Administration of internal teatsealant to in-calf heifers pre-calving

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Teatsealing heifers Pre-calving

Internal Teatsealant

• Made from Bismuth subnitrate
• Prevents infection
  • Forms physical barrier in teat canal, heifer/cows own seal isn’t intact as she starts to spring up
  • Designed to protect gland during the critical peri-parturient period*
• Teatsealing **heifers**, common practise in NZ, becoming more widespread here
• Need to administer 4-6 weeks before expected calving date
• No antibiotic in formulation → must be carried out with excellent hygiene, good facilities, good help and plenty of patience otherwise = damaged teats, severe mastitis
• ONLY consider on farms where heifer mastitis is an issue (i.e. >15%) or a potential issue (e.g. increased stocking density, heifers on slats, <1 cubicle/animal)
Alternatives to internal teatsealant

Previous Studies

• NZ, External teat dips, 26.67% reduction in IMI but…..

• NZ, Teat dipping pre-calving, 52.7% reduction in IMI due to Streptococcus uberis
  • Carried out three times weekly for 3 weeks before calving up to day of calving
Teatsealing heifers Pre-calving

- Heifers are the most vulnerable members of the herd
- Represent almost 25% of the national herd

Research on heifers has shown that;

- Preventing mastitis in first lactation maximises potential future milk yield and longevity within the herd
- Median decrease in lifetime milk yield of 864Kg/unit increase in the natural logarithm of SCC early in the first lactation
- Optimal milk yield depends on adequate development of mammary epithelial cells during the peri-parturient period. Events that interfere with these processes = capacity to produce milk
Previous Studies

- **New Zealand – spring calving, pasture based farms**

- **2007 study**
  - Gland prevalence of IMI pre-calving = 15.5%
  - IMI pre-calving increased the risk of an IMI (subclinical & clinical) postcalving
  - Infusion of the teat sealant reduced the risk of postcalving IMI due to Strep. uberis by 84% and of clinical mastitis by 68%,

- **2008 study**
  - looked at teatseal +/- tylosin
  - Infusion of the teat sealant reduced the risk of new IMI with any pathogen by 74%,
  - Reduced the prevalence of postcalving IMI by 65%,
  - Parenteral antibiotic treatment had no effect
Teatseal – How to administer

http://www.youtube.com/watch?v=HeKfL8BRGss

1. Disinfect all teats thoroughly using cotton wool soaked in meth/wipes, concentrate on teat end. FAR to NEAR
2. Administer teatseal. NEAR to FAR
3. Squeeze base as you administer & do NOT massage
4. Administer an entire tube to each quarter
5. Teatdip or spray immediately after treatment
Pilot study

Background
• Four Teagasc herds; 3 North Cork, 1 Kilkenny
• 2 herds treated in parlour, 2 herds in crush
• 240 heifers enrolled

Objectives
1. To determine the prevalence of intramammary infection (IMI) pre-calving, at 1st milking, 2 weeks post calving & mid lactation
2. To determine if infusion of a teat sealant pre-calving reduces the incidence of IMI post-calving
3. To determine if there is a relationship between presence of IMI pre-calving and the probability of IMI post-calving
Pre-Calving

- Heifers were trained into the crush/AI race/parlour for week before trial start date
Pilot study protocol

Pre-Calving
1. Teats disinfected using cotton wool soaked in meths.
2. Secretions taken from all four quarters before administration of teatseal
3. Teatseal administered to contralateral quarters
   • RF and LH in each heifer. LF and RH untreated controls
   • Split-udder design, each heifer acts as her own control
4. All teats teat-dipped immediately post treatment
5. Heifers allowed to stand for 15 minutes to allow teat canal to close before returning to cubicles/slatted shed
6. All treatments recorded

• Heifers closely monitored daily during the dry period to ensure that there are no swollen quarters or signs of systemic illness
• Quarters unable to seal (14), blind quarters, presence of warts all recorded
Pilot study protocol

Quarter sampling timepoints

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<tr>
<th>TIMEPOINT</th>
<th>Bacteriology</th>
<th>SCC</th>
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<tbody>
<tr>
<td>Pre-calving</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1st milking</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>14 days post-calving</td>
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<td>Yes</td>
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<tr>
<td>Mid-lactation</td>
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<td>Yes</td>
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<tr>
<td>Drying off</td>
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</tr>
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</table>

- All clinical cases quarter sampled prior to treatment
Results (Preliminary)

- **Control** (untreated) quarters are 2.3 times more likely to have a contagious pathogen cultured relative to **sealed** (treated) quarters.

- **Control** quarters have a 13% predicted probability of having a contagious pathogen cultured post calving compared to 6% of **sealed** quarters.
Results (Preliminary)

- Control (untreated) quarters are 3.1 times more likely to have an environmental pathogen cultured relative to sealed (treated) quarters
Teatsealing heifers Pre-calving

Key messages
1. Consider on farms where heifer mastitis is an issue or a potential issue.
2. Administer in batches, 4-6 weeks before expected calving date.
3. Plenty of help and patience, good facilities, excellent hygiene – no antibiotic in formulation.
4. Heifers must be trained in to the parlour/crush/AI race.
5. If heifer uncooperative → tail jack.
6. If persistently uncooperative → leave untreated.
7. If unable to insert tip into teat → leave untreated (teat spray).
8. Preliminary results encouraging.
Questions?