MONITORING OF THE EFFECTS OF A BIO-HYGIEZIZATION TREATMENT ON THE GROWTH PERFORMANCE OF CALVES FOR REPLACEMENT HEIFERS

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Introduction: Housing management is fundamental in maintaining good health in calves. Appropriate bedding and air quality are important preventive measures for common calf diseases, (Mc Farland, 1996; Holmes, 2000).

Aim: evaluate effects of a bio-hygienization treatment of maternity and calf pen bedding on environmental factors, health and growth performance of commercial replacement heifer calves.

Materials & methods: The investigation involved 19 heifer calves on a commercial dairy farm in Ontario, Canada. Maternity pens were randomly assigned to either bedding bio-hygienization (SOP C COW 20 g/head, 2/week) or no treatment (control). Individual calf pens were likewise assigned (SOP C CALF 3 g/head, 2/week). Communal weaned calf pens were likewise assigned (SOP C COW 3 g/head, 2/week). The trial lasted 120 days. During the trial, ammonia emissions, Total Coliform (TCC) and E. coli in the bedding were investigated every 14 days. After the trial, the calves' mortality rate in both groups and average daily weight increase were investigated.

Statistical analyses: Data was managed using Excel and analyzed using SPSS™ 17.0 (SPSS Inc, Chicago IL, USA). The distribution of the weight gain data was verified with Shapiro-Wilk test. The distribution normality established, average weight increases were compared using Student T test for the paired samples. Statistical significance was accepted when p< 0.05.

Results & discussions: Atmospheric ammonia levels in maternity pens treated with SOP C COW were lower than those in control pens. Likewise, the TCC and E. coli bacteria were lower in the bio-hygienized maternity, individual and communal pens, although these differences were not statistically significant. No calves died in either group. The calves born in bio-hygienized maternity pens and housed in bio-hygienized individual/communal pens had significantly higher average daily weight increases than control calves. Calves in treated pens had an average daily weight increase of 1.79 lbs (812 g) head/day compared to control pens with 1.66 lbs (712 g) head/day, a difference of 0.13 lbs (100 g) head/day (p< 0.05). The greater weight increase of calves in bio-hygienized environments suggests improved conditions and hence better wellbeing in those calves. Further research with larger sample sizes and more extreme environmental changes is warranted.

Keywords: Calves, ANIMAL WELFARE, housing