Taking electronics to the farm

If we have the time, our cows will tell us all we need to know about what is happening in the herd.

The problem is that nobody has enough time to spend with their cows and so they miss key events and key warning signs in the herd.

However, this need not be the case in today's electronic era and to find out how electronics has come to our aid, International Dairy Topics recently visited a farm in Holland where Nedap evaluate their information technology products for the dairy sector.

Dutch dairy farm

This farm is a typical Dutch family dairy farm with some 90 Red and White Friesian cows in milk that produce 30kg of milk a day with good fat and protein levels. There are also a dozen dry cows in the herd.

The 2 x 10 parlour, which has been kitted out with Nedap's cow monitoring system, is able to milk the 90 cows in 50-55 minutes.

This technology has helped this 90 cow farm move forward, but where the system really pays back is on the larger farms where labour is at a premium and the cows can not be observed for as long as most farmers would like.

The Nedap Lactivator system is a simple, convenient, cow and user friendly system that enables large numbers of cows to be monitored which, in turn, enables rapid responses to the latest available information. The system also identifies key information that is not always visible to the cowman's naked eye and a good example of this is that the system identifies exactly when each individual cow is in heat.

The milk parlour. Note the input terminals (inset).

The Lactivator is available in neck and leg forms and the former has the advantage that it is attached to a robust collar that can also incorporate the cow's number.

This makes individual animal recognition much easier and enables the cowman to correlate his own observations to the data Lactivator provides him with.

The actual Lactivator unit has been refined over the years and is based on years of accumulated knowledge and experience. Already over one million of these individual animal Lactivators have been sold around the world.

The individual cow unit is compact, measuring just 38 x 70 x 70mm and weighing only 135g. It has two key roles – it identifies

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The Lactivator neck collar.

Robustness is one of the Lactivator's many feature!

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the cow to various monitoring systems on the farm and it measures or records that particular cow's activities.

The system has its own unique milk yield registration that indicates the milk yield of each cow.

This data is critical as it determines the amount of concentrate the cow requires and the system then ensures that this cow receives that amount of concentrate while she is being milked in the parlour.

This one feature alone saves the farmer valuable time while at milking, but it also ensures that the cows only get the concentrate they actually need, thereby saving tonnes of expensive concentrate over a year. But there is much more to Lactivator. This system, in addition to defining milk yield and then feeding the cow accordingly, can also detect which cows are in heat, provide general health information, tell the farmer just where a particular cow is and can detect lame cows.

Comparison of performance

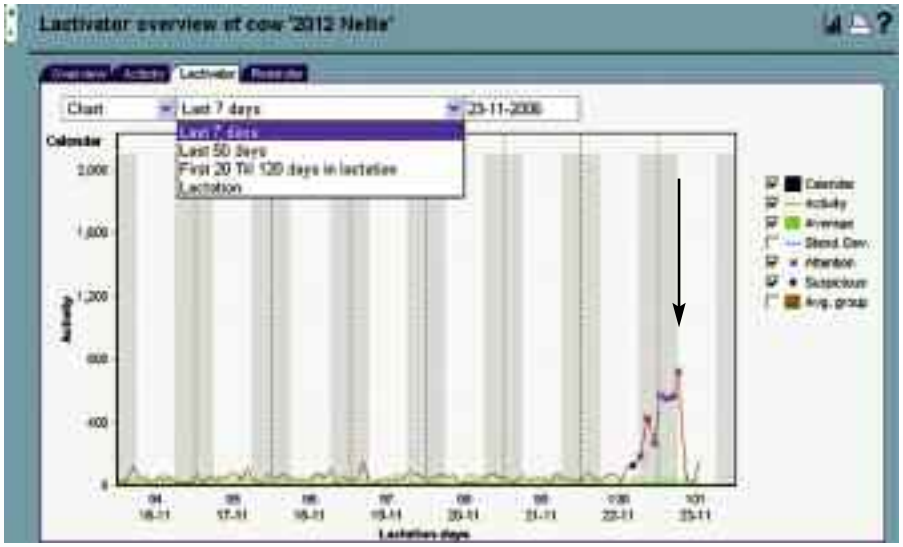
Lactivator records a cow's activity over every two hour period and then compares this information for the same periods on previous days and indicates when the increase in activity over successive periods has increased enough to be indicative of the cow being on heat.

This is really helpful when one considers that many of the behavioural characteristics of heat occur at night and are missed by the farmer or his cowman. Then the farmer can assess those cows that the system has identified as in heat.

This does have a role to play in cow management because not all cows with increased activity are in heat – there can be other reasons for increased activity.

In fact the Lactivator goes some way to help with this in that animals that are flagged up with increased activity are further subdivided into 'suspicious' (cows with reduced heat expression), 'attention pregnant animals' (probably not in heat!) and 'attention non-pregnant' (most likely in heat).

Also, by calling up a graph showing the last



Recent days highlighted on screen. The arrow indicates the heat activity.

50 days of activity you can see whether the activity is cyclical, as would be the case in repeat heats.

However, it has been shown that this is not really necessary as when the alarm is given that a cow is in heat this is invariably correct and she can be immediately inseminated.

Best chance of conception

This feature actually gives the best chance of conception as the inseminated spermatozoa can then reach the egg at the optimum moment and delay, which is associated with a slightly lower conception rate, is avoided.

This is especially the case if the system has previous heat activity profiles to compare its current data against.

All the relevant information regarding the heat detection and subsequent service are retained in the system and retrospective analysis of this data can be used to further fine tune insemination time. The whole system is Windows based.

A really useful function of the system is its ability to generate an attention list that identifies when individual cows generated an indicator alarm and what corrective action was implemented and when the cows need to be rechecked to confirm that the action taken was effective, for example, the cow is in calf following insemination.

Data on screen.

Where farmers have used this system they praise it for its versatility, simplicity and reliability and view it as the most advanced system available for the effective monitoring of dairy herds.

A key aspect to the system's success is its ability to react quickly to current information by initiating an action or flagging up the situation to the operator. ■

Fig. 1. Activity of a cow during a heat.