

The effects of BRD in Holstein dairy calves during the first 120 days of life on subsequent production, longevity, and reproductive performance as COWS

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Introduction

Bovine respiratory disease (BRD) is a complex and common disease that results in considerable economic loss for dairy calves. However, studies to determine the long-term effects associated with BRD in dairy calves on subsequent production, longevity, and reproduction as adults are lacking. The objectives of this retrospective observational study of Holstein heifers were to describe the prevalence of BRD in dairy calves during the first 120 days of life and to evaluate the association of BRD during the first 120 days of life on production, longevity, and reproduction as adult cows.

Materials and Methods

Health records were collected from 14,042 heifers born on one central Utah dairy between January 1, 2007 and July 15, 2012. Of the 14,042 heifers, 7,706 had matured, calved, and entered the milking herd at the time of data collection, and production and reproduction records were collected from those cows that had entered the milking herd. All health records were filtered for producer-diagnosed BRD during the first 120 days of life. The period prevalence, mortality, and case-fatality risk of BRD were determined. These data were also analyzed to determine the association of BRD during the first 120 days of life on subsequent milk production. Further analysis and retrospective modeling is being conducted to examine the association of BRD in dairy calves with their longevity and reproductive performance as adults.

Results

For the study herd, the prevalence of BRD in calves was 6.2% (869/14,042), mortality associated with BRD was 1.3% (178/14,042), and the case-fatality rate was 20.4% (178/869). Preliminary analysis of first-lactation

milk production data indicated a disparity between cows that had been treated for BRD as calves and those that had not been treated for BRD; however, production during subsequent lactations did not appear to differ between the two groups.

Significance

The United States Department of Agriculture National Animal Health Monitoring Service reported that 18.1% of preweaned heifers and 11.2% of weaned heifers were affected by respiratory disease in 2010 (USDA-APHIS, 2011), and the mortality risk associated with BRD was 2.3% and 1.3% for preweaned and weaned heifers, respectively. Results of another study indicated that the BRD morbidity risk was 7.6% and the BRD mortality risk was 2.3% for calves between birth and 16 weeks of age. The prevalence of BRD in the calves on this central Utah dairy was lower than that previously reported, which suggested that there is a wide range in prevalence of BRD among dairies that is likely caused by variation in numerous factors including climate, management, and the producer's ability to accurately diagnose BRD.

Research to determine the long-term effects of BRD in dairy calves on their subsequent production, longevity, and reproduction as mature cows is lacking. Results of a recent study failed to detect a significant difference in first-lactation milk production between cows that did and did not have BRD as calves. Initial analysis of the current data set identified a decrease in first-lactation milk production for cows that had BRD as calves, compared with that for cows that did not have BRD as calves; however, this disparity was not seen in subsequent lactations. The association of BRD as a calf with longevity and reproductive performance as mature cows remains to be determined.