

Vaccination of Young Dairy Calves against *Mannheimia haemolytica* and *Pasteurella multocida*: Field Trial

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Introduction

Enzootic calf pneumonia is responsible for significant economic losses in the dairy industry because of its high morbidity and mortality. An effective vaccine could help reduce these losses. The purpose of our study was to evaluate the efficacy of a commercial *Mannheimia haemolytica* - *Pasteurella multocida* vaccine in young dairy calves.

Materials and Methods

Holstein calves (n=358) aged from 14 to 20 days from eight different herds were randomly assigned to a control or a vaccinated group. The vaccine used was Once PMH™ (Bayer), a modified-live *Mannheimia haemolytica* - *Pasteurella multocida* vaccine. The vaccine was administered on Days 0 and 28 of the trial. Calf weight was measured monthly. Farmers were asked to record any treatment given to the calves, and the rea-

son for treatment. Blood was collected from all calves on Days 0 and 28 of the study. Antibody titers to *M. haemolytica* were determined by direct bacterial agglutination.

Results and Conclusions

Average daily gain was not significantly different between vaccinated and control calves. The vaccinated calves had almost a sixfold increase in titers, whereas the control calves had a 3.6-fold increase in titers ($p < 0.0001$). There was no significant difference between vaccinated and control calves for any of the treatment outcomes (number and duration of treatment, age at first and last treatment). These results show that Once PMH™, given twice at a two-week interval to young dairy calves, is effective in raising titers against *M. haemolytica*, but these antibodies do not seem to be protective against pneumonia.

Evaluation of ECF™ (Early Conception Factor) Dip Stick Test for Cattle

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Introduction

The ECF assay is a lateral-flow assay intended to identify non-pregnant cows shortly after insemination or breeding. It can be run on serum or fresh-milk samples collected 48 hours to 15 days after the cow is bred. The test uses monoclonal-polyclonal antibody dipstick methodology. The objective of this study was to evaluate the efficacy and user friendliness of the ECF test.

Materials and Methods

ECF Dip Stick Tests were obtained from Concepto Diagnostics, Knoxville, Tennessee, and evaluated in 200 cows at three locations in the United States. Duplicate milk and blood samples were obtained from each cow seven to 14 days after insemination. Tests were read visually and also with the aid of a dissecting microscope. The milk and serum samples were frozen and sent to Concepto Diagnostics for comparative analysis.

Results and Conclusions

Of the 200 milk and serum samples, nine tests were incorrectly performed and eliminated from analysis. A total of 165 cows tested open using the ECF milk test and 104 using the ECF serum test. The cows were palpated 34 to 45 days after breeding. Of 165 cows that tested open using the ECF milk test, 24 were found pregnant by rectal palpation. Of the 104 cows that tested open using the ECF serum test, 25 were found to be pregnant by rectal palpation. In this study, the ECF

test results did not correlate well with those reported by the manufacturer. The most serious problem was false negatives. There was a 22% false-negative rate for the serum assay and a 20% false-negative rate for the milk assay. These data are consistent with results reported by Adams and Jardon (1999), who noted a 49% false-negative rate when serum was tested three-to-seven days after insemination. The high false-negative rate reported in this study is a concern for practical use of this test under routine field conditions.

Comparison of the Effects of Two Approaches to Retained Placenta on the Uterine Bacteriology, Cytology and Fertility of Dairy Cows

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Introduction

Retained placenta, common in postpartum dairy cows, involves those animals not releasing their placenta within 8-24 hours after parturition. Cows with retained placenta (RP) are more prone to metritis and cystic ovarian disease than healthy ones. On the other hand, metritis complex, in the presence and/or the absence of retained placenta, has a detrimental effect on reproductive performance. Although retained placenta can be minimized by application of preventive and control measures in the herd, removing the placenta by manual, hormonal, antibacterial and antiseptic ways are other suggested methods. The aim of the present study was to compare manual removal, conservative treatment and control (non-retained healthy cows) based on uterine bacteriological and cytological state and reproductive performance.

Materials and Methods

Ninety postpartum Holstein cows were allocated into three groups of 30: 1) Treatment, 2) Conservative approach and 3) Control. Cows unable to release their placenta 24 hours postpartum were considered suffer-

ing from the disease. Bacteriological and histological samples were obtained from the uterus on days 20 to 25 and 40 to 50 postpartum and the results combined with the reproductive indices, were statistically analysed by analysis of variance (ANOVA), chi square and Fisher exact test.

Results

Average days open were estimated 129, 122 and 110 days in these groups, respectively, with no significant difference among them. First-service conception rates (29, 40 and 48 percent, respectively) and overall conception rates (42, 40 and 1.9, respectively) also were not statistically different. However, breaking the data of treatment groups into 1) manual removal and 2) parenteral/ local infusions showed there was a significant difference in the number of services per conception between the two groups (2.7 vs 2) ($P \leq 0.05$). Culling rates in the three groups were 20, 16 and 3.3 percent, respectively, which was probably due to occurrence of uterine infections in the treated groups. The mean birth weights of the calves were 42, 42 and 44 kgs (92.4, 92.4 and 97 lbs) in the three groups, respectively, and the differences were not statistically significant despite results from