



# Treatment effect of AgroN and salicylic acid on digital dermatitis – preliminary results

N Capion, OL Nielsen & EK Larsson

Faculty of Health and Medical Sciences, University of Copenhagen, Denmark  
nyc@sund.ku.dk

## Introduction

Bovine digital dermatitis (DD) is an infectious disease, with *Treponema spp.* as the predominant agent. One of the most commonly used topical treatments is oxytetracycline. There is however, an interest of using non-antibiotic products for treatment of DD, primarily due to the risks of antibiotic residue in milk and meat, soil contamination and the risk of antibiotic resistance.

The objective of this study was to evaluate the effect of AgroN (manure acidifier) and of salicylic acid over a 30-day period in the treatment of DD.

## Materials and methods

DD lesions from cows were clinically scored in a trimming chute in a commercial dairy herd at day 0. Cows with M2 or M4 lesions (Döpfer et al., 1997) were randomly assigned to two treatment groups.

Treatments were either salicylic acid powder in a bandage for 2 days, or AgroN 20% solution applied every third day for 30 days.



Figur 1: Examples of M2 (left) and M4 (right) lesions as they appeared at day 0

Lesions were examined by visual inspection (M stage), palpation (pain), and photographed at day 6, 14, 21 and day 30.

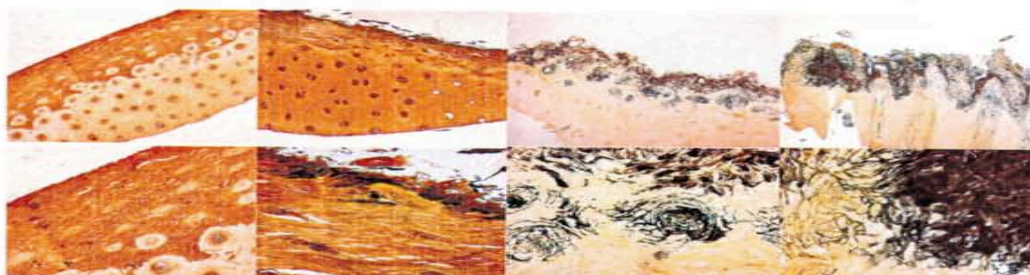
At day 0 a biopsy was obtained from the center of the lesion and a second biopsy was obtained at the point of clinical healing or at day 30 (day H).

Lesions were considered healed when scored as M0. Lesions were considered improved when scored as M3.

Biopsies were formalin fixed, paraffin wax embedded, sliced and stained using the Levaditis method (silver stain). The amount of *Treponema spp.* was evaluated. The amount was scored as either no *Treponema spp.*, small-, moderate-, or large amount of *Treponema spp.*

Figure 2. Evaluation key of Levaditis stained biopsies from cows included in the study. Samples are shown using x4 (top) and x20 (bottom) magnification.

No *Treponema spp.*      Small amount of *Treponema spp.*      Moderate amount of *Treponema spp.*      Large amount of *Treponema spp.*



## Preliminary results

Thirty DD lesions were included in the study. Fourteen were treated with salicylic acid (7 M2 and 7 M4) and 16 were treated with AgroN solution (6 M2 and 10 M4).

Treatment with salicylic acid powder resulted for M2 in 5/7 healed and 1/7 improved lesions. For M4, 2/7 healed and 2/7 improved.

Treatment with AgroN solution resulted for M2 in 2/7 healed and 4/7 improved. For M4 lesions, 3/10 healed and 6/10 improved.

Fisher's exact test revealed absence of difference between treatment groups.

Levaditis staining of biopsies taken at day 0 showed 64% with a severe amount of *Treponema spp.* while 36% had moderate amount. The results from day H are shown in Table 1.

Table 1. The amount of *Treponema spp.* in samples from cows treated for digital dermatitis taken day H. The samples are grouped according to treatment.

Treatment	None	Small	Moderate
Salicylic acid	60 %	40%	0
Agon Solution	67 %	33%	0

## Discussion

Based on the results salicylic acid and Agon solution seems to be valid non-antibiotic treatment options for DD. Due to the relative short trial period the risk of self-healing, reinfection and reoccurrence are relatively limited, but the possibility exists.

## Acknowledgements

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## References

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