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Internal Teat Sealant

What is an internal teat sealant?

Internal Teat Sealant products (such as **SURESEAL & TEATSEAL**) act as a barrier to new infections by blocking the teat cistern and teat canal, making it extremely difficult for bacteria to enter the udder. It is a non-antibiotic substance called bismuth subnitrate, which has the consistency of toothpaste.

When is it used?

At drying-off these products are used either in combination with an Antibiotic Dry Cow Therapy (ADCT) or on its own if comprehensive herd test data allows for selective DCT.

At drying-off the product is infused into the teat using sterile technique and it sits there, unchanged, until it is stripped out either by the calf suckling or by the milker before first milking. This means that the cow is protected for the duration of the dry period no matter what length it happens to be. There have been no problems associated with its removal by hand or by calf.

As with ADCT, sterile administration technique is critical as any bacteria inadvertently infused at this time could lead to potentially life-threatening toxic mastitis.

How to administer an internal teat sealant?

The technique for administering an internal teat sealant is different to ADCT or lactational intramammary treatments.

As there is no antibiotic in the preparation, it is vital that the tubes remain sterile. Although cold temperatures can make the product hard to instil, you **MUST NOT** warm the tubes by putting them directly in warm water. Instead, place the tubes in a warm room/vehicle prior to use or put the product container into a larger bucket containing hot water (i.e. a bucket in a bucket).

Wearing clean gloves, disinfect the teats by rubbing the teat opening with a teat wipe or alcohol soaked cotton balls (70% methylated spirits & 30% water). If any dirt or discoloration is evident on the wipe after cleaning the teat end, it must be disinfected again.

The product is intended to remain within the teat cistern and canal (rather than the udder), so gently squeeze close the top of the teat (closest to the udder). Without touching the tip, remove the tube cap and gently insert the nozzle into the teat canal and infuse the product. Do not insert the nozzle to its full depth as this can damage the teat end.

DO NOT massage the udder after infusing teat sealant. Unlike antibiotic treatments, the infused product must sit in the lower part of the teat to provide the protective layer. As a consequence, if a cow is to receive antibiotic Dry Cow Treatment in conjunction with teat sealant, make sure that the teat sealant is the final product administered.

When can an internal teat sealant be used on its own?

These products are non-antibiotic so it will not cure existing udder infections, therefore, herd recording data is essential for the proper use of these products. With herd recording data, the following animals could be treated with an internal teat sealant alone:

- Cows that have NO clinical cases on mastitis in their current lactation
- Cows that have had low cell counts throughout their whole lactation (you could set this level to be <150,000 cells/ml or <200,000 cells/ml or < 250,000 cells/ml)
- Maiden heifers pre-calving (administered four weeks prior to first calving, to dramatically reduce the chance of calving mastitis)

It should be noted that the herd must have a low risk of cow associate mastitis (for example no evidence of *Staphylococcus aureus* infections in the herd) when thinking about using these products on their own.

What are the advantages of non-antibiotic DCT?

Antimicrobial stewardship is an important issue in veterinary medicine and products like this can offer an alternative to antibiotic treatment in food producing animals.

ADCT is one of the few areas where antibiotic administration is permitted for prevention (as opposed to treatment of clinical disease) as up until now there has been no alternative. Reduction of the amount of antibiotics used promotes the 'clean green' image of the final product. Accidental residue problems are avoided in both milk and calf meat so you wouldn't have to hold onto the bull calf that got a suck in before you could get him off the mother and the dry cow that calves early, won't have a prolonged withholding period.

A major advantage of this product is that it will reduce the chance of cows leaking milk when they are springing (Close to calving). Once that occurs the teat canal is then open and at risk of allowing entry of bacteria. This is a high-risk period as the cows are usually on the calving paddock by this stage and exposed to a highly contaminated environment. Many new infections occur at this time, meaning reducing this risk has a huge effect on udder health for the early lactation period.

Are there any disadvantages?

The main disadvantage is the lack of antibiotic present in the formulation, meaning it will not cure any existing intramammary infections. Therefore, herd records must be available to make informed decision as to which animals are considered infected and should receive both ADCT as well as an internal teat sealant.

Reference material

Dairy Australia (2020). Mastitis control in and after wet conditions- Using teat sealants in your herd. <https://www.dairyaustralia.com.au/resource-repository/2020/07/09/using-teat-sealants-in-your-herd#.YrJ3enZByUk>

Runciman DJ, Malmo J & Deighton M (2010). The use of an internal teat sealant in combination with cloxacillin dry cow therapy for the prevention of clinical and subclinical mastitis in seasonal calving dairy cows, J. Dairy Sci, 93 :4582–4591