Monitoring the efficacy of steam and formaldehyde treatment of naturally Salmonella-infected layer houses - DTU Orbit (01/01/2019)

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Aims: To monitor if a temperature-humidity-time treatment found to be effective in eliminating Salmonella in laboratory trials (Gradel et al. 2003) was efficient against Salmonella in naturally infected layer houses. Methods and Results: Six layer houses with natural Salmonella infections were steam treated in a download period, aiming at greater than or equal to 60 degrees C and 100% relative humidity (RH) during a 24-h period, with or without the addition of 30 ppm formaldehyde. In addition, two control layer houses were disinfected chemically. Salmonella samples taken from predetermined sites before and after treatment were tested qualitatively for Salmonella and coliforms. Samples with indicator bacteria (feed inoculated with Escherichia coli or Enterococcus faecalis and faeces with naturally occurring E. coli and enterococci) were placed during steam-treatment at 12 sites in each house (where the temperature was logged at 5-min intervals) and tested for surviving bacteria. Generally, the field test results confirmed the results of laboratory tests, especially when 30 ppm formaldehyde was added to the steam. In well-sealed houses, the recommended temperature-humidity-time scheme was accomplished at a minimum of 10 cm above floor level within 1 h. Conclusions: A steam treatment of greater than or equal to 60 degrees C and 100% RH during a 24-h period with the addition of 30 ppm formaldehyde at the beginning of the process is recommended for eliminating Salmonella from naturally infected poultry layer houses. Significance and Impact of the Study: A specific recommendation for the elimination of Salmonella in poultry houses can be given.

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