

Selective Dry Cow Therapy

Background

There is concern worldwide about resistance to anti-microbials, due to their increasing use/misuse/overuse in agriculture. A considerable proportion of antibiotics used on farm livestock are also used in humans and if resistance develops in farm animals, there is a possibility that such resistance could be transferred to humans, with potentially devastating outcomes.

The use of antibiotic dry cow tubes in dairy cows at 'drying off' has been the norm for many years and is one of the '*5 point mastitis control plan*' actions. Dry cow tubes are used to eliminate existing infection and to provide some protection against new infections. However, the prevalence of contagious pathogens, (those that spread from cow to cow at milking), has greatly reduced in many dairy herds. Research from Nottingham University has shown that cows with low SCC's at drying off, receiving antibiotic dry cow tubes, are more at risk of having an *e-coli* type mastitis in the first 100 days of the next lactation. Also, with the development of internal teat sealants, (which have been proven to reduce the risk of new infection during the dry period), there is scope to reappraise the blanket use of antibiotic dry cow therapy.

A programme of selective dry cow therapy has just started with the CAFRE Future Herd at Greenmount College. The outcomes from this investigation will be closely monitored over the next lactation.

What is selective dry cow therapy?

The key word is 'selection'. Cows are selected to receive antibiotic dry cow therapy (ADCT) using pre-defined criteria. All cows receive an internal teat sealant, irrespective of whether ADCT is administered or not. The objective of selective dry cow therapy is to use as much antibiotic as necessary, but as little as possible and to justify the use of antibiotics when used. (This should be the case with all antibiotics).

Selection Criteria

The selection criteria must be herd specific and should be developed in conjunction with the farm veterinary practitioner. In order to develop selection criteria, certain information must be available such as; individual cow SCC data over past few months, clinical mastitis history in current lactation, bulk tank SCC trends and ideally, bacteriology available from milk samples taken from clinical/sub-clinical mastitis cases. Typical criteria for the '*average*' herd might be: SCC under 200 for each of the last 3 monthly milk recordings and no cases of clinical mastitis during the same time period. Heifers drying off may have a lower threshold, (generally SCC 50 lower than that for cows). Herds where bulk tank SCC is consistently above 200 should have lower thresholds. The converse also applies; in herds with

consistently low bulk tank SCC's (<100), the SCC thresholds for ADCT can be higher. Prevalence of clinical mastitis should also be factored in. Thresholds/targets should be evaluated over time and may be changed as new information becomes available.

The management of cows on your farm across the dry period is important, (to minimise the risk of new infection) and the level of risk must be considered as part of the overall decision making process for selective dry cow therapy, e.g. cubicle/general hygiene of dry cow accommodation.

What are the possible advantages of selective dry cow therapy?

- Reduced use of antibiotics on farm, which should have a positive financial benefit for the farmer.
- No risk of bulk tank antibiotic contamination failure from cows not receiving ADCT.
- Decreased risk of mastitis from *e coli* type organisms in early lactation in cows with low SCC's not receiving ADCT.

What are the possible disadvantages of selective dry cow therapy?

- Some infected quarters could be missed, which may lead to increased mastitis/higher SCC's in the next lactation.
- Hygiene at drying off must be extremely good; otherwise there is a risk of very sick, or even dead cows within a few days of drying off.
- Milk recording SCC's (and subsequent analysis) is essential to enable the selection process to take place. Without individual cow SCC records, it is impossible to make informed decisions as to which cows should receive ADCT.

Summary

Selective dry cow therapy is one strategy to reduce antibiotic use at farm level. Milk recording and good records of clinical mastitis cases are pre-requisites. Hygiene at drying off is paramount to success. Involvement of the farm vet at all stages of the decision making process is very important. Selective dry cow therapy is a potential win/win for the dairy farmer, (less antibiotics used, less mastitis from *e coli* type organisms), but also a potential lose/lose, if you get it wrong, (sick/dead cows, increased infection levels). Good records and a high level of management are essential for success.