

New infection rate of bovine mammary quarters after application of a bismuth subnitrate-free internal teat sealant at dry-off

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Abstract

Internal teat sealants (ITS) are applied to prevent new intramammary infection during the dry period in dairy cattle. The common ITS products with confirmed efficacy contain the heavy metal salt bismuth subnitrate. The aim of this field study was to determine the efficacy of a novel bismuth subnitrate-free ITS prototype (BSFITS) in reducing new infections in comparison to untreated quarters (control). Therefore 50 cows from two organic German farms were treated with the BSFITS in a split-udder design. Cows included in the trial were free of clinical mastitis in the previous lactation and had a somatic cell count < 200,000 cells/mL in the last three dairy herd improvement tests. Quarter milk samples were collected at dry-off, within 5 to 12 d in milk (DIM) and 7 d later. The new infection rate (NIR) did not differ between treated and untreated quarters (12.6%). The predominant new infection causing agents were coryneforms and coagulase-negative staphylococci. The probability of developing NI during the dry period was higher in quarters infected with minor pathogens at dry-off. Within the first 100 DIM no case of clinical mastitis was reported in treated and untreated quarters. The present study could not determine a positive effect of the BSFITS in reducing the NIR in comparison to untreated quarters. Future studies with novel ITS should be performed on farms with a high incidence of IMI caused by environmental pathogens and further research about the relationship of causing agents and the sealing effect is recommended.

Key words: Teat sealant, bismuth subnitrate-free, new infection, dry period, minor pathogens