

10-hour Hide Square Challenge Model Study¹

PURPOSE

Using a challenge model, study the efficacy of Finalyse® on the level of *E. coli* O157:H7 on cattle hides beyond the recommended dwell time of a minimum of 1 hour.

EXPERIMENTAL DESIGN

- Cattle hide squares (five squares/time period/treatment) were cut into 2- to 3-inch sections and incubated on heating pads to mimic the body temperature of cattle
- The hide squares were inoculated with approximately 5.5_{Log_s} of recoverable *E. coli* O157:H7 and allowed to incubate for 30 minutes
 - This challenge model study used artificially high *E. coli* O157:H7 levels for the purposes of enumeration
- Prior to treatment, 5 hide squares in each treatment group were collected for time zero
- The hide squares were sprayed with either Finalyse or water (control)
 - The Finalyse phage-to-*E. coli* O157:H7 ratio was very low at 100:1 vs. the 10,000:1 ratio typically seen under commercial conditions
- Five replicates from each treatment group were collected every hour from 1 hour to 10 hours post-treatment

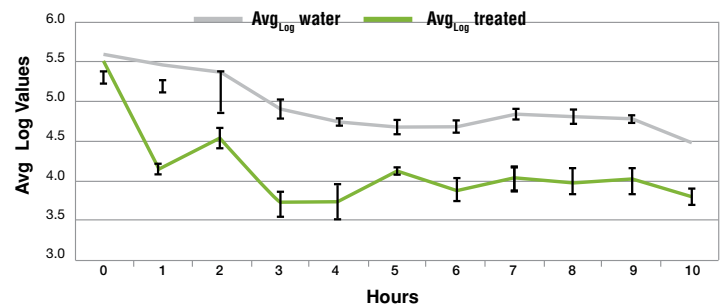
SAMPLE COLLECTION AND PROCESSING

- To extract viable *E. coli* O157:H7 from the hide squares, they were placed hair-side down into 15 mL of sterile water in petri dishes, agitated to mix and removed
- Approximately 1 mL of liquid was transferred to a microcentrifuge tube and spun at full speed for 1 to 2 minutes
- The supernatant (which contained the majority of the phage) was removed and discarded
- The pellet was resuspended in 1 mL of Luria-Bertani (LB) broth

- Serial 10-fold dilutions were plated onto BBL™ CHROMager™ O157 plates
- After an overnight incubation at 37°C, the colony-forming units (CFUs) were counted

DATA

10-hour hide-square challenge study results



RESULTS

- Hide squares sprayed with Finalyse had less recoverable *E. coli* O157:H7 compared to the control (water-sprayed) throughout the 10-hour study
- At three hours, a reduction of 1.2_{Log_s} was observed for Finalyse-sprayed hides compared to the control (water-sprayed) hides
- The greatest advantage of using Finalyse compared to water was seen in the first 4 hours of the study
- The Finalyse-treated hide squares remained lower than the water treated squares through the 10-hour trial period

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¹Elanco Study No. BIOUS090003. 2008. Elanco Reference No. 2296. Data on file.

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