



## Dry-period management: key to success of the dairy herd

**Perspectives on dry-period management are outlined by John Cook BVSc DCHP MRCVS RCVS-recognised specialist in cattle health and production, Yew Tree House, Cumbria, UK**

Historically, the dry period generally lasts 40-60 days and can be sub-divided into two periods, consisting of the 'far-off' and 'close-up' period, although many herds may only have single dry cow group. The far-off period lasts from the point of dry-off to approximately 21 days pre-calving when cows move to the close-up group, where they stay until the point of calving. Then, they may be left in the close-up facility to calve, or move to a temporary calving facility or calving pen/box. A 40-60-day dry period was established when it was realised that cows, that had a dry period of this optimal length, achieved higher-peak milk yields than herd mates and also achieved higher self-cure rates of existing subclinical infections.<sup>1</sup> Despite much interest, there is currently little justification for further shortening the dry period, while dry periods longer than 70 days have been shown to be a risk factor for hyperketonaemia (slow fever) post-calving.<sup>2</sup>

More recently, a 'fresh' cow group containing recently calved cows, perhaps up to three to four weeks post-calving, has been added in many herds. The close-up and fresh group are then considered as the transition period. These extra-management groups allow for different rations to be formulated and fed to these groups. It also creates the opportunity to provide these special-needs cows with the social circumstances and luxury facilities to encourage and support dry-matter intakes at a time when the cow is adapting to many physiological and metabolic changes and is unlikely to be able to meet the metabolic demands of late gestation and the onset of lactation. A body of evidence now exists to suggest that reproductive failure in dairy cows is a metabolic problem that occurs during the dry period, particularly around the time of calving, that has

lasting effects deep into lactation. The objective of good dry-cow management should be to achieve metabolic stability during this critical time by minimising the social, environmental and metabolic stressors on the cow.

### DRY MATTER INTAKE – THE KEY TO SUCCESS

During the dry period, a cow's appetite and, hence, her dry-matter intake steadily declines until the last seven to 14 days prior to calving when a further 30-35% decrease in intake occurs.<sup>3</sup> The decline in appetite is multifactorial but primarily driven by the hormones associated with late pregnancy and, in particular, oestrone that leaves the cow vulnerable to metabolic instability and its consequences. At the point of calving, the influence of the hormones of late pregnancy are lost and the cow is left with a residual appetite level. Maintaining appetite and feed intake in close-up cows is a key goal of dry-cow management. A freshly calved cow has no natural biological restriction on her appetite level and needs to rise quickly in feed intake to meet the nutrient demands of lactation but may well be disinclined to do so. The purpose then of a fresh group, or a fresh cow-monitoring system, is to encourage cows to develop and re-establish the regular and aggressive feeding habits needed to sustain high-feed intakes and maintain metabolic stability. Importantly energy balance in dairy cows is governed by energy intake (feed in) and not by energy output (milk).

Feed intake is often further restricted by the social and environmental stressors placed on the cow. Overstocking of dry and transition cows, particularly in terms of feed space and measured, as trough space per animal (ability to access adequate feed resources) is a major stress factor



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for dairy cows. Facilities will be required that are capable of providing for the cow numbers passing through them, which can be predicted from the calving pattern. If buildings are constructed for the average number of cows planned to be dry, it follows that, due to normal variations and seasonal changes, the building will be overstocked 50% of the time.<sup>4</sup> Periods of good reproduction (many cows falling pregnant) are often followed by peaks in postpartum disease and two-to-four months later, by disappointing fertility. The needs and requirements for feed access and stocking density for critical groups of cows should be considered and, if possible, intelligent use made of existing facilities. Calving pattern can be a major predictor of future performance. If the ideal dry period is 40-60 days then a key performance monitor should be the precision and compliance with the stated plan, not only the average days dry, but also, importantly, the distribution and trends over time. Herds using artificial insemination (AI) and with regular pregnancy diagnostic checks, should be capable of achieving 85-90% of dry periods within 14 days of the stated plan. Herds that cannot dry cows off at the correct time are unlikely to be able to implement more sophisticated management protocols. Variation is greater in herds that use natural service or struggle with reproduction and, so, often end up keeping cows in milk longer.

#### IMPORTANCE OF SOCIAL MONITORING

Social change is a stress factor for cows and may limit feed intake and disrupt feeding behaviour for several days after a group change. For this reason, cows should spend a minimum of 14 days in the close-up group prior to calving to limit the effects of social change on feed intake. Cows should never be moved between groups in the two-to-seven days prior to calving and, if moved to calving accommodation in the 48 hours before calving, should always be within sight and sound of their social group and never completely isolated. Length of stay in the close-up group and total dry period can easily be monitored if dates of dry off, calving and date of move to close-up pen are recorded. Studies using activity-monitoring devices show that heavily pregnant cows, on average, lie down for three hours less per day than cows in full milk and the pregnant cow that lies down the least eats the least.<sup>5</sup> Good cow comfort with a clean, dry, well-cushioned bed and adequate ventilation and light, are critical to supporting feed intake in dry cows. Ration goals for dry cows are aimed at ensuring energy intake is controlled and not excessive and a strategy to control milk fever should be in place. While ration formulation is important, experienced nutritionists, using modern software packages, should ensure that ration formulation is not the limiting factor to transition success for most dairy herds. A single dry-cow ration works extremely well in circumstances where the social and environmental needs of the cow have been met. After calving, an aggressive fresh cow-health programme is important to help reduce the impact of periparturient disease. However, by this stage, much of the damage is already done and the exercise is one of damage limitation.

Ideally, a fresh pen should contain only cows that are re-establishing their feeding behaviours and a reasonable target length of stay in the group would be 12-14 days with no cow ever being moved out of the pen at less than seven days in milk. Extended stays in the fresh pen, although feasible, should be treated with caution as they may indicate issues with the effectiveness and implementation of treatment protocols and can induce excessive weight loss if the fresh pen is fed a different ration, with respect to energy and protein, than the main milking group. Needs for feed access and stocking density are similar to close-up cows and, again, consideration should be given to both the normal variations as well as planned, seasonal variations in calving pattern when considering where these cows are housed.

#### CONCLUSION

It is becoming clearer that dry-period management is a key component of the success of a dairy herd. While each herd may have specific approaches that work well, the precision and compliance of the implementation of herd-management protocols, are key features of successful herds. Monitoring the key management processes that impact the critical pre- and postpartum periods should be followed by evaluation of the outcomes of those processes with the aim of preventing those problems. A consistent approach and timely evaluations of both process and outcome should allow the biological link between them to become established so that the producer develops a greater understanding of the relationships between the time lag from exposure to a risk factor and its outcome. The use of high-quality records is vital to the approach suggested in this article, but it should also be clear that this should be combined with regular observation of the cows and their environment.

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