Adoption of new technologies

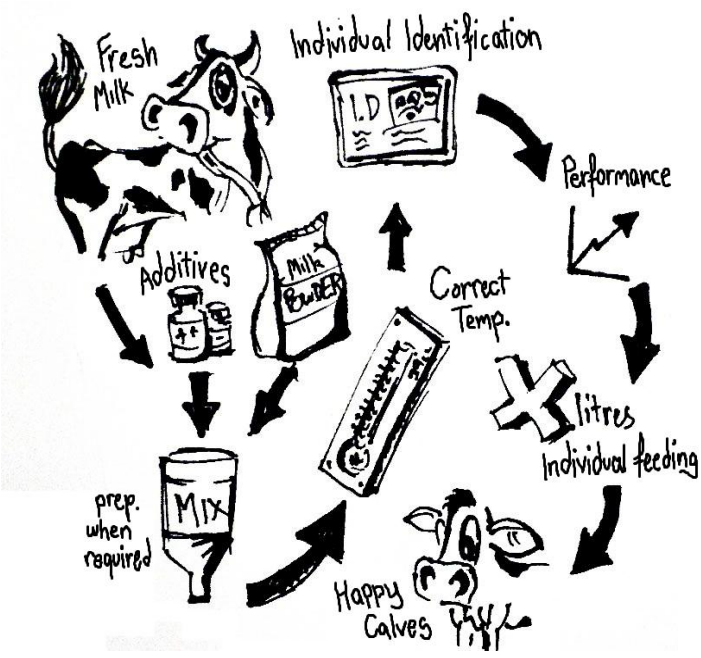
Automatic calf feeders

The significance of calf development on life-time cow performance has been well proven. All measures of performance (e.g. milk production, fertility, susceptibility to disease) are strongly linked to effective calf growth and development through the pre-weaning period.

Automatic calf feeders (ACF) offer a convenient approach to consistent and controlled calf development. It is often difficult to achieve consistent feeding within a group rearing system due to feeding occurring in a shared trough. ACF's enable the individual, voluntary feeding of calves and the ability to monitor and report on an individual's intake. These systems vary in feeding capability but typically range between 30 and 150 calves, depending on both the size of the system and the number of feeding stations offered.

The mechanics of ACF's

Automatic calf feeders have two key components. Milk preparation, where milk is prepared to an appropriate temperature from either powder or fresh source, and individual voluntary consumption, which ensures that each calf gets the opportunity to consume their allocation of milk. Some ACF systems are capable of also providing concentrates to calves.



Implications of ACF

Automatic calf feeders perform a significant proportion of the calf rearing process, offering a number of benefits to operations where calves are reared in groups.

- *Individual feeding*

Ensuring consistent feed in temperature, quality and volume is crucial to calves and often difficult to achieve in traditional group housing systems. Automatic calf feeders make it possible by automating the process.

Automated calf feeding systems are able to manage calves as individuals, offering additional feed to underperforming individuals or gradually reducing milk to older animals as part of the weaning process. Calf intake is also likely to increase due to the ability of ACF's to offer the calves smaller and more regular feeds which leads to better performance and feed conversion efficiency.

- *Labour efficiency*

The redistribution of labour is a key benefit of an ACF. Although the technology doesn't reduce the need to devote time to calf rearing, it does offer improved labour efficiency. Time devoted to calf rearing can be redistributed, enabling flexibility around the calf rearing process for both the operator and the calves, as opposed to traditional systems which require calves to feed when provided with food. This redistribution of labour involves;

- Maintenance, cleaning and servicing of the ACF
- Restocking of the ACF
- Review of individual calf performance and training as required
- Increased individual calf care.

- *Early detection of illness and poor performance*

Feeding calves as individuals and the automated collection and reporting of data on every feed allows the early detection of disease. A decrease in appetite has been shown to be an early indicator of disease/illness in calves and therefore early detection and treatment is possible with ACF systems, which benefits many treatments.

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Automatic calf feeders

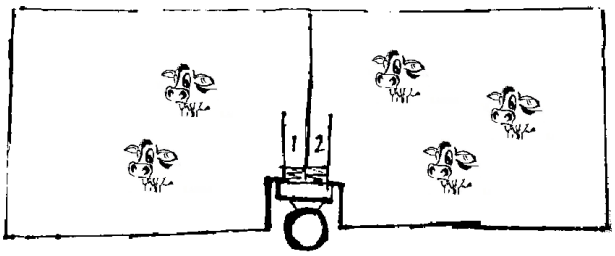
Installation of ACF

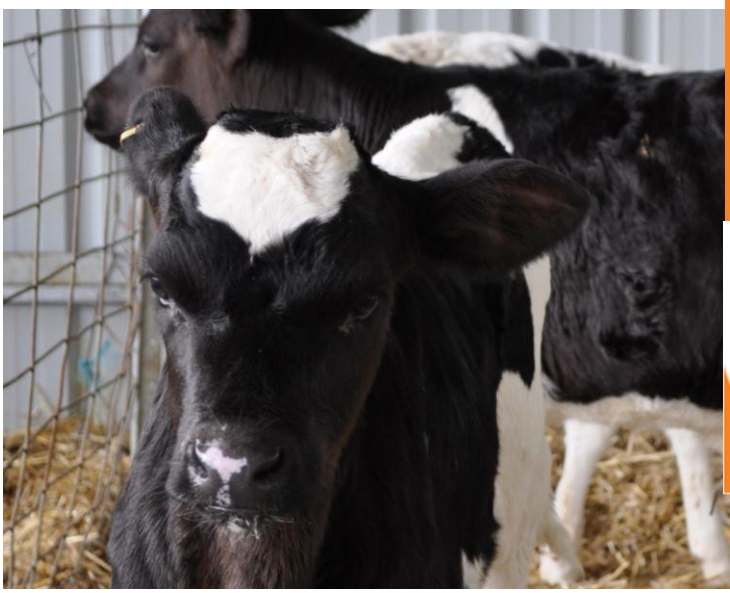
An effective calf rearing facility, that is '*well designed and effectively managed*', is critical for any successful ACF system. The system aims to achieve greater performance from calves, however this can be eroded resulting in sub-optimal performance if some areas of the rearing system are inadequate.

The installation requirements of ACF are related to specific system and companies. Each machine requires specific resources relevant to the tasks they perform. However, ACF's typically require;

- A covered area
- Power
- Concrete slab (to mount the ACF).

The diagram below shows a typical layout for an ACF system which offers voluntary feeding to two pens through two feed stations control by one unit.





Economics of ACF

With a capital investment in the tens of thousands of dollars, it is important to consider the economic benefit of an ACF. Return on investment is achieved through improved calf performance and redistribution of labour.

The following is a simple approach to examining the economics of ACF's for a farm operation. A typical ACF for rearing **120** calves a year might cost around $30,000. We can assume the ACF saves one person, half an hour of the daily calf feeding routine to perform, and they were paid $**24**.00 an hour. In addition it will improve growth rates by 10 per cent, worth $**30**.00 in life-time production of the individual, based on potential impact of 50kg increase in bodyweight on lifetime milk production (InCalf 2011).

The following calculations are simple and aim to present a starting point, for development of a farm budget and refinement of the benefits and savings associated with the technology in specific operations.

Total cost of ACF - **$ 30,000**

Assuming it saves one person, half an hour of the calf feeding routine to perform, and they were paid $ **24**.00 an hour. In addition to achieving a 10 per cent increase in growth rates worth $**30**.00 in life-time production of the individual.

(1 x 0.5) x **24** = $ 12.00 per day for 12 weeks rearing

Plus (**120** (no. of calves) * **30**) = $3600 per calf crop

= $4600 a season = **6.5 years to pay off**

plus maintenance costs

From these calculations ACF's can be considered a long term investment. Further economics should be performed before purchasing the technology to ensure success within your system.

For more information contact -

Matthew Reynolds

Project Officer – Dairy Genetics

Phone – 0408 534 595

Email – matthew.reynolds@depi.vic.gov.au

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