case of Caesarean sections, the sooner the surgical intervention takes place after the rupture of foetal membranes, the lower the proportion of newborn calves with severe asphyxia will be. Recent studies have shown that before making a decision as to the mode of calving assistance in an animal hospital, the results of acid-base balance determination from blood samples (withdrawn from the v. metacarpalis superficialis volaris or v. matatarsalis dorsalis lateralis, or from the v. digitalis dorsalis communis III dorsomedialis or from the umbilical blood vessels) should be considered. Routine use of complex treatment of calves born with severe asphyxia may reduce postnatal calf losses. Particular attention should be paid to providing sufficient amounts of colostrum, since the lack of colostrum uptake is accompanied by increased susceptibility to infectious *Escherichia coli*.

Epidemic of Mycoplasma Mastitis in a Colorado Dairy Herd Following Expansion from 350 to 2,500 Milking Cows

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Introduction

Over the past two decades, dairies in the Western United States (US) have been expanding by purchasing cattle from various sources within the country.[1] During year 2001, cow numbers in the West increased by 72,000 head, while the dairy cow population in the rest of the country declined by a total of 163,000 head.[2] The National Animal health Monitoring System (NAHMS) study conducted in 1996 reported that 44% of operations brought cattle onto their dairies during 1995. Among herds with 200 or more milk cows, 65% of herds brought cattle onto the dairy from an outside source.[3] Avoidance of severe losses from introduction and spread of disease requires biosecurity practices at multiple checkpoints, plus a plan for handling problems that occur. The objective of this herd report was to describe an epidemic of *Mycoplasma* (Myco) mastitis in a recently expanded Colorado dairy herd and to analyze reasons for the outbreak.

Materials and Methods

In September of 2001, the original herd of 350 milking cows was moved to a new facility (60-stall rotary with separate parlor for milking hospital cows). Heifers and cows for the expansion were purchased from approximately 15 sources over a one year period. A single bulk tank milk sample from each purchased lactating herd was cultured for Myco, and cattle were not moved to the new facility until negative bulk tank Myco results were obtained. Purchased lactating cattle were not tested prior to entering the milking strings upon arrival at the new facility. The only sampling performed for Myco testing was on cows that recently calved (fresh cows) or had a clinical mastitis episode during and following the expansion. Cows that tested positive for Myco on more than one occasion were only included as a new case on the initial positive culture result.

Results and Intervention Steps

All bulk tanks from purchased herds were culture-negative for Myco. Over a period of 17 months, 12,700 cultures were tested with a total of 560 new cases (4.4% of all milk cultures; 22% of final lactating herd size). The first epidemic of Myco mastitis occurred in March 2002 (200 cows), and many of these cows were sold. A second epidemic occurred in November 2002 (145 cows). Approximately 88% of Myco culture-positive cattle had a previous negative culture during an earlier hospital parlor visit. Investigation revealed that cow-to-cow spread was being facilitated via improper disinfection of milking equipment and general contamination of the hospital milking parlor environment with Myco organisms.

Hospital parlor personnel were trained to prevent spreading the organism among cows being milked in the hospital parlor. Key points in this training program included the following: 1) behavior and recognition of Myco mastitis, 2) prevention of the transmission of Myco organisms at milking time, 3) proper intramammary treatment technique, and 4) methods for disinfection of milking machines using Dyne[a] solution. In the four months following implementation of new hospital procedures and employee training, the number of new Myco infections has been drastically reduced to one to two new positive cows per month. The majority of new cases currently being identified are cows that have not previously spent time in the hospital parlor.

Conclusions

This herd experienced significant economic losses as a result of purchasing Myco cows without first designing a program for detection and prevention of new Myco mastitis cases. A single bulk tank milk culture was not sensitive enough to identify Myco-infected herds at purchase. Culture of fresh and mastitis cows was implemented, but no single test is capable of detecting every infected animal. In the absence of a program for preventing the spread of Myco, cows that were culture-negative upon entering the hospital may have become infected via poor hospital milking procedures. Culture of samples from mastitis and fresh cows, tanks, or testing cattle at arrival is probably not adequate for preventing an epidemic of Myco mastitis. Biosecurity programs for any infectious disease must include multi-level testing of cows, pens and tanks (where applicable), but more importantly, they absolutely must include an action plan for preventing the spread of disease and for handling infected cattle as they are identified.

The cost of culturing cow samples so far in this herd, as a result of the epidemic and intensive culturing upon entry and exit of the hospital pen, has approximated $100,000. This does not include losses incurred from culling of Myco-positive cattle, extra labor required to milk hospital cows during the epidemic, or discarded milk. Any herd undergoing expansion by purchase of lactating cattle should consult with their veterinarian and do everything possible to establish biosecurity practices at multiple checkpoints, plus a plan for handling problems that occur.

[a] Dyne® Detergent Germicide. West Agro, Inc. Kansas City, MO 64153-1296.

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Growth of female dairy calves fed neomycin and oxytetracycline in milk replacer

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Introduction

Public concern about antimicrobial resistance of foodborne pathogens has led to a re-evaluation of the costs and benefits of feeding antimicrobial agents to livestock. The potential benefits of restricting antimicrobial feeding should be evaluated in light of effects on animal health, growth and economic efficiency of production. Previous experiments in research herds showed that feeding milk replacer containing antibiotics increased growth rates of calves, but data are lacking from commercial dairy farms. The purpose of our study was to evaluate the effect of feeding oxytetracycline and neomycin in milk replacer on growth in dairy heifers from birth to four months of age.

Materials and Methods

Four privately-owned Holstein herds milking from 70 to 350 cows near Ithaca, New York were enrolled in the project. Female calves born from July 1 to December 31, 2002 were assigned at birth to one of two treatment groups. Calves in the first group received a commercial milk replacer (20% fat, 20% protein) containing 200 grams/ton oxytetracyline and 400 grams/ton neomycin base. Calves in the second group received an identical milk replacer except without antibiotics. Within each herd, treatments were assigned sequentially to groups of calves born in alternating two-week periods after selecting the initial treatment at random. Girth and withers height measurements were taken during the first week after birth and then 2, 4, 8 and 16 weeks later. The individuals caring for and measuring the calves were blinded to treatment group assignment. Body weight was estimated from girth measurements. The daily change in girth circumference, withers height and body weight was estimated for each calf using linear regression. The effect of treatment group on daily gain and final weight was tested using mixed linear models.