Making best use of parlour and herd management technology.

The Cafre dairy unit has been designed to best meet the education and training needs of agriculture students and the dairy industry, to enable the delivery of knowledge and technology transfer and to comply with all relevant legislation and animal welfare recommendations.

This is one of a series of technical notes aimed at farmers and students designed to provide the level of technical detail required to assist farmers in adopting technologies and practices demonstrated in the Greenmount Campus dairy unit on their farm business.

Parlour and herd management software used effectively with the right hardware, support and training, can provide significant benefits for dairy farmers in reducing workload, improving the amount of information available, and managing individual cows to optimise health, fertility, locomotion, feed efficiency and ultimately productivity and profitability.

Parlour and Feed Control

There are a number of elements of a parlour system that can be put in place to aid herd and individual cow management and data collection associated with the milking and feeding processes.

Identification.

A key element of any animal management system is the unique identification of individual animals.

To allow maximum benefit to be gained the individual identity must be captured in the parlour, either through manual entry on the milking stall keypad, or via an electronic ID reader.

Electronic identification (or AutoID), using either tags or transponders in pedometers or neck bands, will facilitate data collection and process control for feeding, milk recording, activity monitoring, weighing and segregation, all of which can provide significant benefit.

Feeding

Identifying the cow triggers feed dispensing to each cow, based on the feeding policy managed through the software, and calculated based on the parameters selected, e.g. cow group, previous yield, stage of lactation or days in milk, cow weight and/or body condition score, health status, pregnancy status, ect,..

Linked to autoID of the cow, out of parlour feeders can deliver feed in the cow shed based on parameters set by the herd nutritionist.

Milking

As the cow is milked, details of the milking routine can be managed through the software and interaction with the stock person milking. Warnings or alerts can be delivered for cows in medicine withdrawal periods. Warnings can also be given for cows with a greater than expected change in milk yield, body weight or activity.

Data recorded associated with the milking process can include time from feed drop to cluster attachment, milking speed, milk yield, milk conductivity,....

Advanced sensors can determine protein and fat content of milk.

Fertility

Cows displaying signs of heat, based on activity, can be drafted automatically, or in-parlour alerts generated to identify cows manually for checking, separation and service.

More advanced systems allow previous activity and changes in body weight, milk production, milk conductivity and rumination to be included in the analysis to improve the accuracy of oestrus prediction.

Weighing
Cow weights can be collected with walk-over weighing systems installed in the race as cows leave the parlour.

Segregation
Cows can be separated through drafting gates installed in the parlour exit race, allowing cows to be drafted for service, medical attention, or simply split into housing or grazing groups on the way back to feed after milking.

Herd Management

In addition to controlling the cow management processes in and out of the parlour, specialised herd management software can support input of data, and production of reports to provide a range of other useful and beneficial management information.

Fertility
Calving information, including details of the calf, to support pedigree and statutory (APHIS) registrations.
Oestrus and service details can be recorded and analysed, along with pregnancy diagnosis details.

Health
Drug purchase and usage can be recorded and monitored to support Quality Assurance programme reporting requirements, e.g. Red Tractor of NIFQAS.

Feeding
Details of feed purchased and delivered and feed usage can be monitored for performance monitoring and planning, and for Quality Assurance purposes.

Milking
Milk yield data can be collected and reported to Milk Recording organisations for verification, and upload of milk yield and constituent analysis information from the recording organisation can done for reporting and decision support.

Youngstock management
Herd management software can maintain all relevant records for effective youngstock management, including pedigree, feeding, health, weight and fertility information.

Your Management Routine.
To realise benefits from using technology, using the computer must be part of the herd managers routine management tasks.
This must include both entering data and checking reports to make decisions and take action if and when necessary.

Daily
On a daily basis farmers should have at least 15 to 20 minutes as part of their herd management routine to check reports on herd and individual cow performance.
Reports to check include:

1. Milking reports
    a. Individual cow yield, with attention to cows deviating significantly from expected production
    b. Conductivity of individual cows as a warning for mastitis
    c. Milking group averages as a cross check that feeding is on target

2. Feeding reports
    a. Total feed dispensed to each group, cross checked with milk yield for deviation
    b. Warnings for individual cows allocated a significantly different amount of feed

3. Activity reports showing individual cow activity and a significant deviation above or below normal as an indication of either oestrus or sickness

Daily routine should include time to enter and update any data such as services, calvings, group changes, feed allocations,.. etc.

Weekly
On a weekly basis the herd management routine should include at least 20 minutes to check reports for cows requiring routine attention, such as:

1. Fertility analysis reports
    a. Cows/Heifers eligible for service and not yet served or seen in heat
    b. Cows/Heifers approaching 3 weeks and six weeks post insemination
    c. Cows coming to dry-off
    d. Cows or heifers approaching calving

2. Cow milk yields, with particular attention to cows at group change thresholds with a view to changing groups

3. Feed reports
    a. Group concentrate allocations and forage/TMR analysis to ensure feed curves and group allocations are up-to-date
    b. Total feed dispensed and total yield in 7-10 day period as a check on kg/litre and margin over concentrate

Monthly
On a regular basis, recommended monthly, herd managers should check herd performance in key areas.

1. Fertility and breeding
    a. Number of cows served, PD+, dried off, calved against targets
    b. Submission and conception rates

2. Health
    a. Report of all health treatments to identify any areas for concern e.g. increase in mastitis cases

3. Total feed used and milk produced to give a monthly margin over concentrates for comparison with targets.

Annually
On an annual basis, or at the end of each lactation, herd managers should analyse herd and cow performance to allow informed decisions on future breeding, feeding, culling and health management strategies. Reports that are useful in this regard are

1. Individual cow total lactation yield and total feed consumption

2. Herd average lactation yield and average feed consumption

3. Herd and individual cow health treatment analysis

Consultant support.
As herd size increases herd managers rely increasingly on support from a range of experts ,such as vets, nutritionists, hoof trimmer or fertility specialists, to ensure animal health, welfare, fertility and production is optimised.

Herd management software can provide data and reports to make best use of the experts' time to focus on the specific cows and the problems to be addressed. These reports should be made available as part of the process of organising and planning the expert visit.

Reports used with different experts can include for example :

Veterinarian/Fertility Specialist

1. Animals eligible for service and not yet served

2. Animals for pregnancy diagnosis

3. Animals for checking for any other reason (e.g. weight change, milk conductivity changes, observed abnormal behaviour,)

4. Cows with 2 or more mastitis treatments

Nutritionist

1. Cows with peak yields and corresponding feed allocation

2. Group concentrate allocation settings, TMR or forage analysis and out of parlour feeder settings

3. Individual cow and bulk milk sample analysis

Costs and Benefits

Technology can be expensive, especially if you intend to put in place a complete system in one go.

Individual modules can be purchased and commissioned separately allowing a structured introduction of technology as the herd managers skills develop.

For each element, a simple cost/benefit analysis can be completed to justify the costs.
Some thought must be given to the full range of potential benefits.

A simple example for a 3-way segregation gate for a 150 cow herd could be:

Costs		Financial Benefits	
Gate + Installation (for illustration only)	£10,000		Annual benefit
Annual Cost , based on 10 years @ 5% interest	£1,295	Save 30 minutes per day drafting cows @ £10/hour = £5 per day	£1,825
		Total Annual Benefit	**£530**

The benefit is estimated on having to draft an individual cow up to 7 times during lactation for service, foot treatment, health treatment, PD or drying off. The assumption is also made that cows are milked as one group and automatically split into 2 groups after milking. Additional benefits could include more timely AI, more timely medical or lameness treatment and reduced stress on other cows through reduction in disturbance in the shed separating cows.

You should complete a budget based on the estimated likely benefits for your herd size and a proper quote for the technology to be invested in.

If you need more information on how to make best used of your herd management software, please contact your local Dairy Development Adviser

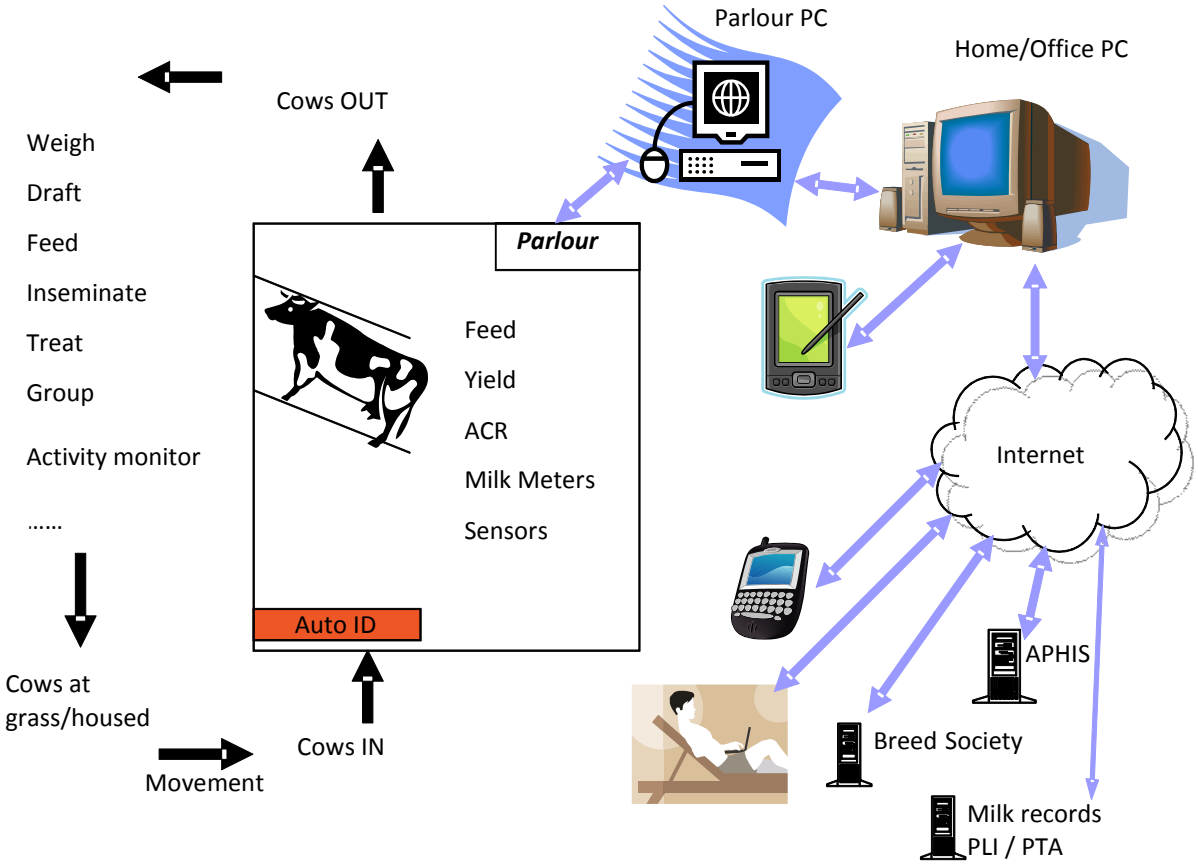

Figure 1 – Typical elements of a herd management system.