

Descriptive Epidemiology of Adult Dairy Cow Mortalities on a Modern Colorado Dairy

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Introduction

Studies have reported that mortality rates for adult dairy cows have been increasing over the past couple of decades and are now between 4 and 12% at the state level. None of these studies looked closely at the causes or specific risk factors associated with death. The objectives of this study were 1) to determine the causes of death of adult dairy cattle on a modern dairy farm and 2) to identify a classification scheme that facilitates directed management changes to reduce mortality.

Materials and Methods

Adult mortalities from March 1, 2005 to February 28, 2006 on a 1400-cow dairy were examined by necropsy, either on the operation or at the Colorado State Veterinary Diagnostic Laboratory. Gross necropsy findings and histology were used to determine the cause of death. Previous health history, including producer-assigned cause of death and production records, were obtained and evaluated. Cause of death was evaluated by three different classification systems to assess usefulness of the categorization technique. The first classification category was by organ system (OS), which is commonly used in the dairy industry. The second classification was by etio-pathology (DAMINT system), commonly used in veterinary teaching hospitals, and the third was by management prevention system (MPS). Examples of categories in the management scheme were deaths related to calving, feed or nutrition, and facility-associated trauma.

Results

Of 92 cows that died, 81 were subjected to necropsy. Some 29% of deaths were in first-lactation animals, and

43% of all of the deaths occurred within the first 30 days postpartum. In 30% of cases, the producer's assessments for cause of death were incorrect when compared to necropsy findings. Of all mortalities, 25% of cases were reported as unknown cause by the producer, whereas only 5% of deaths were categorized as unknown after necropsy. A large percentage of mortalities was associated with musculoskeletal injury (21%), digestive disorders (13%) and uterine disorders (12%) (OS system), and well over 50% of the mortalities were due to infectious diseases, according to the DAMINT system. However, neither of these systems allowed for evaluation of specific management prevention techniques that could be implemented on the farm to decrease mortality rates. The management prevention system classification revealed that more than 50% of the mortalities may have been prevented through management-directed changes.

Significance

Results of this preliminary study suggest routine necropsy provides information about the causes of dairy cow mortality that is currently unavailable for making informed decisions on dairy farms. A large percentage of deaths on most operations are likely attributable to disease processes that could be minimized or avoided through directed management interventions, especially during the transition period. Determination and proper categorization of the cause of death can be used to improve management and assist in decreasing mortality rates.