

Revolution or evolution? Short dry cow periods for UK herds

Dry cow management is a notoriously under-researched subject area. The majority of farms manage their dry cows the same now as they did 10 or even 20 years ago. Admittedly, advances have been made in this group's nutritional management, but health management, and specifically, mastitis therapy, has changed little, writes farm vet, Chris Watson. In fact, you could even say we have made life much more difficult for ourselves when it comes to managing the dry cow - we have invented ways of getting round a problem that we invented ourselves!

Apart from the introduction of teat sealants, antibiotic choice and the approach to treatment is rarely reviewed. However, over the coming 12 months, a campaign being run by Intervet entitled 'The Modern Approach to Dry Cow Management' will aim to provoke a fundamental review of dry cow therapy amongst farmers and vets. This is on the back of an amendment to the datasheet for the company's Cephaguard DC product. It is now licensed for 35 day + 1 day milk withdrawal*, meaning that short dry cow periods with a new generation dry cow intramammary can be considered.

Why might we even consider short dry periods? Work currently being done in the USA is challenging the established principles of what a dry period should be and even if any is needed. It is an exciting prospect, but it does mean that it is new science and may be prone to conservative criticism and not being accepted, especially here in the UK.

Reassurance will be demanded on mastitis cure rates in short dry periods, cow health, effect on colostrum and the calf as well as milk yield in subsequent

lactation. Studies in 2006 have shown that none of the above are negatively affected, which will be covered later in this piece.

The starting point ought to be the following questions: -

- Why do we dry cows off?
- What is an ideal dry period length?

The original need to dry a cow off was to allow her to put on body condition before the next lactation, as nutrition during lactation was often limiting and a period of non production was needed to correct it. During the war years of the 1940s it was established that the "ideal" length for this was 60 days. This was partly based on trying to standardise maximum food production and also to aim for maximum genetic gain by aiming for a 365 day calving interval. In turn, this gave rise to the accepted lactation length being defined as 305 days - 60 days off a 365 day calving pattern.

Now, things are starting to change and we need to ask the right questions about what we are doing when it comes to drying cows off; not surprisingly some very interesting answers are emerging.

What happens in the dry period and why is a cow so susceptible to mastitis at this time? The dry period is both a time when existing infections are cured, provided the most effective antibiotic therapy is used, and when new infections are picked up (see graph 1 - see attached jpeg).

Long or short, there are some key issues we need to consider when it comes to dry cow management: -

- The length of action of any antibiotic dry cow therapy (DCT) used. The withdrawal period will determine the effective length that is possible for the dry period
- Enough time to establish a cure. Both natural mechanisms and dry cow antibiotics must have long enough to act on any infection left from the previous lactation
- That it will not increase the risk of new infection at the high risk phase at either end of the dry period. There may be some residual effect at the end of the dry period from DCT but as with *any length* of dry period, we cannot rely on antibiotic products alone to achieve this as we need complete withdrawal before or soon after calving.

The graph below illustrates possible situations during the dry period (dynamics of infection graphic) see notes to editors.

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The udder is 10 times as likely to become infected with new organisms during the dry period, compared to during lactation. A typical cure rate of 65-70% is considered good but, looking specifically at mastitis rates in the short dry period, there would appear to be some clear benefits.

1. As lactation is extended, milk yield falls (15 litre guideline), lessening the risks associated with slow teat plug formation.
2. The window of opportunity for new intramammary infections is also reduced. Less time dry means less risk period for new infections entering the dry udder

And what of the other benefits, or potential pitfalls? A yield reduction in subsequent lactations was mentioned earlier. Studies have shown that this can sometimes be the case in very short dry cow periods of less than 30 days, as is used in the US sometimes - but, most of the time, the benefit of extra days in milk still delivers a net benefit.

- 8000 litre/year cow with a 40 day dry period means an extra 20 days milk = 4 - 6% extra milk
- At 40 days dry there will be no loss in next lactation = net gain of 5 - 6% milk
- Even pushing the dry period to 30 days dry you may see a drop of 3% at worst (again mostly no change) = still 3% net benefit)
- Milk solids are improved with short dry periods so could give better milk price

Many producers who use short dry cow periods see one the main benefits as a simplified approach to feeding and housing. All dry cows can be housed together, and fed one ration. All cows reduce their dry matter intake (DMI) just before calving and studies have shown the effect of this is less with shorter dry periods.

The result of this should be that:

- The cow spends less time in negative energy balance because energy intake is improved
- There is a reduced loss of body condition score
- Less mobilisation of body fat and muscle immediately prior to and after calving
- Less fats laid down in the liver at calving

Dry cow nutrition, and therefore body condition score are closely linked to fertility, something that just about every dairy producer is striving to improve. The extent

of the body condition score loss in the initial part of the lactation is positively related to many reproductive parameters. It is hardly surprising given the effect of short dry periods on BCS after calving that there may also be an effect on fertility.

(insert body condition score graph - see notes to eds)

The main conclusions to draw, related to fertility, are that reducing the dry period has a marked effect on the energy balance of the cow, and that this is reflected in the reduction in change in body condition score you can expect to see before and after calving. The main benefits are earlier resumption of oestrus cycle, improved follicle quality, earlier service and improved conception rates.

So, we have tackled mastitis and udder health, nutrition and fertility, all of which demonstrate benefits when cows are managed with short dry periods. But how do the economics stack up?

The table below (Table 1) sets out the costs involved for milk production by shortening the dry period taking 60 days as the basepoint. It assumes no change in milk quality (it is however likely to improve with a short dry period), a year round calving pattern and is worked out for an 8,000 litre herd (standard yield decline of 2.5%/week after peak yield). It compares the effect of various dry periods, although the most likely regime for UK herds is 40 days dry.

So is a UK-wide review of dry cow policy likely? Probably not; strategic short dry cow management will be right for some, and not others. However at the sort of change that is likely to become the new standard (40-45 days dry), there is a lot to gain. What I have aimed to do here is illustrate the findings of a study into

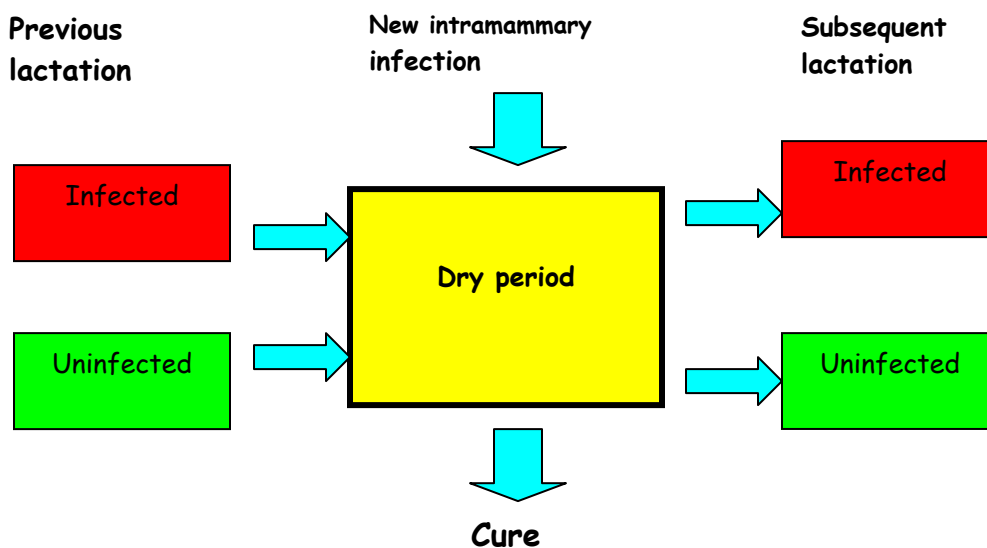
possible benefits, and also potential areas of concern, and present them in a way to allow in-depth vet:farmer discussions to take place on a specific unit basis. If nothing more, at least ask yourself:

- Why do we dry cows off?
- What is an ideal dry period length?
- How do we apply this in practice?

Summary:

- *Cephaguard DC milk withdrawal:
 - One day after calving when the dry period is more than five weeks
 - 36 days after treatment when the dry period is five weeks (35 days) or less
- Product features high bacteriological cure rates and deep udder penetration
- Remains proven in longer, traditional dry periods

(dynamics of infection graphic)



Graph shows the effect on body condition score (BCS) of varying dry period lengths (after Grummer)

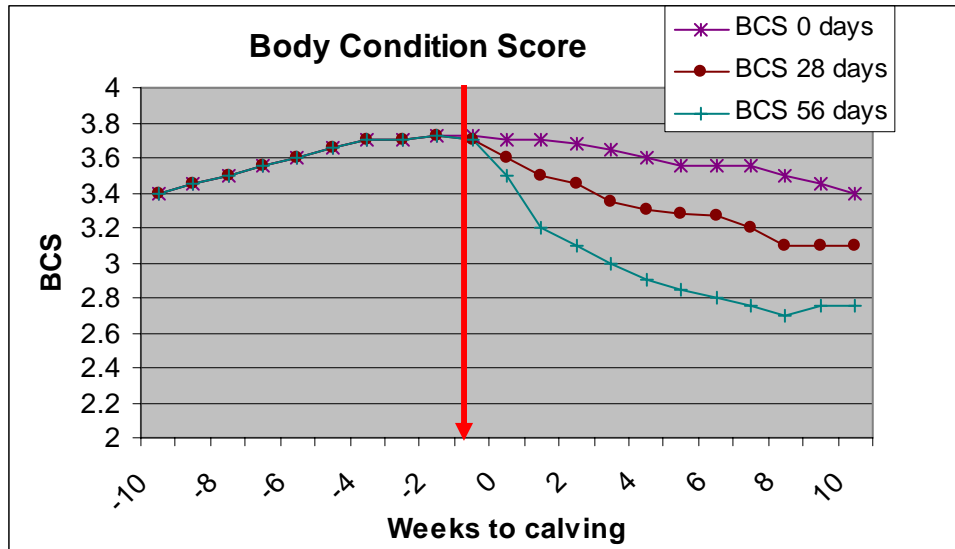


Table 1 - Economics of different dry periods

<i>Dry Period</i>	<i>30 days</i>	<i>40 days</i>	<i>50 days</i>	<i>60 days</i>	<i>70 days</i>
Yield @ DO	22	23	24	25	26
Milk Difference - litres	735	507	270	0	-295
Dry Cows/100 cows	8.2	11	13.7	16.4	19.2
Margin over Feed £	96	66	35	0	-33
Savings per cow in Feed £	126	86	45	0	-43

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