

# Calf rearing: the first 60 days

Charles Chavasse BMVS CertDHH MRCVS, area veterinary manager, Zoetis, discusses the importance of the first 60 days in a calf's life and how private veterinary practitioners can help



What happens to this calf in her first two months of life will have a significant impact both on how much milk she will produce and how long she will stay in the herd.

Even before milk quotas were abolished and herds started to expand, there were increasing problems with calf rearing on many dairy farms. A number of factors contributed to this but two in particular were: the quantity and quality of labour rearing the calves; and tighter calving periods. With the arrival of the Celtic Tiger and the temptations of other off-farm employment, family members frequently sought and found alternative jobs and careers and in a short period, the 'best calf rearers' were no longer around to help during the spring calving rush. To compound this problem, there was a drive for more fertile cows to calve over a shorter period to maximise the use of grass. This increased efficiency meant that rather than calving the herd over four to five months, many herds are now calving the majority of their cows and heifers over a 10-12-week period, frequently with the same calving facilities and calf house as before. As a result, the whole system is under much more pressure, as is the man or woman who is running it. On many farms, we have seen a shift in the disease patterns with more cases of scour and pneumonia that are more difficult to treat and control than in the past.

## HEIFER CALVES: WEIGHT AND PERFORMANCE

Research in the past decade has highlighted the importance of heifer calves getting off to a good start and how this can positively impact on both their production and the length of

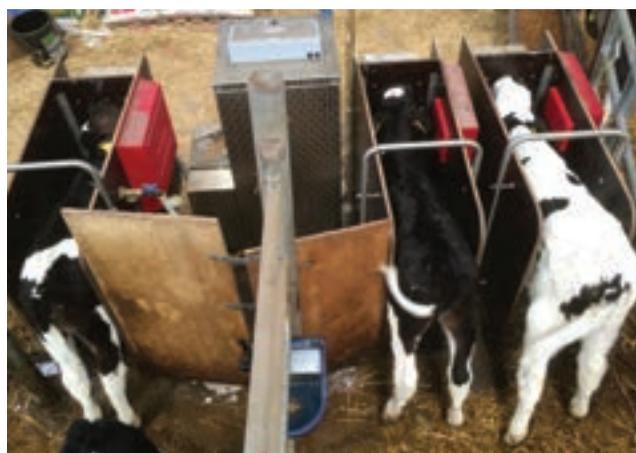


Figure 1: Correct siting and drainage of automatic calf feeders are essential. Here, the drains are blocked and there is a build-up of moisture and muck.



**Figure 2: Heifer calf with creep and clean water. It is best to feed no more creep than a calf will eat in a day and replenish with fresh feed the following day.**

their productive lives. Heifer rearing is a significant cost on dairy farms and work from Teagasc, Moorepark, showed that it could amount to up to 20% of farm expenses and that it costs about €1,500 to rear a calf to the point of calving down at 24 months of age.<sup>1</sup> So, it is now even more important for practitioners to be in a position to advise their farmers on best practice regarding calf rearing and disease prevention at this crucial time of year. Practitioners are ideally placed to help farmers find practical solutions to these best practice recommendations.

A key target most farmers are trying to achieve is to ensure their heifers are cycling and ready to be served at the beginning of the breeding season when they are about 13-15 months of age; 15 months if they were born at the beginning of the calving season but only 13 months if they were born six to eight weeks into the calving period. Puberty and oestrus behaviour does not occur because an animal is a certain age, but because it has reached a certain weight. For dairy heifers, the critical minimum mating weight is 55-60% of their mature body weight (MBT). This is the weight of a third or fourth lactation cow that is not in calf and has recovered from calving, ie. two to three months calved and about to be served again. A Friesian cow with an MBT of 600kg needs to be 330kg as a heifer, ready to be served in late April in many spring calving herds. If she weighs 40kg at birth on St Patrick's Day, she has to put on 290kg in 400 days, which means she needs to achieve a daily live weight gain (DLWG) of 730g/day. This is only achievable with good management and nutrition; and providing she remains free of disease. Recent research has shown that heifer performance in the first few months of life has a significant impact on early lactation performance, as well as lifetime productivity and, ultimately, the profitability of the herd as a whole. A number of studies have shown that animals that grow faster in the first 60 days of life not only produce more milk in their first lactation, but are also more likely to go back in calf and, therefore, are more likely to remain in the herd. Bach found that growth during the first two months of life was positively correlated with survivability to second lactation<sup>2</sup> and that on average, for every additional 100g of DLWG



**Figure 3: Calf receiving intranasal vaccination.**

achieved during the first two months of life, an additional 225kg of milk could be expected in the first lactation.<sup>3</sup> Soberon showed that energy intake pre-weaning, along with colostrum management, had the greatest impact on future performance.<sup>4</sup> This work highlights what many vets and farmers had already observed in that it is important to push calves on at an early age and not let them slip and 'rely on compensatory growth' later. From a practical perspective, farmers need to be encouraged to monitor early performance of calves and weanlings by weighing them at key points, such as weaning, during the grazing season, at housing and as they are served. The latter is only to confirm that they achieved the targets, because if at this point they are behind the curve it is too late to take corrective action. The difference between good performance and acceptable performance is not easy to judge by eye. For example, when two 40kg heifer calves are born and one grows at 700g per day and the other at 800g per day, then the lighter calf will weigh 79.20kg at eight weeks, ie. 80kg or twice its birth weight at weaning which is frequently given as a target. However, the second calf will weigh 84.8kg, barely 5kg heavier and yet from this research, she would be expected to yield an extra 225kg of milk during her first lactation.

#### **GROWTH TARGETS: QUALITY NUTRITION**

To achieve these growth targets, calves must be fed adequate, good quality milk or calf milk replacer until weaning. Traditionally, calves were fed half a gallon of milk morning and evening, approximately 10% of a calf's birth weight per day. This feeding regime was actively promoted in the past as it was believed that it reduced cases of scour and encouraged calves to start eating creep at an earlier age to start ruminating, and to be able to be weaned earlier and moved onto less expensive feeds, ie. not milk or milk replacer but ration. In one study however, these animals were only growing at 500g per day, whereas if fed at higher rates such as 8L per day (20% of birth weight) they grew faster, up to 1kg per day. However, calves fed at these higher levels tend to stumble after weaning partly due to diminished consumption of nutrients<sup>5</sup> and partly due to reduced

digestibility because of poor reticulo-rumen development.<sup>6</sup> Therefore, recommended feeding as per the Animal Health Ireland CalfCare group would be to:

- Feed 3L twice per day (approximately 15% calf birth weight) of a good-quality calf milk replacer or whole milk;
- Offer good-quality starter concentrate and always ensure calves have access to clean water; and
- Wean calves when eating at least 1kg per day of starter concentrate for a week. This could be when calves are at about eight weeks of age but not if they are being fed larger volumes of milk or ad-lib milk.

### HEALTHY CALVES ESSENTIAL FOR SUCCESSFUL PERFORMANCE

Another study showed that calves that grew well pre-weaning had an 80% chance of reaching five years of age compared to only 50% for poor performers. This study showed that they produced 24,000L by the time they were five years of age as opposed to only an average of 17,000L of lifetime production for the poor performers.<sup>7</sup> Calves that are healthy will more likely be good performers, calves that have had scour or bovine respiratory disease (BRD) will more likely be poor performers. It is no longer acceptable for animals to become sick and then treated. There is sufficient evidence to show that calves which are successfully treated for various diseases including BRD may make a clinical recovery, however their performance is affected for life. Stephen Morrison in Northern Ireland has extensive data that shows that calves that are successfully treated for a single case of BRD during the first two months of life produce 4% less milk during their first lactation and 8% less during their second lactation.<sup>8</sup> Calves that have repeated cases of pneumonia not only produce less milk, but are also less likely to go back in calf and are, therefore, more likely to be culled at a younger age.<sup>9</sup> Relying on treatment alone is no longer acceptable and both vets and farmers need to strive to develop disease prevention protocols.

It is also essential that calves receive adequate quantities of good-quality colostrum in a timely fashion. This is well understood by the veterinary profession and most farmers but it is notable that on many occasions there are errors and misunderstandings about this fundamental first step in a calf's life and repeated education and training are still required. Calf snatching, where a calf is removed from the cow and the calving pen as soon as possible after birth, has become more common and warrants further encouragement as research has shown that the less time calves spend in contact with adult cows and their dung, the healthier they are. The common causes of scour, such as rotavirus, coronavirus, coccidiosis and cryptosporidia are often excreted by carrier animals that show no ill effects from these pathogens but they can have devastating effects on young calves, causing potential life-threatening disease. Calf snatching is also one of the key steps in the Veterinary Risk Assessment Management Plan (VRAMP) programmes developed by the Animal Health Ireland Technical Working Group for Johne's disease control.

There are a number of pathogens that can cause respiratory disease in calves. The most common viruses are bovine coronavirus (BCV), respiratory syncytial virus (RSV), parainfluenza virus type 3 (Pi3) and bovine herpes virus type 1 (BHV-1). *Mycoplasma bovis* is now also recognised as a primary pathogen and is frequently identified as a pathogen in bought-in calves.<sup>10</sup> Preventing calves from developing respiratory disease relies on a three-step process:

- Calves must receive adequate colostrum and be well fed;
- They need to be kept in a suitable environment/calf shed (eg. warm, clean, draft-free but well ventilated) and pathogen levels need to be controlled through good management practices (eg. calf snatching, separate air space from older animals); and
- The calves's immunity should be primed with vaccinations. Live intranasal vaccination is available using Rispoval RS+Pi3 IntraNasal. This vaccine offers the earliest protection against RSV and Pi3 viruses and is both fast-acting (protection against RSV infection within five days) and long-lasting (12 weeks proven protection), following a single dose vaccine.

### PRACTITIONER ADVICE KEY TO CALF MANAGEMENT

In conclusion, the first 60 days of life is a critical period during which calves need to grow fast and remain free of disease to ensure they deliver good yields and remain in the herd for subsequent lactations. Practitioners are in a good position to advise their farmers regarding disease prevention strategies, be it colostrum management, intranasal RSV and Pi3 vaccination or housing design, and to advise on suitable feeding and monitoring of early calf performance. Tús maith, leith na hoibre – a good start is half the work.

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