
BOVINE NEWSLETTER

Prudent Antibiotic Use for Dry Cow Mastitis Management

The issue of antibiotic resistance and the overall reduction of antibiotic use in animal agriculture have been hot topics in the news lately, both in Canada and around the world. The European Union is leading the charge, dictating a 50% reduction in the amount of total antibiotics used in farming practices and is increasing regulations surrounding the use of the remaining drugs. In March 2013, the Ontario Medical Association released a report implicating the use of antibiotics in food animal veterinary medicine as a major contributor to the rising human antimicrobial resistance issue. The Canadian government has not made any statements with regards to their intent to monitor or reduce antibiotics used on farms; however maybe it's time to proactively look at some common practices to see what changes can be made.

Complete Dry Cow Therapy

A 2013 survey of herds in Michigan, Pennsylvania and Florida found 73% of all herds reported performing complete dry cow therapy. These numbers would also be consistent with Ontario averages. Recent research from the University of Nottingham found that in UK herds, dry period intramammary infections can account for as many as 75% of all clinical mastitis cases and more than 75% of all subclinical mastitis cases on a farm. Given the costs associated with mastitis treatment, decreased milk production, increased somatic cell counts and increased cull rates, the use of intramammary antibiotics at dry off has often been and continues to be seen as the most economical choice.

The dry period has traditionally been the best chance to cure cows that have lingering infections, with studies often reporting 80-100% cure rates. Because we don't always know which cows or which quarters are infected, especially with regards to a subclinical infection, complete dry cow therapy has long since been the recommendation. Complete dry cow therapy results in every quarter of every cow being administered antibiotics at dry off, potentially as a treatment, but quite often as a preventative to new intramammary infections that could develop during the dry period.

In the past, infections with bacteria such as *Strep. Agalactiae* were more common and were easily treated with one of many long acting intramammary antibiotics available. On many of today's dairies, most infections are now caused by environmental Streptococci or Coagulase Negative Staphylococcus (CNS Staph) and individual cow and herd somatic cell counts are lower as a direct result of better udder management. The use of teat sealants has decreased the opportunity for new infections to be acquired during the dry period as well. When all of these factors are considered, updated recommendations with respect to dry cow therapy could be reviewed with your veterinarian.

How well is my Dry Cow management program working for me?

- What % of LOW SCC (uninfected) cows change to HIGH SCC (new infections) – Target <10%
- What % of HIGH SCC (infected) cows change to LOW SCC (cured) – Target >85%
- What % of 1st calf heifers calve in with HIGH SCC (infected) – Target <10%

Selective Dry Cow Therapy

By using a cow approach to dry cow antibiotic therapy (vs. a blanket or herd approach), treatment can be optimised to each individual cow, and recommendations can and should be different between herds. It is possible that antibiotic resistance issues could develop with complete dry cow therapy because antibiotics are being administered to animals that lack pathogenic organisms. As a result, the natural microbial population of the udder is exposed to antibiotics, leaving the good bacteria to die off and potentially bad (resistant) bacteria to proliferate.

As a rule of thumb, selective dry cow therapy may be appropriate for cows that have less than 100,000 SCC for a minimum of the last 3 tests prior to dry off, the cow has not had a case of clinical mastitis in the last lactation and the udder has been cultured negative for bacterial growth. However, as was stated earlier, this recommendation may vary according to individual herd situations and management practices and must be discussed with your herd health veterinarian prior to starting a selective dry cow therapy program.

It should be noted that a slow rise in bulk tank somatic cell count is often observed in herds using selective dry cow treatments, because the criteria for antibiotic administration will result in some cows with subclinical infections not receiving any treatment. It is not uncommon for cows with a somatic cell count of less than 200,000K to still have a bacterial infection. Therefore, it is vital that farms remain vigilant in their monitoring of SCC and can react and make protocol changes if necessary.

Conclusions

If considering a switch to selective dry cow therapy, it is important to review all other avenues of dry cow management, including the use and proper administration of internal teat sealants, dry cow housing, stocking density, environmental hygiene and nutrition. Regardless of your approach to dry cow therapy, responsible antibiotic use requires the constant monitoring of outcomes. All farms should be keeping track of all cases of clinical mastitis. Analysis of when they happen (with respect to calving) and the organisms involved as identified through culturing should be review with your herd health veterinarian frequently to ensure your cows are receiving the most appropriate treatment plan.