Adoption of new technologies

Automatic gate timers

The daily task of fetching cows for milking and opening gates to new paddocks can be repetitive and mundane. Effective pasture management relies on a grazing plan with paddocks being pre-selected for grazing based on stage of growth and cover.

While visual assessment of the pasture and consideration to historical or pending management (e.g. fertiliser/effluent application, desired grazing rotation) is important, the actual task of opening the paddock presents an opportunity to use automatic gate timers (AGT's). AGT's offer a valuable tool to achieve a reduction in time dependant activities on-farm, such as bringing the herd in and opening the new allocation of pasture. AGT's can allow cows voluntary movement to the dairy, allowing milking to start as the cows trickle into the shed.

If pasture allocation is reasonably accurate, cows will be willing to exit the grazed pasture allocation when the AGT releases the gate and will move to the dairy at their own pace. With this approach the person doing the herding can focus on other tasks before the start of the milking (for example calf feeding) and should be able to attribute less total time to herding as only the 'stragglers' will need to be collected. The voluntary cow flow and pace has been shown to return a number of benefits to the farm including reductions in stress on both the animal and operators and an improvement in labour efficiency.

Mechanics of AGT

Automatic gate timers use a pre-set timer to automatically release the gate enabling cows to either enter or exit the paddock. As the technology works by releasing the gate through a latch mechanism, it can only open gates, not close them.

Implications of AGT

A system incorporating AGT's has a number of benefits, however effective forward planning is needed to achieve the greatest benefit.

- *Labour efficiency*

AGT's have the potential to improve labour efficiency by changing the way aspects of the herd's movement is managed and allowing the herd a '*head start*' on the journey to the dairy.

AGT's offer their greatest benefit for labour efficiency during the period before milking starts where the herd is generally manually released from the paddock and then herded as a group to the dairy. In a strategic AGT system, the herd can be released and allowed to move to the dairy at their own pace, once the AGT had opened the gate. This leads to a potential reduction in the cases of lameness and the time required to bring the herd in for the start of milking.

- *Slow cows and lameness*

Lameness is a major issue, with animal handling being a significant factor in its occurrence. Lameness has been found to cause a loss in both production and conception rate. Therefore reducing the incidence of lameness has significant benefits to an operation. Lameness can be caused by a wide range of factors with two of these (walking surface and stockmanship) potentially removed by the use of AGT's which allows voluntary cow movement. Voluntary cow movement enables each cow to travel at her own pace, enabling better foot placement and a reduction in the likelihood of injury. This is particularly important on farms where the walking surface may not be ideal or during prolonged wet weather when hooves are soft and prone to bruising.

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Installation of AGT

The installation of automatic gate timers is one of the simplest of the automated technology available currently. AGT's combine both mobility (as the technology doesn't need to be permanently mounted) and effectiveness in performing the task of opening the gate in a simple and repeatable process.

When installing AGT's you need to consider the training of employees around effectively programming the timer and the type of gates the AGT's are used on. Due to the devices working of a simple latch release mechanism, the technology is limited to some degree by the type of gate and the ability of the gate to move to an open position without the need for human intervention. Therefore AGT's are particularly suited to bungy/single line gates which allow the gate to be fully opened with the release from the latch (Refer to images below)

Economics of AGT

An improvement in labour efficiency on-farm is often the key driver for adoption of automated technologies. Although AGT's result in only a small reduction in labour, the benefits to achieve a return on investment are still important to examine.

The following is a simple approach to examining the economics of ACR's for a farm operation. A quick examination of the cost return of AGTs in an example.

Total cost of AGT - **$ 500.00**

Assumed it saves one person **two minutes** a day to open the gate and bring the cows to the shed, and they are paid $ **24**.00 an hour.

(1 x 2) x (24/60) = $ **0.80 per day**

500 / 0.80 = 625 days = **1.7 years to pay off**.

plus maintenance costs

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

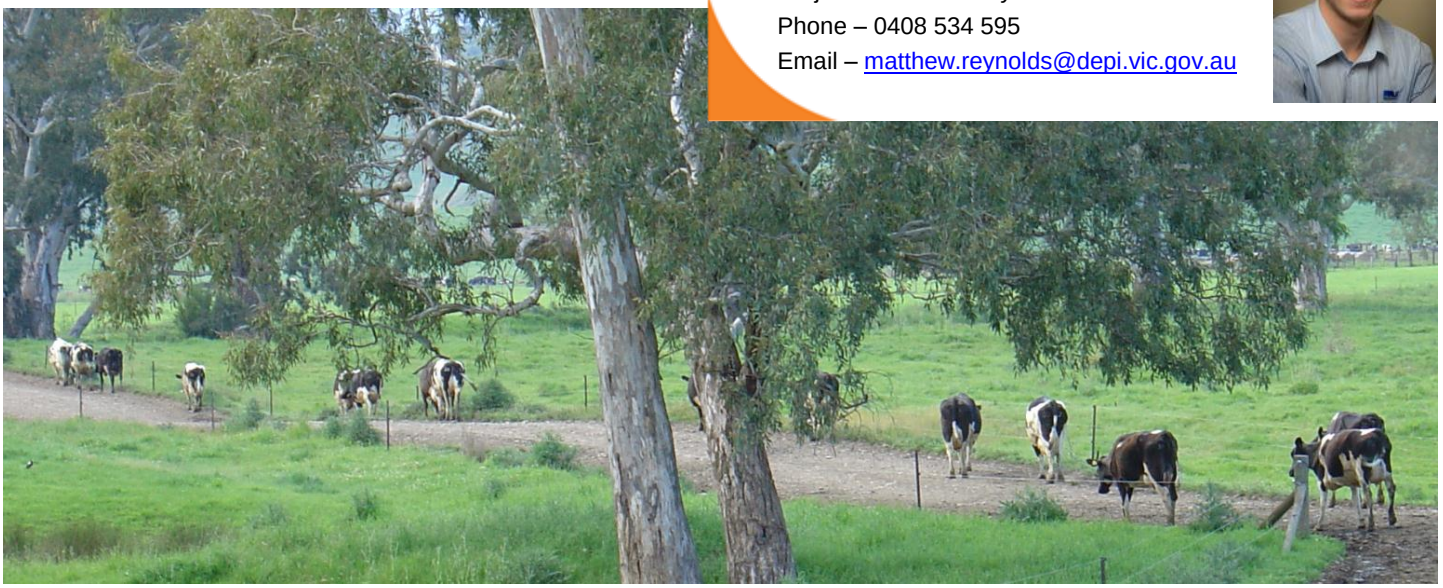
For more information contact -

Matthew Reynolds

Project Officer – Dairy Genetics

Phone – 0408 534 595

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



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