

Materials and Methods

Six large dairy farms (400 to 1000 milking cows) and their employees in Minnesota and Wisconsin participated. Cameras were installed overlooking the home pen, holding pen, and in the parlor to capture human-animal interactions and cattle behavior at milking time. Farms were filmed 3 months before and 3 months after the bilingual on-farm stockmanship training. Filming was conducted in the fresh cow group at different milking times. Pre-determined human and animal behavior activities were scored on selected shifts from pen to parlor.

Results

The majority (87%; 40 of 46) of interviewed dairy employees indicated that the stockmanship training pro-

vided them with new insight towards cow behavior. Most participants found the stockmanship tips helpful (90%), had implemented them into their daily routine (85%), and found that it had positively impacted their attitude towards working with cows (55%). Often the impact on cattle handling and cow behavior were dependent on the farm. General observations included: 1) overall less escape behavior was seen from cows in the home pen, 2) a higher percent of cows faced the milking parlor in the holding pen, and 3) less handling errors and kicking was observed in the milking parlor after the training.

Significance

In conclusion, dairy employees valued training about stockmanship and positive changes in cow behavior were observed after herds had participated in the training.

Use of antibiotics on U.S. dairy operations

J.E. Lombard, DVM, MS¹; C.P. Fossler, DVM, PhD¹; A.E. Adams, PhD²; C.A. Koprak, MS¹

¹USDA:APHIS:VS: Center for Epidemiology and Animal Health, Fort Collins, CO 80526

²Department of Animal Sciences, Colorado State University, Fort Collins, CO 80521

Introduction

Veterinarians are the primary health providers and/or consultants on most dairy operations. In this role, veterinarians are usually involved in the selection and use of antibiotics. Preventing drug residues in milk and meat has always been a priority for veterinarians, and guidelines for judicious use of antibiotics are available to dairy practitioners. The use of antibiotics in livestock agriculture is coming under increased scrutiny because of the focus on reducing antibiotic resistance. In the past few years, the Food and Drug Administration (FDA) has released 2 guidance documents for industry. One document recommends that drugs important to human health (i.e., medically important) no longer be labeled for use in animal feed for growth promotion and/or feed efficiency, while the other calls for veterinary oversight during the administration of these drugs in feed or water. The objective of this study was to describe the use of antibiotics on dairy operations.

Materials and Methods

The National Animal Health Monitoring System (NAHMS) Dairy 2014 study was conducted in the nation's top 17 dairy states. These states represented approximately 80% of US dairy operations and dairy cows. During March through July 2014, veterinary medical officers or animal

health technicians visited 265 dairy operations that had at least 30 cows. Multiple questions from the study's questionnaire focused on antibiotic use during 2013 in the following cattle classes: preweaned, weaned, pregnant, and adult. Statistical software, which accounted for the complex study design, was used to provide estimates reflective of the US population of dairy producers.

Results

Ionophores were fed to weaned heifers on 50.5% of operations and fed to 62.7% of all weaned heifers. Similarly, 39.3% of operations fed ionophores to pregnant heifers, representing 46.8% of all pregnant heifers. Cows were fed ionophores on 37.0% of operations, with a higher percentage of medium and large operations feeding ionophores to cows (56.2 and 62.7%, respectively) compared with very small and small operations (20.4 and 27.7%, respectively; $p < 0.0001$). The largest use of non-feed antibiotics was dry cow therapy, where 88.5% of operations reported dry treating all cows, and overall 93.0% of all cows were dry treated. For dry-cow therapy, beta lactams were the predominant drugs used and 22.3% of dry-treated cows received third generation cephalosporins. Diarrhea was the most common disease in preweaned heifers: 21.3% of all heifers were affected with diarrhea, and 15.9% of all heifers were treated with antibiotics for diarrhea. The primary antibiotics given for diarrhea

were third-generation cephalosporins (28.1% of treated preweaned heifers), trimethoprim/sulfa (19.2%), and aminoglycosides (14.9%). Respiratory disease affected 8.2% of weaned heifers. The primary antibiotics used for respiratory disease were florfenicol (32.2% of treated weaned heifers) and macrolides (29.3%). The percent of cows treated with antibiotics for common diseases were 20.8% for mastitis, 7.8% for reproductive, 3.7% for lameness, 2.7% for respiratory and 1.2% for digestive disease. On operations that treated cows, third-generation cephalosporins were used to treat cows for mastitis (50.8%), lameness (59.6%), respiratory disease (78.3%), or digestive problems (61.9%).

Significance

Ionophores are frequently used as feed additives on dairy operations, but this class of antibiotics is not listed as “medically important” by the FDA and, thus, isn’t affected by the recent FDA guidance documents. Third-generation cephalosporins, trimethoprim/sulfa, and macrolides are all considered critically important for use in humans. However, these drugs are being used in the dairy industry primarily for disease treatment purposes, and relatively few cattle are treated with the drugs.

Exploring herd-level management factors and culling rates in Québec dairy herds

D. Haine, J. Arsenault, É. Bouchard, J. Dubuc, DVM¹; H. Delgado, R. Cue, K. Wade, PhD²; A. Sewalem, PhD³; R. Lacroix, D. Lefebvre, PhD⁴

¹Faculté de médecine vétérinaire, Université de Montréal, St-Hyacinthe, QC, J2S7C6, Canada

²Department of Animal Science, McGill University, Ste-Anne-de-Bellevue, QC, H9X3V9, Canada

³Guelph Food Research Center, Agriculture and Agri-Food Canada, Guelph, ON, N1G5C9, Canada

⁴Valacta, Ste-Anne-de-Bellevue, QC, H9X3R4, Canada

Introduction

Relationship between longevity and health or reproductive performance at the cow level is well demonstrated in the dairy literature, but this association might not hold true at the herd level. Many herd-, farm-, and cow-level components are part of the culling decision. The objectives of this study were to: 1) quantify culling rates of Québec dairy herds, and 2) investigate if Québec dairy farms could be differentiated based on herd-level factors such as management, reproduction, production and health indices, and explore their relationship with herd culling rate.

Materials and Methods

A retrospective study was conducted on data from dairy herds in Québec, Canada, by extracting their health and production data. Data were extracted for all lactations taking place between 2001 and 2011. A total of 432,733 lactation records (from 156,409 cows and 763 herds) were analyzed. Thirty herd-level variables were aggregated for each herd/year of follow-up and their relationship investigated by Multiple Factor Analysis (MFA).

Results

The overall culling rate was 31.6% with a 95% confidence interval of [31.2, 32.1]. The explained variance for

each axis from the MFA was very low (first and second axis: 13.7 and 12.6%, respectively) suggesting that there was no relationship among the groups of variables. Associations were found between culling rates and herd-level variables such as seasonality, proportion of primiparous cows, calving interval, 21-day pregnancy rate, days to first service, and average age at first calving.

Significance

Being pregnant is a cow-level protective factor against culling. We determined that herd reproductive performances as measured by calving interval and 21-day pregnancy rate were associated with culling rates. However, these were the only herd-level factors associated with culling while there are many cow-level risk factors. No association was found between culling rate and herd production performances (peak production, 305 day milk, fat, and protein production). The presence (and absence) of relations observed in this study stresses the significance of the peripartum period for the herd, and the prime importance of acknowledging the discrepancy between herd- and cow-level associations. Inferences at the group level should not be based on individual-level data.