

PREPARATION, MANAGEMENT AND MONITORING OF CALVING COWS

THE elephant seal mother loses 40 per cent of its body-weight during the 30 days it nurses its calf. This is due to the physiological demands of lactation combined with the mother's unwillingness to feed or drink while suckling.

The modern dairy cow has high physiological demands too. Its energy requirements double in the week after calving, and this demands increases in feed intake and gut mass. Despite these adaptations, cows will always lose body condition and our ability to closely match feed intakes to milk output, minimising condition score loss, is vital to the future health, fertility and production of the dairy cow. This article looks at how we can manage and monitor the freshly calved dairy cow.

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looks at the preparation and management needed to ensure a cow and its calf achieve optimum health within the dairy herd

ease risk postpartum. Examples are *Salmonella* vaccines, and Startvac for amelioration of coliform mastitis.

● Metabolic health (hypocalcaemia)

Diets in the dry period need to minimise the risk of milk fever and several strategies can achieve this, including altering dietary-cation anion balance (DCAB), magnesium supplementation, partial DCAB diets, and the use of zeolite as a calcium binder.

● Metabolic health (ketosis)

Reducing risk of excess weight loss, and ketosis, starts with avoiding excess body condition. Poor fertility, resulting in extended lactations and a reluctance to cull, contributes to the retention of cows in the dairy herd. Cows in high body condition are at high risk of ketosis. Gillund and others reported that cows in body condition score (BCS) greater than 3.5 were at double the risk of ketosis compared to cows with target body condition of 2.5 to 3.

● Fat club

Options for dealing with cows in high body condition include cull decisions made earlier (200 to 250 days and not in calf), dry off according to yield and not calving date, dry off and feed starvation ration. However, many herds accept that over-conditioned cows carry a high risk and find it difficult to manage additional groups of cows.

● Dry cow diets

This area has received a lot of attention in the past 10 years, with Drackley and Dann identifying that overfeeding in the far off dry period increased the risk of lower feed intakes at calving.

Two approaches have developed – the single group, low-energy, high-fibre diet, where there is no group or diet change throughout the dry period. This has the advantage of simplicity and avoiding group and diet change, but creates a greater step change in diet from dry to lactating ration.

The alternative far-off and transition group system allows a low-energy diet to be fed to far-off cows, and more expensive diet to be fed as cows approach calving. This has a cost-saving advantage, but timing of group change can be an issue (cows need to be on transition rations for adequate time) and

where far-off cows are grazed then energy intakes can be poorly controlled.

● Housing

Recent attention has focused on cow housing, in particular, minimising group changes, improving cow comfort, and ensuring good access and quality of feed and water. Effort in this area is likely to be rewarded as this will help to minimise any depression in feed intakes in the week prior to calving. Work at Wisconsin-Madison in herds has identified a high proportion of herd problems are due to issues of housing and not diet. As vets, with a broad agenda and knowledge, we are in a strong position to evaluate this area.

Parturient cow

A clean deep-bedded pen with sufficient space for the cow to calve is essential. The pen should be away from busy areas where the cow may be disturbed, but with good access to the milking parlour, and visible enough to allow frequent inspection – some compromise is inevitable given these conflicting demands.

A gate and head lock are required to allow easy restraint and checking of calving cows by one person. This will mean minimal disruption to cows calving where examination is needed.

Good traction can be provided by a deep straw bed, but this is best laid on sand to promote good drainage. Fresh, dry straw to provide a clean bed is essential to reduce risk of infection to both calf and cow. Good hygiene is promoted by restricting the calving pen use to less than 24 hours by each cow. This is achieved by keeping dry cows in cubicles, and using a "just in time" approach, moving cows to the calving pen at the onset of stage two of parturition. This approach does require frequent inspection of transition cows and carries the risk of cows calving in cubicles.

More commonly in the UK, transition cows are kept in a straw yard group. Cows may calve in their group pen, but are ideally moved to a separate, adjoining calving pen. This creates minimal disturbance as the cow is in sight and touch of its group, while separation prevents cross-sucking. A fur-



Figure 1. A calving yard yoke in action.

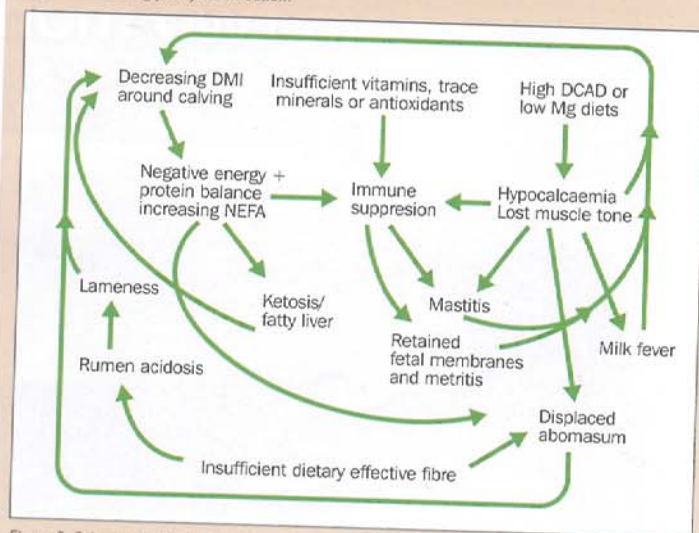


Figure 2. Schematic showing the interaction between aetiologies and disease presentations (Goff, 2006).

ther consideration is provision of separate calving areas for John's disease-positive cows.

Assistance of dystocia is beyond the scope of this article, but we have found training in the approach to calving cows to be popular with farmers and useful in getting across concepts of hygiene, ensuring moderate traction and postcalving care. Research in this practice identified that traction increased the risk of endometritis.

Good husbandry means provision of fresh food and many farmers advocate provision of lukewarm water to the fresh calved cow. If this is delivered directly in front of the cow then it can feed or drink while nursing the calf.

I do not advocate stomach tubing of all cows with fluids or salts, except when cows are sick or dehydrated, as I believe it is unnecessary when cows will readily consume fluids at this time.

Health

Common diseases in the freshly calved cow include milk fever, retained fetal membranes, metritis, left displaced abomasum, ketosis and mastitis. Prompt, accurate disease recognition is essential so rapid and effective treatment can be implemented.

However, screening methods should not be elaborate or take excessive time. I am sceptical about the US approach to fresh cow checks as I think it results in checking large numbers of healthy animals, can take excessive time when there is not the labour available in the UK, and may take freshly calved cows away from feed or from lying down for prolonged periods.

Instead, I prefer freshly calved cows are closely observed by skilled stockmen for signs of abnormal behaviour and monitoring of milk yields where available. High-risk cows can be marked with marker

spray to denote assisted calving, dead calf and so on. In this way, attention can be directed towards problem cows. Abnormal behaviour includes reluctance to feed, depression, weakness, diarrhoea, retained fetal membranes, poor rumen fill. Any indication prompts a clinical examination, including taking the cow's temperature and carrying out a ketosis test.

As most treatments will be carried out by farm staff we need to provide a written treatment plan. Routine visits can be an opportunity to review recent treatments and their effectiveness. Again, appropriate use of medicines means there must be clear end points for treatment, and action identified when cows fail to respond to initial treatment.

Herd monitoring

Routine visits are an opportunity to review disease levels in

continued on page 10

TABLE 1. Target incidence rate for common periparturient diseases (Mulligan, 2006)

Clinical condition	Target incidence rate
Milk fever	0-5%
Ketosis	0-5%
Left displaced abomasum	0-3%
Right displaced abomasum	1%
Retained placenta	<10%

PREPARATION, MANAGEMENT AND MONITORING OF CALVING COWS

— from page 8

relation to intervention points. Targets for common diseases are shown in Table 1 and are from Mulligan et al (2006). A rule of thumb I use is to look for more than 80 per cent of cows having no assistance. This is achievable in herds where transition management is well managed.

Calving health is complex, with interactions between many of the disease presentations and aetiologies. The most significant risks involve energy balance, ketosis and hypocalcaemia. Ketosis underpins many of the clinical presentations seen – left displaced abomasum, retained fetal membranes and metritis in particular. Ketosis results in poor immune function as well

as poor energy status. There is the added irony that should cows suffer ill health then this increases the risk of ketosis.

Monitoring disease levels can be a good method of identifying problem herds, but even better would be to identify problem herds at an early stage of lactation through regular testing. This is easier to achieve with a variety of cow-side tests available.

The Optium Xceed blood glucose meter is designed for human diabetics and is a portable device giving a fully quantitative result for beta-hydroxy butyrate (BHB) – a major ketone – after just 10 seconds. Blood samples should be taken from freshly calved cows, two

to 21 days calved, with a target of less than 1.0mmol/L.

Cow-side milk tests include Keto-test. The test strip is dipped into a milk sample for three seconds and the test strip read after one minute. A positive result is seen at more than 100mmol/L of beta-hydroxy butyrate, and the test is semi-quantitative, with darker colour changes indicating higher levels of BHB. In milk, 100µmol/L is the equivalent of 1.0mmol/L in blood. The test strips have a high sensitivity and specificity (83 per cent and 82 per cent), and have the advantage of being non-invasive, allowing farmer use in conjunction with their vet.

Work by Oetzel indicates that 12 cows need to be tested to have 75 per cent confidence that the result reflects herd status. This may mean that in

smaller herds a number of visits may be required to accumulate 12 results. Three results of more than 1.0mmol/L on blood, or more than 100µmol/L in milk, indicates the herd is positive for ketosis and clinical intervention is justified.

Management issues

Once the cow has calved it needs to have plenty of feed space (in excess of 60cm is ideal) and be integrated into a stable social group. Nordlund (2009) reported a high incidence of disease and culling in cows remaining three to 10 days in group calving pens and where there was a high level of social turmoil.

Good management involves promptly moving the freshly calved cow into a milking group. In most UK herds this will be into the main milking herd.

There may be herds or times of the year when a smaller group needs to be maintained to monitor health, to control dry matter intakes (such as when grazing conditions are unpredictable), or where conditions in the milking herd are sub-optimal. Cows should be maintained in this group for a period of 14 to 40 days. This allows long enough to settle, ensure health and then integrate into the milking herd for breeding.

Summary

Attention to detail in the preparation, management and monitoring of the freshly calved cow is essential for efficient running of the modern dairy herd.

The major health risks are energy-related diseases and hypocalcaemia. There is a complex inter-relationship between diseases and underlying aetiologies. Monitoring of clinical outcomes has been the standard approach to gauging success. The availability of cow-side tests for ketosis make regular herd monitoring achievable and allow another approach to be adopted.

References

- Gillund P, Reksen O, Grohn Y T and Karlberg K (2001). Body condition related to ketosis and reproductive performance in Norwegian dairy cows. *J Dairy Sci* 84:1,390-1,396.
- Goff J P (2006). Major advances in our understanding of nutritional influences on bovine health. *Journal of Dairy Science* 89(4): 1,292-1,301.

Drackley J K and Dann H M (2005). New concepts in nutritional management of dry cows. *Advances in Dairy Technology* 17: 11-23.

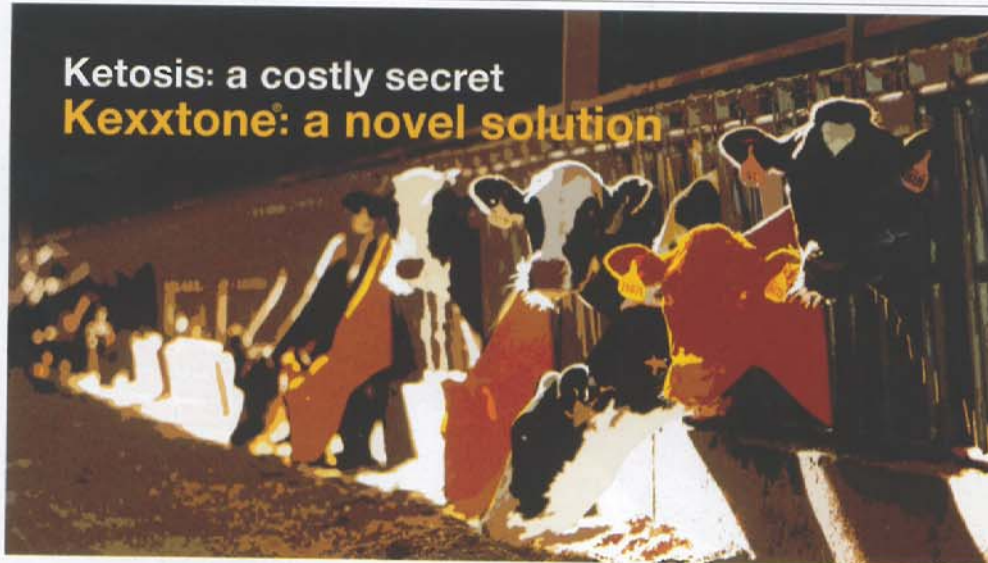
Mulligan F J, O'Grady L, Rice D A and Doherty M L (2006). A herd health approach to dairy cow nutrition and production diseases of the transition cow. *Animal Reproduction Science* 96: 331-353.

Nordlund K V (2009). Transition Cow Workshop notes, University of Wisconsin.



PADDY GORDON is a director of Shepton Veterinary Group, where he carries out routine fertility and herd health visits to dairy herds with up to 850 cows. He works to improve fertility, production and health on farm through targeted advice based on farm performance from InterHerd software, with attention to staff skills and focus. He is running a workshop on May 22 and 23 in Gloucestershire with Chris Watson on managing dairy herd fertility. Visit www.sheptonvet.com/training-referrals/managing-dairy-herd-fertility-cpd/

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Contraindications: Do not use in animals weighing less than 300 kg bodyweight.

Special warnings for each target species: Identification of animals for treatment should be at veterinary discretion. Risk factors may include a history of energy-deficiency-related diseases, high body condition score and parity. In the event of early regurgitation, identify the animal by matching the animal ID number with the number on the intramuscular device and re-administer an undamaged intramuscular device.

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REFERENCES
Macrae, et al. 2012. Prevalence of clinical and subclinical ketosis in UK dairy herds 2006-2011. World Biometrics, Lisbon, Portugal: Elanco Farm Audit 2011. No. GVAFF110006. Data on file.
CVMP assessment report of an application for the granting of a community marketing authorisation for Kexxtone (EMA/V/C/002235).

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Partnership to boost training

THE role of Chinese vets in safeguarding animal welfare will be strengthened by an agreement between the Chinese Veterinary Medical Association (CVMA) and the University of Edinburgh that will see both parties collaborate on veterinary research and educational programmes.

The agreement is the first between the CVMA and a UK university and will also promote and strengthen the role of vets in China.

Natalie Waran, Jeanne Marchig professor of animal welfare education at the University of Edinburgh, said: "This historic agreement, which draws on the University of Edinburgh's expertise in animal health and welfare research, will promote and support the development of continuing veterinary education in China."

"Along with the CVMA, we hope to develop dynamic educational expertise to enhance veterinary education, not only training Chinese veterinarians to meet the challenges of a changing and globalised profession, but also promoting animal welfare in the veterinary curriculum to ensure public safety and reduce epidemics."

The agreement is part of a collaboration between the CVMA and the Jeanne Marchig International Centre for Animal Welfare Education, which opened in 2011 and is part of the University of Edinburgh's Royal (Dick) School of Veterinary Studies.

Other aims of the collaboration are to promote and support innovation in postgraduate veterinary education in China. It will also draw on expertise in international animal welfare from the Jeanne Marchig International Centre for Animal Welfare.

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