

Summary of BRD data from the 2011 NAHMS feedlot and dairy heifer studies

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Abstract

The USDA:APHIS National Animal Health Monitoring System collects data on health and health management in livestock and poultry populations throughout the USA in order to provide stakeholders with population estimates to use as benchmarks for comparison, to guide policy development, and to identify research needs and prioritize education efforts. Recent studies of both the beef cattle feedlot industry and dairy heifer rearing operations provided information about BRD occurrence as well as information about prevention and treatment practices used on these operations. While a great deal of effort is dedicated to BRD prevention, there are still opportunities to improve the strategies used. Despite efforts to prevent the disease, BRD continues to be widespread on both of these types of operations.

Keywords: bovine respiratory disease, USDA:APHIS, beef cattle, dairy, NAHMS.

Introduction

Bovine respiratory disease (BRD) typically occurs as a result of the interaction of a variety of infectious and non-infectious factors. The occurrence of BRD exacts a major cost on the cattle industry including costs associated with prevention, lost production associated with morbidity and mortality, and treatment costs. Through a better understanding of the management of livestock operations and the occurrence of BRD on these operations, cattle production can be improved. Furthermore, information gaps or needs for education can be highlighted in an effort to improve production efficiency and animal wellbeing. Characterization of management practices related to BRD prevention and treatment as well as describing the occurrence of BRD were objectives of two recent national studies conducted by the USDA: APHIS (2011a, b, c, d).

Data source and analysis

The National Animal Health Monitoring System (NAHMS) has been collecting health and management data in farm settings since the early 1990s. Each type of production stream (beef, milk, pork, etc.) is handled on a rotational basis, studying each

type on a 5–8 year interval. The scale and scope of the studies along with the objectives are set with stakeholder input in order to assure the focus is on the most pressing information needs for the respective industries. In general, the studies are meant to be national in scope and represent at least 70% of the operations engaged in the production stream and at least 70% of the animals of the respective production class. Selection of the operations to participate in the study is generally based on a stratified random sample of operations from a producer list in order to allow analysis and inference back to the source population. Data are collected through a series of interviews (in person or telephone) with the selected producers who provide responses to a structured questionnaire focused on key management factors and health parameters for the animals of interest on the operation.

Feedlot 2011

In 2011 a study of beef cattle feedlots was conducted. The study was comprised of two parts, each focusing on a separate segment of the cattle feeding industry. One part of the study was directed at operations with at least 1000 head one-time capacity located in the 12 major cattle feeding states. The other part of the study was directed at operations with less than 1000 head capacity and focused on operations in 13 states, five of which overlapped with the other part of study. Data from the larger feedlots were collected through two in-person interviews with

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the feedlot operator. Data from the smaller feedlots were collected during a single telephone interview.

In each part of the study questions were formulated to meet five key objectives:

- (1) Describe changes in management practices and animal health in feedlots.
- (2) Describe the management practices in feedlots that impact product quality.
- (3) Identify factors associated with fecal shedding of potential foodborne pathogens or commensal organisms by feedlot cattle.
- (4) Describe antimicrobial usage in feedlots.
- (5) Describe biosecurity practices and capabilities in feedlots.

Because BRD is recognized as an important disease entity in feedlots and extensive efforts are expended to prevent or control BRD in feedlots, many questions dealt with these components.

Dairy Heifer Raiser 2011

In 2011 NAHMS conducted a study of dairy heifer raisers in 21 states. Individual operations eligible to participate in the study were identified through a number of methods including membership list for the Dairy Calf and Heifer Association (DCHA) as well as through referrals to operations known to be engaged in dairy heifer raising. All identified eligible operations were contacted to participate and data were collected by administration of a structured questionnaire during an in-person interview.

Results

Feedlot 2011

Health management

Concern for the occurrence of BRD in feedlots results in many feedlots adopting management strategies directed at preventing, detecting, or treating BRD in groups of cattle placed. These management strategies include such practices as pre-arrival processing, arrival processing, vaccination, metaphylaxis, pen walking or riding to identify animals with clinical disease and treatments based on clinical syndromes. For example, on most feedlots (69.3%) with at least 1000 head capacity, operators believe that pre-arrival processing was very important to assure health of animals entering the feedlot. However, feedlot operators reported that such information is often not available. Nearly all larger feedlots processed cattle placed into the feedlots. Vaccination to prevent/control respiratory disease was the most commonly cited component of the arrival processing procedure (96.0% of those processing arriving cattle). Approximately half (50.4%) of feedlots incorporated an injectable antimicrobial into the arrival processing for at least some cattle, presumably to avert an outbreak of respiratory disease. Fewer feedlots with less than 1000 head capacity (40%) process

arriving cattle. When arriving cattle are processed at smaller feedlots, most (92.6%) receive a vaccination for respiratory disease and 31.0% receive an injectable antimicrobial.

BRD occurrence and treatment

For feedlots with at least 1000 head capacity, 16.2% of placed cattle reportedly develop respiratory disease such as shipping fever. Approximately 2.8% develop atypical interstitial pneumonia. Virtually all cattle with respiratory disease are treated with an injectable antimicrobial. Secondary treatments include administration of a vaccine intended to control respiratory disease (48.5% of affected cattle), administration of a vitamin C injection, (34.1%) and use of nonsteroidal anti-inflammatory drug(s) (19.6%).

Dairy Heifer Raiser 2011

Health management

Some dairy heifer raiser operations used vaccinations to control BRD pathogens. Most commonly, operators vaccinated pre-weaned heifers to control infectious bovine rhinotracheitis virus (45.3% of operations) followed by parainfluenza type 3 virus (41.3%), and bovine respiratory syncytial virus (30.7%). 'For weaned heifers, 35.5, 32.5, and 23.5% of operations vaccinated to control these agents, respectively.' Some operations also vaccinated pregnant heifers to control respiratory disease agents. Approximately one in three operations vaccinated pregnant heifers for bovine viral diarrhoea virus, infectious bovine rhinotracheitis virus and parainfluenza type 3 virus. A variety of other biosecurity practices were also used on operations including controlling the method of housing, managing contacts with other animals or people, and controlling feeding procedures to mitigate the occurrence of various diseases.

BRD occurrence

Overall, 18.1% of preweaned heifers experienced respiratory disease. For weaned heifers, 11.2% experienced respiratory disease. Only 1.2% of pregnant heifers were affected with respiratory disease. The percentage of heifers that died with respiratory disease was 2.3, 1.3 and 0.2% for preweaned, weaned and pregnant heifers, respectively.

Conclusions

Prevention and control of respiratory disease is a major focus in both cattle feedlots and dairy heifer raising operations. Still, BRD occurs frequently and has an impact on the health and production of cattle in feedlots and dairy heifer raising operations. Opportunities exist to enhance the use of existing tools to control BRD. Further research into the epidemiology of BRD and additional technologies for prevention and treatment

could help to improve animal health and wellbeing as well as food production.

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