

Milk metering with electronics:

Just for the record

For milk producers, knowing just how many litres of milk an individual cow is yielding each time she is milked can be priceless information.

Not only is this data indicative of how well the cow is performing in respect of her diet, but a sudden drop can also indicate the onset of bulling, be symptomatic of an ailment that needs attention, or even a psychological problem brought about by stress within the herd. Whatever the reason, a milk metering system provides the herdsman with an early warning of any problems that he might, in normal circumstances, miss or overlook.

Milk yield recording, of course, is not a new phenomenon. While being a weekly or even monthly parlour chore that most dairy staff look upon as having a certain

It is only in recent years that dairy farmers have had the means of electronically recording the milk yielded by individual cows within their herds. In the third part of our in-depth look at milking equipment, Andy Collings discusses with Green Oak's Roy Birchall the benefits of using milk flow metering systems

inconvenience factor, the importance of being able to note changes in performance was recognised by the industry many years ago. The problem was that, in the main, the information always arrived a little too late for the herdsman to make any educated comparisons.

Roy Birchall, of Crewe-based milking machine component specialist company Green Oak, points out that dairy farmers were spending a lot of their time trying to put things right rather than preventing them from happening in the first place.

Information needs to be current and not a week old – or longer.

“A herdsman really can't have too much information about the dairy cows he is milking,” says Mr Birchall. “It's easy to forget that you are dealing with a living animal and not a machine you are simply pumping fuel into to make milk. Cows are subject to all manner of problems – both physical and psychological.”

When jars – those glass receptors that used to, and probably still do on more than a few farms, clutter up the parlour were all the rage – milk recording was a

Electronic milk recording systems are becoming increasingly popular with dairy farmers looking to further improve herd management efficiency.



Milk sampling requires a jug to be attached to the flow meter. A small sample is taken from each fill of the lower chamber to gain a representative and accurate sample of the whole milking cycle.

the parlour's automatic cluster removal (ACR) system. Rather than simply pulling the cluster clear of the teats and udder, which would upset the cows, activation of the ACR system also shuts off the vacuum to the cluster and waits a few seconds for the seal between the cups and udder to release before removing the cluster.

The metering system can also be used to take milk samples from individual cows when they are required. A plastic jug is clipped to the base of the unit and, with each fill of the lower chamber, a small sample is allowed to enter the jug. This arrangement provides a uniform sample taken throughout the milking period, which is important because analysis of the milk changes as the cow is milked.

Those who shudder at even the thought of washing these flow meters can relax. They are washed as part of the parlour system and, according to Mr Birchall, need very little attention.

"The components are quite robust and, apart from the occasional seal to replace, there is little to go wrong with them," he explains. "The key point is that they are accurate. Some of my customers say they are within 2% of their milk purchaser's supplied figures."

So that's how the exact volume of milk is measured. But taken in isolation this yield information is not too useful: The identity of the individual cow needs to be linked to it.

Enter, then, the transponder. This unit emits a nine-digit identity number that



can be read by a receiver and fed into the electronic system that oversees the milk metering system.

Most ID modules or transponders are now attached as a bracelet to one of the cow's front legs rather than as ear tags; they are claimed to be more reliable and also have the advantage that they can be simply removed and reused. Activation occurs as the cow enters the parlour.

With the identity of the cow known and the milk yield she has provided displayed on a small parlour-based control unit, all manner of management possibilities now become possible.



The flow meter can be linked to the parlour feeders so that an individual cow is fed to yield with concentrate; overall amount of feed per litre is set by the herdsman.

For starters, the cow's yield can be linked across to the amount of parlour feed she receives, an electronic delivery system placing just the right amount of concentrate in front of her at each milking.

Just the one proviso on this one, though. There have been a few cases where the system has reacted to a lower milk yield by feeding less concentrate, and this has caused the yield to drop even further and the feed to be reduced and so on.

When linked via a computer feed-to-yield program, however, there is the chance to enter individual tolerances with + or - percentages, and the auto-adjustment program will average out any reduction or increase in milk yield over a six-day period. This system avoids any immediate adjustment in respect of feed rates to changes in milk yield and provides the opportunity to investigate the problem.

"Properly monitored, automatic parlour feeding systems can pay big dividends



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Flow meter in situ. Each unit costs about £630 installed with auto cluster removal and control box. System can be 'grown' by linking it to an office computer, which records the entire history of the cow in terms of yield, calving, milk quality etc.



in healthier cows with improved fertility, reduced feed bills and better margins overall," says Mr Birchall. "And for those who prefer to feed their concentrates out of parlour, Green Oak is set to introduce an electronically linked system for this method."

But there is more. Should a cow have mastitis and had a quarter treated with antibiotic, the herdsman can enter the

The more advanced metering systems are linked to an office computer from which a program can record each cow's daily performance along with details of feed, ailments, calving - in fact every notable detail of her entire history.

The advantages and flexibility of such a system should now be apparent, and it could be argued that a viable return on the initial investment is achievable.

cow number into the system, which will then advise him at the next milking that she has entered the parlour and is at, say, milking point four - and stop the cow from being milked and antibiotics from getting into the tank. If a cow needs a pregnancy diagnosis test or a group of high yielding cows need to be segregated, they can be auto-identified and then steered in the appropriate direction.

And there is yet one more argument. While higher and more acceptable milk prices are being paid to milk producers, one of the drivers behind the decision to invest in milk metering systems could be down to the external pressures created by Farm Assurance.

Summary: "There is no doubt that a milk metering system is a valuable management tool," Mr Birchall says. "But you still have to remember that it is only one part of a milking system, and it is essential that all other components are functioning as they should be."

He adds that if dairy farm hygiene levels are to continue to improve and the image projected to the public is to be one of high quality milk, then the job has to be carried out properly with modern equipment that is well operated and regularly maintained. Perhaps the most important bit of it all to get right is vacuum pressure at the teat end. "The only way to really gauge the efficiency of a milking system is to have a Dynamic Test performed. This test records just what is going on where it matters most - at the teat end."

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