Factsheet

Dry Cow Management for a Successful Transition into the Milking Herd

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Introduction

This factsheet focuses on the non-nutritional factors that are important to help dry dairy cows achieve a trouble free-calving and successful transition into the milking herd. While correct nutrition is important for dry cows to maintain body condition throughout the dry period, prevent milk fever and other transition related diseases, there are many other factors that can affect calving and early lactation performance. According to research from the University of Wisconsin the top five factors for transition cow success are:

- Sufficient feed space
- Cow comfort with appropriately sized cubicles
- Soft bedded lying surfaces
- Minimal social stress
- Effective post-calving screening programmes

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Feed and Water Space

Being herd animals, cows like to eat together, and so sufficient feed space is recommended so that all animals can access feed at the same time. The target should be to provide a minimum of 75cm feed space per animal but 85cm is preferable to aid good dry matter intakes and reduce competition at the feed fence. The aim with dry cow feeding is to maximise dry matter intake to maintain good rumen fill and management of body condition to achieve the target 3-3.25 for calving. The target rumen fill scores for dry cows are either 4 or 5. For more information on rumen fill see: Rumen fill score card | AHDB

Space recommendations for water troughs are similar to that of lactating cows: provide 10cm of water trough space per cow and have more than one watering point in the dry cow group to reduce competition so that heifers and less dominant cows have easy access to water.

Cow Comfort

Dry cows can be housed on cubicles, which is most common in the far-off period but can also be suitable for close-up cows as long as they are moved to a calving pen at the point of calving.

Cubicles need to be slightly wider than for milking cows to accommodate heavily pregnant cows. A guide for a 700kg dry cow is for cubicles to be a minimum of 127cm wide (50 inches) and 180cm long. For dry Jersey cows, cubicle width should be a minimum of 114cm wide (45 inches).

The lying surface for cubicles must be comfortable with adequate bedding to help keep the beds dry and minimise hock rubs and lesions.

Lying Space

The recommendation for lying space for dry cows is 1.25m² per 1000 litres of milk production, so a 10,000-litre cow requires 12.5m² of lying space in straw bedded yards. Up to one third more space is also required for the feeding/loafing area. Although cows are social herd animals, they prefer secluded areas to give birth. Activity greatly increases as calving approaches, with cows changing position from standing to lying up to twofold more on the day before calving, due to contractions and calf movements causing pain and discomfort. For this reason, lying space should be significantly greater than for lactating cows. If working with individual calving pens, they ought to be a minimum of 13m².

Data from Premier Nutrition's Transition Management System service has shown that transition success falls significantly once lying space drops below 8m² or when cubicles are stocked at greater than 85% capacity.

Providing sufficient lying space will also help maintain cleanliness of the bedding which is vital to reduce the pathogen load and prevent new intramammary infections during the dry period. Straw yards should be cleaned out every three weeks.

Aim to have space for 130-140% of the average number of calvings each month so that during busy times, facilities are not overcrowded.

Groupings and Social Interactions

Social stress can be kept to a minimum by keeping dry cow groups as stable as possible and having only one dry cow group. One dry cow group can work well by limiting social stress, with less pen moves between the late lactation group and re-entering the milking herd. However, it can be more challenging from a feeding perspective to manage body condition and meet the nutritional requirements of cows at different stages of pregnancy.

Many farms split dry cows into two groups: a far-off period (early part of the dry period from 5 to 3 weeks before calving) and a close-up period (last 3 weeks before calving). This is more common on larger units and where a two-stage feeding programme is implemented, allowing better management of nutritional requirements. Although cows will have to move groups more often, measures can be taken to try and minimise social interactions when two groups of dry cows are kept. Always aim to dry off cows in small groups so that a single cow is not moved into the dry cow group by herself. Try to move cows in pairs or 3 or 4 together and move between dry cow groups once a week to keep groups as stable as possible and minimise disruption to the social hierarchy.

Individual calving pens

Use of "just-in-time" individual calving pens are a great way to help minimise disease risks for both the cow and calf over group pen housing. However, they do require careful management and attention to detail for a successful outcome and there are pros and cons of this system over a group calving pen. It can work well in large herds where there are dedicated staff for looking after the "maternity unit" round the clock; a management system derived from large North American dairy herds.

The crucial decision is when to move the cow to the calving pen and the aim is for the cow to spend as little time here as possible. She should be moved at the point of calving or the 2nd stage of the labour process when either the foetal membranes or feet of the calf are visible. At this stage, calving should occur fairly quickly and usually within two to three hours. The labour process can often be halted if cows are moved during the first stage of labour, increasing the risk of stillbirth, slow calvings, retained foetal membranes, and metritis.

Heifer Management

If heifers have to be mixed with cows pre-calving, they should be introduced around six weeks prior to calving. However, if it is possible to manage heifers as a separate group up to and even ideally beyond calving, this will minimise the risk of social and infectious stressors.

The closer to calving that heifers are moved into the dry cow group, the greater the impact stress can have on them at calving time. As heifers tend to be lower in the pecking order, it will be the heifers that tend to struggle the most in facilities with insufficient lying and feed space. Other considerations for transitioning heifers into the milking cow herd include:

- Ensuring heifers are cubicle training during the rearing period if they are to be housed in cubicle accommodation during the dry period and/or when introduced to the milking herd. If heifers are to be housed after calving, feet problems in early lactation can be reduced with exposure to concrete floors prior to calving.
- Before calving make sure heifers have experience of equipment or procedures they will encounter after calving, such as the milking parlour or robot, shedding gates and footbaths, and have had sufficient contact with people to aid ease of handling.
- Vaccinations must be up to date so that heifers are protected from any diseases present in the adult herd.

Post-Calving Protocols

Early detection of health issues post-calving is critical for treatment to aid quick recovery and minimise the impact it could have on milk production and fertility. Freshly calved cows should be monitored to assess their demeanour, willingness to get up and feed and milk yield for the first five days. If there is any cause for concern, carry out a vaginal examination and check rectal temperature. The following checks and procedures after calving are recommended:

- Rectal temperature - target 38.5°C. A temperature >39.5°C is a cause for concern and could indicate an infection or inflammation problem.
- Rehydration - after calving provide warm water (15-20 litres at 18-25°C) and offer milking cow ration as soon as possible to aid calcium intake.
- Check the placenta is expelled within 24 hours, otherwise it is classed as a retained placenta and if not treated promptly could develop into metritis.
- Check quarters for mastitis.
- Check for uterine discharge.
- Record body condition score.
- Check/observe for ketosis - first lactation heifers, cows with a bad calving or gave birth to twins may be more prone to ketosis. Cow-side milk and urine dipstick tests are available, as well as blood ketone meters. Cows should be tested for ketones within the first two weeks of calving.
- Vet checks at routine fertility visits will also help detect any problems for getting cows back in calf. All cows should be checked at one-month post-calving for metritis and to see whether they have ovulated.

Benchmarking Transition Performance

The success of dry cow management can be assessed by recording the incidence of transition diseases. The following table gives suggested targets to aim for, and changes to nutrition and/or management should be implemented when incidence is above target levels. It is best to set realistic and achievable goals in conjunction with your vet based on current herd performance and review performance against the targets on a regular basis.

Table 1. Targets for transition disease incidence

Transition disease	Target level
Milk fever	< 5%
Retained foetal membranes (beyond 24 hours)	< 5%
Metritis	< 10%
Endometritis	< 10% in cows over 3 weeks calved
Mastitis (of dry period origin)	< 1 in 12 cases in first 30 days of calving
Ketosis in first 3 weeks (clinical)	< 5%
Ketosis in first 3 weeks (sub-clinical)	< 15%
Displaced abomasum	< 3%

Summary

A successful calving and introduction to the milking herd is down to a combination of factors, of which nutrition is only part of the jigsaw. Space, in terms of feed and lying space are crucial and the effect of stress from pen moves and unfamiliar animals should not be underestimated. Maintaining stable social groups and minimising pen moves will help keep stress to a minimum. Once the cow has calved, there are several checks that should be adhered to for early detection and correction of any health or nutritional issues.