

SELECTIVE DRY COW THERAPY

SELECTIVE dry cow therapy is where only individual animals receive antibiotic dry cow therapy at the end of lactation and this selection is based on individual cow data.

It is intended to reduce antibiotic use and reduce the likelihood of antibiotic

resistance. It is now being promoted by many of the UK milk buyers and forms part of the guidelines

for Arla producers, where all farmers will have to take steps to move towards selective dry cow therapy.

Remember that dry cow therapy was introduced specifically to help eliminate subclinical infection at dry off. Over the years this was amended by adding in some Gram-negative cover to try to help prevent new infections occurring.

There can be no justification to administer dry cow antibiotic into a cow that is free of subclinical infection

or that did not have a case of clinical mastitis in any quarter during lactation. If you look at milk records, you see that the proportion of cows with cell counts of over 200 is very small.

Trial work has shown that cows that are free from subclinical infection and are given antibiotic dry cow therapy

PETER EDMONDSON

discusses the use of selective dry cow therapy, which is intended to reduce antibiotic use and the likelihood of resistance, and calls on the profession to be proactive in this approach



in conjunction with a teat sealant will have a 12-fold increased risk of *E. coli* mastitis compared to a cow just treated with a teat sealant.

Selective dry cow therapy has been successfully used in many countries for many years. There is nothing to fear provided the correct guidelines are followed.

You need individual cell count data and accurate clinical mastitis records for decision-making on which cows should get antibiotics at dry off. Some herds don't have individual cow cell count data but this should not be used as an excuse to continue with blanket dry cow therapy. Responsible use of antibiotics has to be based on sound science and not economics or the convenience of decision making.

Not every herd will be able to use selective dry cow therapy. Herds with high cell counts will still have to use blanket antibiotic dry cow therapy. These problem herds should be taking

steps to reduce their cell counts, which offer more opportunities for vets. The median cell count of herds in the UK runs at below 180 at present, indicating the levels of subclinical mastitis are low.

Some herds will make their own guidelines, which can prove disastrous. Many years ago we had a client who decided to go down the selective dry cow therapy route without consulting us and his cell count increased from 150 to 350 over a period of 12 months.

He thought that a teat seal also contained antibiotics! It is very important that farmers work with their vets to ensure that sensible and sound decisions are made.

Some considerations to help decide if selective dry cow therapy is suitable at a herd level:

1. Is the herd cell count under 200?

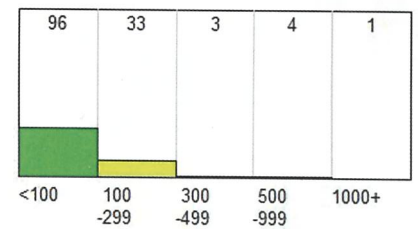
If over 200, steps should be taken to reduce the herd cell count and blanket dry cow therapy used until this occurs.

2. Do less than 25% of cows have cell counts over 200? If above 25% this suggests widespread infection and there is a greater risk of missing infected animals.

3. Does the herd have a significant *Staph. aureus* problem? If so, use blanket dry cow therapy until this is resolved. It can be very difficult to identify all *Staph. aureus* cows.

4. Is *Strep. agalactiae* present? If present, blanket dry cow therapy is recommended in the short term until levels have been significantly reduced.

5. Are there low levels of *Strep. uberis* infection? If high, this would indicate that there will be many cows that have



This graph shows cell count distribution of cows 200+ days in lactation; 70% of cows have cell counts under 100 showing that the levels of subclinical infection are low.

clinical and subclinical infections.

6. Are individual cell count records available? If not, testing of individual animals should be started. This does not mean that they have to be tested monthly. Samples could be collected for the last three months before dry off.

7. Are there accurate clinical mastitis records? There should be as it is a legal obligation. If not, the farmer should start to record all of these immediately.

Once you have established that the herd is suitable for selective dry cow therapy it is important to agree guidelines with your clients. This will be on a farm-by-farm basis using their history to make sound decisions.

There are a range of guidelines depending on which country or website you look at. In Ireland, the recommendation is to treat if any cell count was over 200 in the last three tests of lactation. In New Zealand, the recommendations for heifers are to have cell counts under 120 throughout lactation and under 150 for dairy cows.

All recommend that you use dry

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cows had flunixin residues in milk above the tolerance limit and that in three cases the residues were detectable for up to 60 hours.

Journal of the American Veterinary Medical Association 246 (1): 118-125.

Mastitis in a neonatal filly
Rebecca Gilday and others, University of Saskatchewan, Saskatoon

Mastitis in horses is considered to be rare as a result of the short lactation period in the mare, frequent emptying of the small equine udder and its concealed position, which minimises the risk of traumatic injury. Mastitis in the equine neonate is even rarer with only three reported cases in the literature. The authors report a further case in a one-week-old paint filly which presented with a three-day history of a purulent discharge from the udder. The foal responded well to antimicrobial

therapy with trimethoprim-sulphamethoxazole but the long-term effects of the infection on mammary development and future lactation is unknown.

Canadian Veterinary Journal 56 (1): 63-65.

Choice of antimicrobial therapy in *E. coli* mastitis cases

Helen Dagg, Willaston, Cheshire

E. coli mastitis in cattle is usually self-limiting and as the duration of infection is usually less than 10 days, the question of whether to use antimicrobial therapy in such cases remains controversial. The author reviews published studies on the efficacy of antimicrobial treatment involving several different agents and concludes that the evidence to support the use of antimicrobial therapy in those cases is limited. The paucity of reliable data can only be remedied via large-scale randomised trials in various

countries under different management systems.

Cattle Practice 22 (2): 139.

Association between mutations of the lactoferrin gene and clinical mastitis

Krishanender Dinesh and others, National Dairy Research Institute, Haryana, India

Lactoferrin is a globular glycoprotein present in milk and the gene coding for this component is considered to be a potentially important determinant of mastitis resistance in ruminants. The authors identify mutations in exons 7 and 12 of the lactoferrin gene in the Murrah buffalo which they correlated with the incidence of clinical mastitis in animals carrying those particular polymorphisms. These findings indicate that there is potential scope for incorporating the appropriate gene in breeding programmes for improved resistance. *Tropical Animal Health and Production* 47 (4): 643-647.

A cow-calf model for the transfer of ciprofloxacin in milk

Alberto Chiesa and others, US Food and Drug Administration, Laurel, Maryland

Absorption of drug residues in milk can potentially have toxic effects on a human or animal neonate. The likely concentration of drug residues in milk can be estimated from *in vitro* studies and mathematical modelling but are no substitute for *in vivo* studies. The authors describe a study on the concentrations of the antimicrobial drug ciprofloxacin in bovine milk following intravenous infusion. The concentrations of ciprofloxacin in milk were found to be 45 times higher than the plasma drug concentration in the dam. Approximately 6% of the administered dose was transferred in the milk, resulting in an average oral dose of 0.5mg/kg to the calves with every feeding. *Journal of Veterinary Pharmacology* 36 (5): 425-433.

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cow therapy in the quarter that had clinical mastitis. This is because cure rates for the Gram-positive cases are low and it is important to clear up any residual infection.

You will always miss some cows with subclinical mastitis as any cell count test result is made up of milk from four quarters. A cow with a SCC of 150 might have individual quarter results of 30, 40, 50 and 600, where this high quarter has subclinical infection. However, this needs to be put into context, as the proportion of infected cows is relatively low. The risk decreases when the percentage of cows with cell counts over 200 is low.

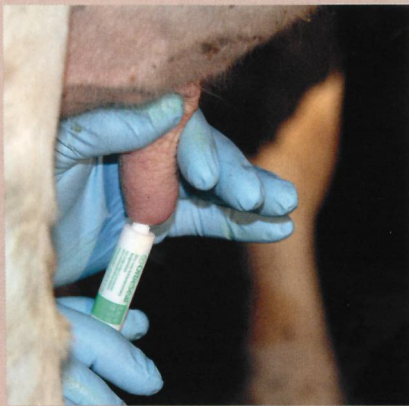
A cow that does not receive antibiotics at dry off should be given an internal teat sealant to minimise any risk of mastitis in the following lactation. In fact, every cow that is dried off will benefit from internal teat sealants. These reduce the levels of clinical mastitis in the next lactation by between 25 and 30% and offer an excellent return on investment where the farmer clearly sees the benefits.

All of the above shows that there is significant opportunity for vets to

work with their dairy clients and guide them through the selective dry cow therapy maze. This is important from the outset but also on a continuing basis to ensure that correct decisions are being followed and that there are no adverse effects on mastitis.

It is down to the profession to be proactive in this approach to selective dry cow therapy.

● The next Mastitis Control and Quality Milk Production Seminar run by Peter Edmondson and Roger Blowey will be held from 8th to 10th November. See www.sheptonvet.com for more details.



Always use an internal teat sealant if you are not using antibiotic dry cow therapy. Even better, use this in all cows at dry off.

Guidelines on antimicrobials in dry cow management

THE Responsible Use of Medicines in Agriculture Alliance (RUMA) has published guidelines on the responsible use of antimicrobials in dry cow management.

John FitzGerald, secretary-general of the alliance, says RUMA has produced the guidelines to help vets and farmers determine how best to treat cows in the drying-off period to prevent and treat the development of bacterial disease such as mastitis in the udder.

In line with “responsible use” principles, the guidelines stress the need to manage farms to reduce disease challenge and minimise antimicrobial use. In particular, they highlight the need to monitor milk quality and infection status using somatic cell counts and bacteriology, where appropriate, at the herd and individual cow level and to use the monitoring results to decide the appropriate strategy for each cow to be dried-off.

Strategies are: (1) do nothing and monitor closely for the potential development of mastitis; (2) use an internal teat sealant; (3) use a dry cow antibiotic; (4) use both an internal teat sealant and antibiotic.

Elizabeth Berry, representing the BCVA, led the preparation of the guidelines which are available free on the RUMA website, www.ruma.org.uk.

THE RESPONSIBLE USE OF ANTIMICROBIALS ALLIANCE
ruma

For Farmers*

The use of animal medicines carries with it responsibilities. Under UK legislation, all antimicrobials are licensed for specific species and uses.

A product will not be authorised unless very stringent requirements are met. The use of antimicrobials is under the direct responsibility of veterinary surgeons.

Farmers, however, have a very considerable role to play in ensuring that the directions of the veterinary surgeon are properly carried out and in developing and applying disease control measures which minimise the need for antimicrobial use.

*“Farmers” includes all those on farm involved in looking after the animals e.g. stock-keepers

GUIDELINES FOR THE RESPONSIBLE USE OF ANTIMICROBIALS IN DRY COW MANAGEMENT

All farmers have a responsibility for the health and welfare of the animals on their farm. Farmers and stock-keepers can play a major role in ensuring the responsible use of antibiotics and other antimicrobials on farms by following these guidelines.

- All dairy farmers must be totally committed to producing safe food.
- Dairy farmers should together with the farm's veterinary surgeon draw up, implement and regularly review a herd health plan that outlines routine preventive measures (e.g. milking machine testing, teat dip, parlour hygiene) and disease control policy, including dry cow therapy.
- Dry Cow Management is an essential part of a dairy farmer's routine to ensure the health and welfare of their cows.
- The dry cow period is a high risk time for acquisition of new bacterial infections.
- The current concerns over the use of antibiotics and possible implications with antimicrobial resistance mean it is timely to review the concept of treating all cows at the end of lactation to both prevent new infections and treat any existing infections.

Dairy farmers should

- > Develop, implement and regularly review a dry cow strategy for your cows with your vet.
- > Record all mastitis cases and treatments.
- > Monitor the farm's and each cow's bacteriological status by
 - bulk milk cell count value,
 - routine screening for bacteria and patterns of antimicrobial resistance
 - individual cow cell counts.
- > Use the monitoring results with your vet to decide the appropriate treatment for each cow you are drying off
 - do nothing and monitor closely for the potential development of mastitis (a health and welfare risk for the cow)
 - use an internal teat sealant