# DAIRY HERD HEALTH IN PRACTICE

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**JAMES BREEN ET AL** look at how adopting this method of cattle health monitoring could progress individual sick cow treatment to entire herd disease prevention

## Summary

Dairy herd health is an active process, based on systematic and regular examination of farm data, to inform management decisions and review husbandry. It is a logical progression, from individual cow diagnosis and treatment, through creation of routine herd fertility and clinical visits, to setting up herd health plans that are periodically reviewed, and, ultimately, a situation where all these elements are combined, with regular data examination and discussion, to produce herd health. Herd health relies on an excellent relationship between the veterinary surgeon and farm client, an appreciation of the importance of high-quality data and, sometimes, a different veterinary business model to traditional approaches – one that relies on selling advice, not one mainly supported from medicine sales. Herd health should ultimately provide a “win-win” situation for the farmer (a healthy herd with efficient and increased production), the veterinary surgeon (more fee-paying consultancy and the chance to improve cow welfare), the industry (a sustainable supply) and the public (a high-quality product, combined with an acceptable image).

**Key words**

dairy, herd health, prevention, data analysis

**VETERINARY service provision to dairy herds almost always begins with attention to individual diseased cows as they arise.**

Veterinary surgeons will rapidly become acquainted with the clinical syndromes, produced by metabolic conditions such as ketosis, inflammatory conditions such as mastitis, reproductive disorders such as cystic ovarian disease, and endemic infectious diseases such as paratuberculosis, alongside the influence these conditions have on cow welfare and production.

While care for the individual cow must never be overlooked, many of the diseases and disorders of dairy cows arise as a result of suboptimal management and husbandry. In a herd health context, it therefore becomes more important to establish the incidence and prevalence of such conditions and work towards understanding routes by which they may be controlled.

As farming systems expand and/or modernise, preventing disease at the herd level will ultimately become more rewarding and reduce the need for repeated interventions to sick cows. The veterinary surgeon becomes a veterinary herd health advisor and is tasked with incorporating monitoring protocols for fertility performance, production and health, alongside individual cow diagnosis and treatment services.

## What is herd health?

We define herd health as “a method to optimise health, welfare and production in a population of dairy cows, through the systematic analysis of relevant data and through regular objective observations of the cows and their environment, such that informed, timely decisions are made to adjust and improve herd management over time” (Green, 2012).

This process is therefore a continuous one, involving regular contact with the dairy farm staff and a methodical analysis of the farm data, so that all aspects of the health and welfare of the cattle are reviewed frequently.

It is this regular contact that is of critical importance to the success of any herd health service, as it not only helps develop a close working relationship with the farm staff, but also allows for constant monitoring and re-evaluation of the farm’s performance, which is particularly important when judging the successes or failures of management decisions. Herd health is not to be confused with one-off “investigations” or herd health “plans”, which, while often useful, are quite different to regular herd health management.

A report by the Veterinary Development Council stated: “The overriding delivery tool for delivering animal health and welfare benefits, and improved food safety, must be effective farm health planning, based on the achievement of outputs” (VDC, 2012). The same report also recognised the substantial business opportunity the delivery of this sort of service offers to practitioners. There is also evidence farmers hold their veterinary surgeons in high regard when it comes to the provision of herd health advice (Hall and Wapenaar, 2012).

Despite this, it appears the provision and uptake of this service remains at a modest to-low level

(Mee, 2007; Hall and Wapenaar, 2012). Against the backdrop of decreasing revenues from drug sales, increasing use of paraprofessionals and increased availability of “external” advisors, the need for veterinary surgeons to evolve from “reactive” providers of ambulatory services to “proactive”, adviceoriented consultants has never been greater (LeBlanc et al, 2006).

## How do I get started?

Often, an excellent place to start is through “gateway” diseases, such as left displaced abomasum, hypocalcaemia, mastitis and lameness – conditions that allow further discussion around herd management after the clinical condition has been attended.

Another is to expand the routine fertility visit to a routine herd health visit, and allow additional time to review data and/or collect additional information (for example, body condition scoring) after the clinical work is finished. Duration of visits will be governed largely by herd size, but would commonly be expected to last around 90 minutes to two hours, on average, with larger herds taking up to four hours – sufficient to allow time to review herd performance with farm staff, in addition to the routine clinical work required.

It is also useful to budget for a quarterly extended visit, to allow for observation of other aspects, such as milking routine or assessment of the cows’ environment. It is a good idea to make these extended visits flexible, so the extra time can be used for whichever area is most important at the time. The onus is then on the veterinary surgeon to regularly analyse the data and assess current management strategies, highlighting where improvements can be made.

One reason for the lack of data recording on some farms is that vets and advisors have failed to feed back information in a useful and engaging manner, so the motivation to continue to collect data declines over time.

One approach designed to avoid this is to perform data analysis “live” on the farm, with the farmer. Time spent analysing data and assessing performance can easily be added to the end of routine farm visits, and can be a more transparent approach. This also allows any specific queries or concerns to be addressed there and then. A certain degree of confidence in performing the analysis and interpreting results is required to make this system successful, but such skills can be developed rapidly (Bradley et al, 2009).

Some of the reasons why veterinary surgeons may be reluctant to change their service provision include a perception of no demand; they can’t justify the cost; a lack of confidence, a fear of being challenged; a feeling data analysis is not “proper” veterinary work; or, simply, a lack of financial incentive, due to a ready supply of TB testing and drug sales (Mee, 2007).

## Herd health examples

With time, herd health provision will encompass fertility performance, production and metabolic disease, udder health, foot health, infectious disease and youngstock health. Within each section, the process remains the same – a herd “diagnosis”, implementing control priorities and monitoring the effectiveness of these control policies. Two examples are as follows:

**• Left displaced abomasum**

Left displaced abomasum (LDA) is a common disease presentation for veterinary surgeons – particularly in high-yielding herds – and produces a great opportunity to discuss preventive approaches to a costly cliniM cal event. A clinical event such as LDA also provides an excellent opportunity to review dry cow management, which is then regularly monitored.

In this herd example, the incidence rate of LDA spiked above an acceptable level of five per cent during last spring and further analysis of incidence by stage of lactation showed the majority of cases fell within 20 days of calving (Figure 1), clearly pointing towards dry cow management and feeding.

Management strategies likely to require discussion include control of body condition in late lactation by splitting the milking herd to create a low yielding group (reduce body condition score at drying off), composition of the transition ration, with respect to energy density and dietary cation-anion balance (DCAB) and ensuring high dry matter intakes, particularly if straw of variable chop length is observed (Figure 2).

In this example, the energy density of the transition ration was too low, as both the inclusion rate and dry matter of the straw being used had changed. After discussion with the nutritionist, the ration was altered, reducing the straw component and measuring intakes. Monitoring the rate of LDA subsequently showed a reduction back to “normal” levels of approximately two to three per cent (Figure 3).

**• Increased somatic cell count**

Increased somatic cell count (SCC) is a very common presentation in practice and one that also requires a herd approach, in addition to discussion around individually infected cows. In this example, a herd health approach has been adopted, following a classic “disease investigation” beginning when herd average SCC reached 300,000cells/ml.

Further analysis included focusing on the rates of new infection in the herd and clearly showed the rate of new infection in lactation (that is, cows more than 30 days in milk and that cross the 200,000cells/ml threshold between milk recording dates) was seasonally increased through the winter months (Figure 4).

As part of the DairyCo Mastitis Control Plan – a research-based and industry-recognised approach

to mastitis herd health (www.mastitis controlplan.co.uk) – management discussions consisted of items relating to improved control of the winter housing environment, including daily application of clean cubicle bedding, increased frequency of bedding up and cleaning out of the lactating cow straw yard, inclusion of the full pre-milking teat disinfection procedure in the parlour and increased provision for air outlet in the cubicle sheds (Figure 5).

Many of these items were adopted through the winter of 2012 to 2013, resulting in a clear reduction in lactation new infection rate (Figure 6) and overall herd average SCC to 170,000cells/ml, despite some changes not being implemented. This example of continuous monitoring of data now provides the backdrop to ongoing herd health and discussions of how to improve other health and production items, using the successes with SCC as a “springboard”.

## Summary

In summary, herd health provides a real opportunity for the veterinary profession to expand its services to farmers, positively impact on cow welfare and allow individual veterinary surgeons to gain new skills in the areas of data analysis and epidemiology, reproduction, nutrition and so on, alongside the foundation skills of medicine and surgery.

## References and further reading


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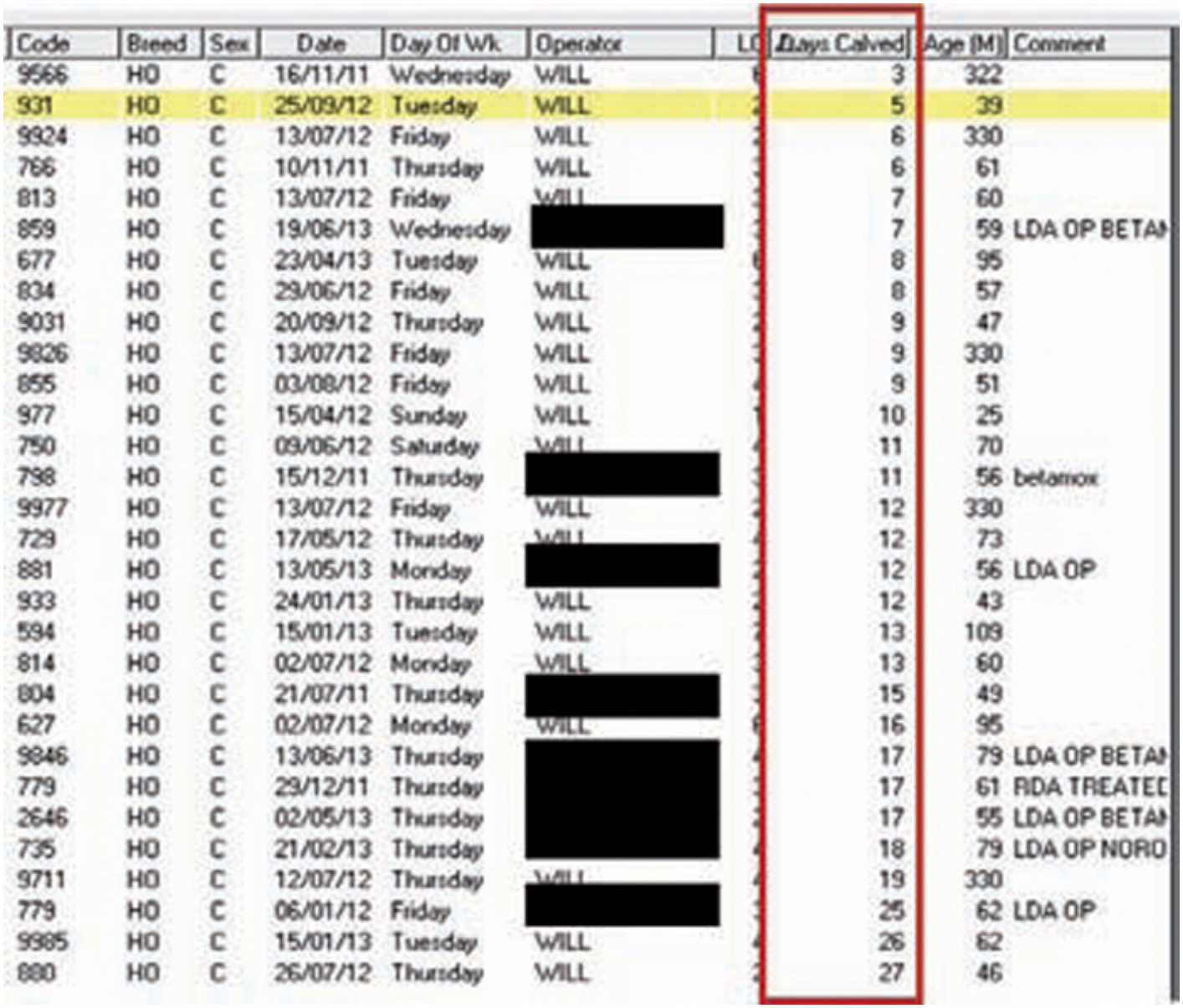

| Code | Breed | Sex | Date | Day Of Wk | Operator | LC | Days Calved | Age (M) | Comment |
|---|---|---|---|---|---|---|---|---|---|
| 9566 | HO | C | 16/11/11 | Wednesday | WILL | | 3 | 322 | |
| 931 | HO | C | 25/09/12 | Tuesday | WILL | | 5 | 39 | |
| 9824 | HO | C | 13/07/12 | Friday | WILL | | 6 | 330 | |
| 766 | HO | C | 10/11/11 | Thursday | WILL | | 6 | 61 | |
| 813 | HO | C | 13/07/12 | Friday | WILL | | 7 | 60 | |
| 859 | HO | C | 19/06/13 | Wednesday | [redacted] | | 7 | 59 | LDA OP BETAM |
| 677 | HO | C | 23/04/13 | Tuesday | WILL | | 8 | 95 | |
| 834 | HO | C | 29/06/12 | Friday | WILL | | 8 | 57 | |
| 9031 | HO | C | 20/09/12 | Thursday | WILL | | 9 | 47 | |
| 9826 | HO | C | 13/07/12 | Friday | WILL | | 9 | 330 | |
| 855 | HO | C | 03/08/12 | Friday | WILL | | 9 | 51 | |
| 977 | HO | C | 15/04/12 | Sunday | WILL | | 10 | 25 | |
| 750 | HO | C | 09/06/12 | Saturday | WILL | | 11 | 70 | |
| 798 | HO | C | 15/12/11 | Thursday | [redacted] | | 11 | 56 | betamox |
| 9977 | HO | C | 13/07/12 | Friday | WILL | | 12 | 330 | |
| 729 | HO | C | 17/05/12 | Thursday | WILL | | 12 | 73 | |
| 881 | HO | C | 13/05/13 | Monday | [redacted] | | 12 | 56 | LDA OP |
| 933 | HO | C | 24/01/13 | Thursday | WILL | | 12 | 43 | |
| 594 | HO | C | 15/01/13 | Tuesday | WILL | | 13 | 109 | |
| 814 | HO | C | 02/07/12 | Monday | WILL | | 13 | 60 | |
| 804 | HO | C | 21/07/11 | Thursday | [redacted] | | 15 | 49 | |
| 627 | HO | C | 02/07/12 | Monday | WILL | | 16 | 95 | |
| 9846 | HO | C | 13/06/13 | Thursday | [redacted] | | 17 | 79 | LDA OP BETAM |
| 779 | HO | C | 29/12/11 | Thursday | | | 17 | 61 | RDA TREATEC |
| 2646 | HO | C | 02/05/13 | Thursday | | | 17 | 55 | LDA OP BETAM |
| 735 | HO | C | 21/02/13 | Thursday | | | 18 | 79 | LDA OP NORO |
| 9711 | HO | C | 12/07/12 | Thursday | WILL | | 19 | 330 | |
| 779 | HO | C | 06/01/12 | Friday | [redacted] | | 25 | 62 | LDA OP |
| 9985 | HO | C | 15/01/13 | Tuesday | WILL | | 26 | 62 | |
| 880 | HO | C | 26/07/12 | Thursday | WILL | | 27 | 46 | |

***Figure 1. Left displaced abomasum (LDA) event listed, sorted by days calved to show typical pattern relating to dry period management.***

Chart: TOTAL VET, QMMS/SUM-IT.

***Figure 2. Straw is used to reduce the energy density of rations given to precalving cows and increase rumen fill, but must be chopped to reduce sorting and maintain intake.***

Photo: CHRIS HUDSON.

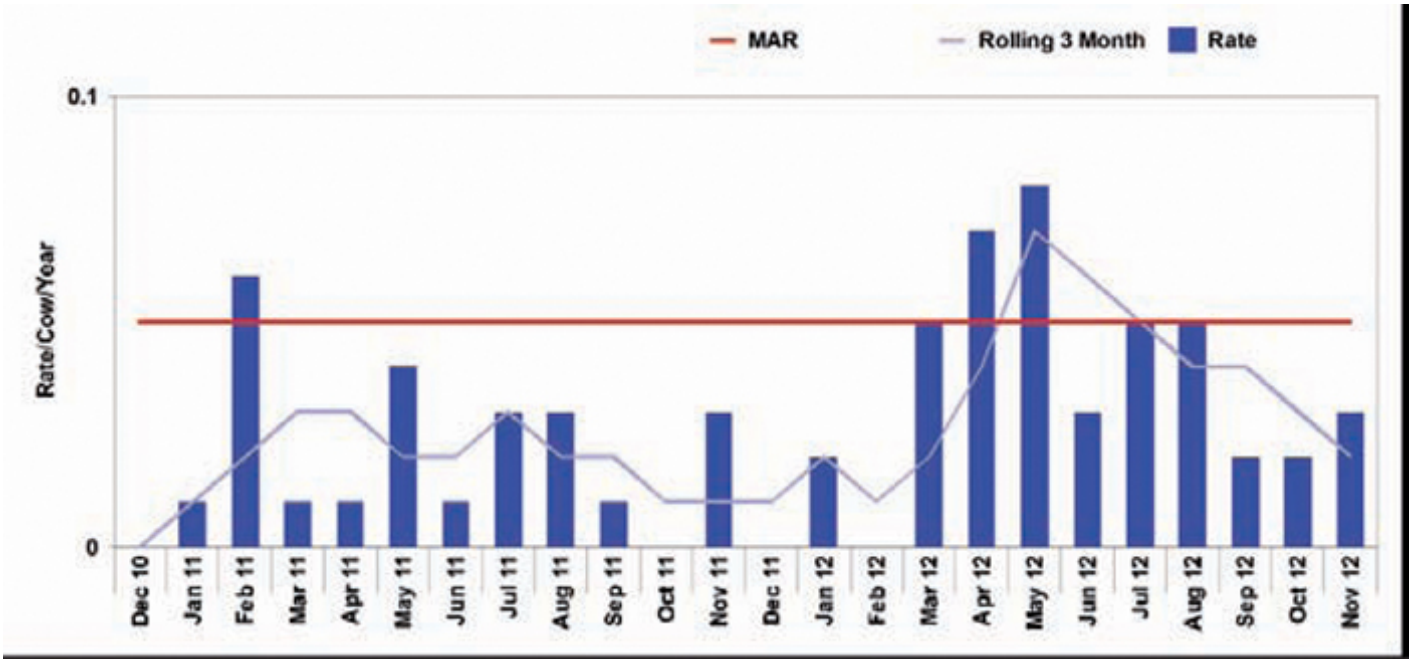


***Figure 3. Incidence rate of left displaced abomasum (LDA) to show the importance of ongoing monitoring. In this example, the rate is once again decreased, after the spike in spring 2012, above an acceptable rate of five per cent, instigating discussion and review.***

Chart: TOTAL VET, QMMS/SUM-IT.

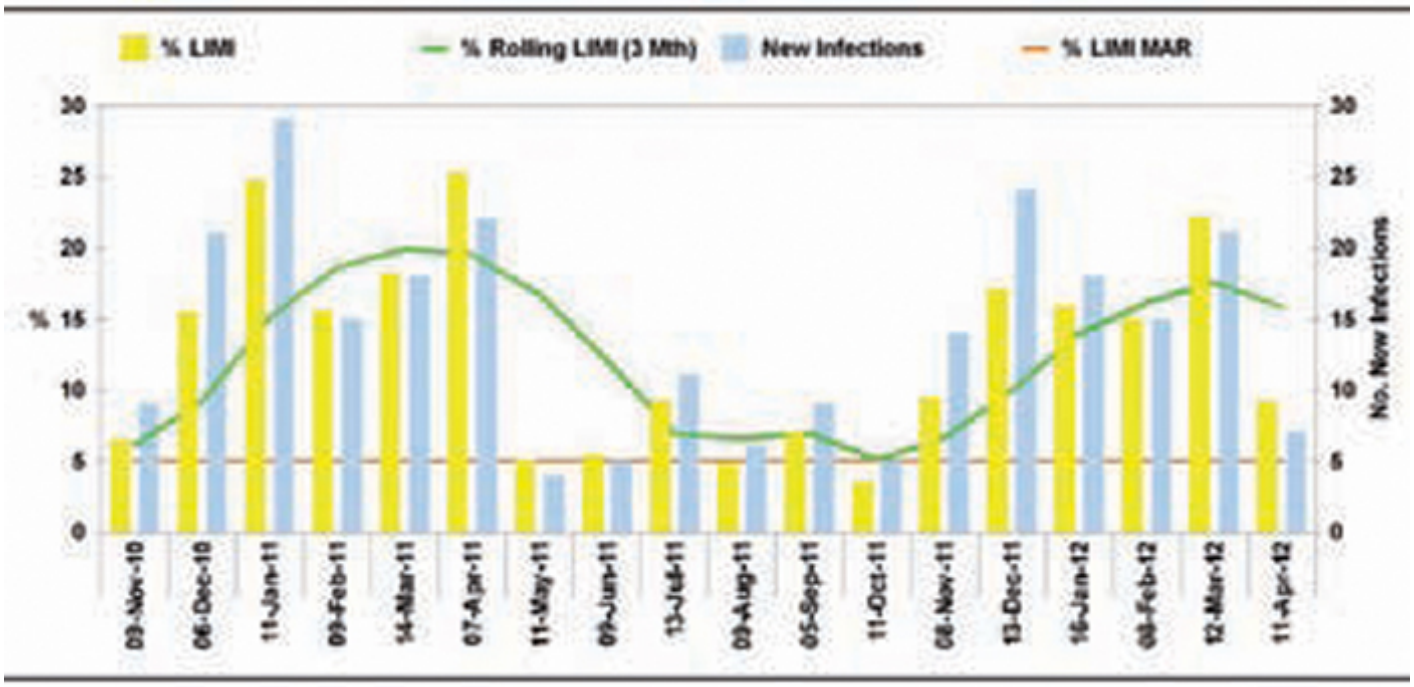


***Figure 4. A lactation new infection rate plot (that is, the rate at which cows move from less than 200,000cells/ml to greater than 200,000cells/ml between milk recordings) to show a seasonal increase (winter) for cows less than 200 days calved.***

Chart: TOTAL VET, QMMS/SUM-IT.

***Figure 5. Improvements made to air outlet in the main cubicle shed – one of several management changes for the housing period last winter.***


***Figure 6. The lactation new infection rate, monitored through the previous winter. The reduction compared to 2011 to 2012 can clearly be seen in response to management items discussed, but there is still some way to go.***

Chart: TOTAL VET, QMMS/SUM-IT.