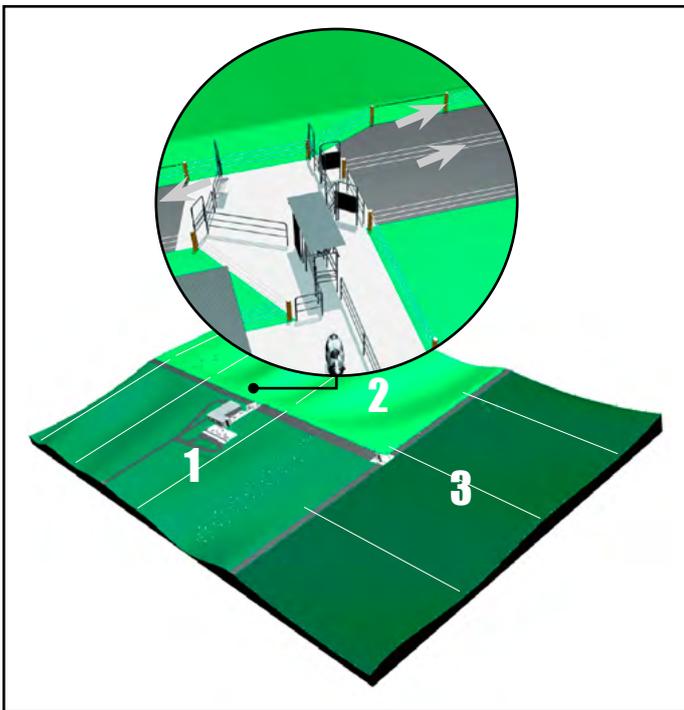


Above: If a road cuts through your farm, you will need an underpass to achieve voluntary cow movement.

Laneways

It is possible to achieve high pasture utilisation and efficient AMS operation with a farm layout including a single divided laneway (with a fence running down the centre) leading from the dairy. This allows for only two-way grazing which creates some limitations for milking frequency and therefore milk production.

However, a farm layout with two or three laneways leading from the dairy offers more flexibility to offer the cows three pasture allocations per day. This can be useful for improving the regularity of voluntary cow movement and reducing the variation of milking frequency. The diagram shows a farm layout which has a single laneway branching in two directions just down from the dairy. This allows two or three fresh allocations of pasture to be offered each day.



Above: Two laneway directions can provide access to three pasture breaks per day, provided one laneway is split.

Feedpad

If you plan to include a feedpad in a grazing-based AMS, the location is quite important. Ideally it should be located with laneways and gates that give the flexibility to divert cows to supplementary feed either before or after milking, depending on the need, which may change throughout the season. However a simpler system may suit some operations.

Feeding after milking is the preferred option when the herd's intake is predominantly pasture, and the supplement fed at the feedpad is a 'top up.' This option enhances cow movement through the dairy and maximises grazing opportunity.

Pre-milking access will ensure that cow access to the feed is not limited by the milking frequency of the herd especially when part, or all, of the herd is set for a reduced milking frequency at late lactation. However, cows accessing supplementary feed immediately prior to milking have been shown to spend twice as long in the pre-milking waiting yard when compared to cows given access to supplementary feed immediately after milking.

Feeding cows before milking could be a useful tool for encouraging cows to spend more time on the feedpad, particularly during periods of high supplementary feeding.

The feedpad can act as a third allocation of feed if it has space for loafing. Every farm layout involves some compromises and AMS is no exception.

Below: The perfect feedpad creates flexibility for supplementary all three grazing areas (if needed) and may also allow for combinations or pre-milking and/or post-milking supplementation. Having an associated loafing area creates opportunity to reduce the number of pasture allocations required/day which may be desirable during certain times of the year.



FOR MORE INFORMATION

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