

**Non-inferiority trial investigating the efficacy of a non-antibiotic intramammary therapy in the treatment of mild to moderate clinical mastitis in dairy cows with longer lasting udder diseases**

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Short title: **Efficacy of a non-antibiotic therapy in the treatment of clinical mastitis**

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## Summary

A non-blinded, positively controlled, non-inferiority trial was conducted to evaluate the efficacy of an alternative, non-antibiotic therapy with Masti Veyxym® to reduce ineffective antibiotic usage in the treatment of non-severe clinical mastitis (CM) in cows with longer lasting udder diseases. The solely intramammary treatment with Masti Veyxym® (three applications, 12 h apart) and the combined treatment with Masti Veyxym® and antibiotics as usual on the farm according to label of the respective product were compared with the reference treatment of solely antibiotic therapy. The matched field study was conducted on eight free-stall dairy farms located in Eastern Germany. Cases of mild to moderate CM in cows with longer lasting high somatic cell counts in preceding dairy herd improvement test days and with previous CM cases in current lactation were randomly allocated to one of the three treatment groups. A foremilk sample of the affected quarter was taken before treatment and again approximately 14 days and 21 days after the end of therapy for bacteriological examination. Primary outcomes were clinical cure (CC) and no CM recurrence within 60 days after end of treatment (no R60). Bacteriological cure (BC) was chosen as secondary outcome due to a low probability of BC for selected cows was expected. The study resulted in the following findings: The pathogens mostly cultured from pre-treatment samples were *Streptococcus uberis*, followed by *Staphylococcus aureus* and coagulase-negative staphylococci. There were no significant differences between the two test treatments in comparison to the reference treatment regarding all outcome variables. The sole therapy with Masti Veyxym® resulted in a numerically lower likelihood of BC without significant differences to the reference treatment. The combined therapy group showed a numerically higher non-recurrence rate than the two other treatment groups and non-inferiority compared to the reference treatment was proven. Having regard to the selection criteria of cows in this study, the findings indicated that sole treatment with Masti Veyxym® in non-severe CM cases constitutes an alternative therapy to reduce antibiotics. However, non-

inferiority evaluations were mostly inconclusive. Further investigations with a larger sample size are required to confirm the results and to make a clear statement on non-inferiority.