and 43% (n=63) were between 100 and 125 g/L, 126 and 150 g/L, and over 150 g/L, respectively. To identify colostrum with IgG concentrations of <100 and <125 g/L, a Brix cut-point of 26% resulted in the highest combined sensitivity (Se) and specificity (Sp) (Se=100%, Sp=86%, and Se=88%, Sp=95%, respectively). To identify colostrum with IgG concentration of <150 g/L, a Brix cut-point of 30% resulted in the highest combined Se (88%) and Sp (95%). The overall highest kappa for colostrum was achieved using a Brix cut-point of 26% and RID IgG cut-point of 125 g/L. Only 1.4% of calves (n=2) had serum IgG concentrations below 10 g/L. The optimal cut-point for serum IgG was 7.8%, but this must be interpreted with caution due to low numbers of calves with failed transfer of passive immunity.

Significance

This work provides guidelines for using the Brix refractometer to evaluate colostrum quality on-farm when intervening to ensure adequate transfer of passive immunity in commercial beef calves. However, insufficient numbers of calves with failed transfer of passive immunity were present in this population to assess the ability of the Brix refractometer to detect calves with inadequate levels of serum IgG.

An assessment of two measuring devices for estimation of body weight in newborn beef and dairy calves

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Introduction

Calf birth weight is an important factor that can impact cow and calf health as well as performance on beef, dairy, and veal operations. Methods of estimating weight on-farm without the use of a scale have been developed, the most common of which are measuring tapes that determine the circumference around either the fetlock or girth of a calf. Despite the potential utility of these devices, there is a paucity of peer-reviewed research that evaluates their accuracy. Furthermore, many of the previous studies have not used appropriate statistical methodology to assess the agreement between 2 continuous measures. The objective of this study was to evaluate the agreement of commonly-used measuring devices with actual body weight of neonatal beef and dairy calves.

Materials and Methods

A convenience sample of 578 calves were enrolled from the University of Saskatchewan Goodale Farm, 3 commercial beef cow-calf operations, the University of Guelph's Elora Dairy Research Station, and a commercial veal operation. Beef calves were either Hereford or Hereford-crosses, purebred Red Angus, or Speckled Park, and were weighed at 1 d of age. Dairy heifer calves were all Holsteins and were weighed at 1 to 3 d of age. Dairy bull calves were also Holstein and weighed at approximately 4 to 10 d of age; however, the majority were purchased from an auction market so exact birth dates were unavailable. Calf weight was first estimated using 1 or more of following: a Calfscale® Birthweight Tape (Calfscale Company, Ames, IA), a Beef Stock Weight Tape (The Coburn Company, Whitewater, WI), or a Dairy Calf Tape (The Coburn Company, Whitewater, WI). The Calfscale® Tape (FT) was placed around the fetlock, just proximal to the coronary band of a forelimb, and the corresponding weight was recorded from the appropriate side of the tape, depending if the calf was a bull or heifer. The Beef Stock or Dairy Calf Tape (GT) was pulled snuggly around the girth area of the thorax, just caudal to the forelimbs. Calves were then weighed using a digital livestock scale (DS), which was considered the gold standard. Bland-Altman plots were performed to assess measure agreement in body weight between devices. In addition, the proportional bias and variation around the line of best agreement were studied. Calves were categorized as heavy or light based on the top 25th and bottom 25th percentiles, respectively. All others were categorized as moderate. Weighted Kappa for agreement between gold standard (DS)

and on-farm devices (FT, GT), as well as Krippendorff's alpha coefficient among all 3 methods were calculated. Analyses were performed using R version 3.1.2. Statistical significance was set at $P<0.05$ for all tests.

Results

Based on the Bland-Altman plots, there was significant disagreement ($P<0.001$) between DS and both the FT and GT. On average, FT overestimated weight in beef calves by 3.40 lb (1.54 kg) ($P<0.001$), and GT underestimated weight in dairy calves by an average of 3.02 lb (1.37 kg) ($P<0.001$). However, the mean difference for both devices was not equal across weights, and both overestimated at lower weights and underestimated at higher weights. Weighted Kappa for agreement with DS for weight category was moderate at 0.56 ($P<0.001$) for FT and 0.44 ($P<0.001$) for GT. Krippendorff's alpha coefficient among all 3 methods was 0.66 and 0.52 in beef and dairy calves, respectively.

Significance

Determining accurate birth weights is important for management strategies to reduce calving difficulties, ensure cow and calf health, and optimize performance. Currently available on-farm devices for estimating calf body weight had poor agreement with digital scales, and may not be appropriate for detecting calves at either end of the weight spectrum.

Current feedlot cattle health and well-being program recommendations in the United States and Canada: The 2014 Feedlot Veterinary Consultant Survey

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Introduction

Veterinary consultants routinely give recommendations to feedlot employees and managers on all areas of cattle health and well-being. Recommendations are made based on veterinarians' field experience and review of peer-reviewed literature. However, there is little data available about how the literature is merged with field experience and the actual recommendations given by consulting veterinarians to feedlot employees and managers. A survey conducted by Vasconcelos and Galyean (2007) reported baseline recommendations of select feedlot nutritionists in the United States. This survey is to be repeated every 4 to 5 years, as changes in recommendations can be useful in determining areas in nutritional practices that warrant further research. A similar study was conducted for feedlot veterinary recommendations in 2009 to establish a baseline for recommendations of feedlot veterinary consultants in the United States and Canada. The objective of the current survey was to report specific recommendations currently made by feedlot consulting veterinarians and to compare the current recommended practices to those recommended in the survey conducted 5 years ago.

Materials and Methods

Selection of veterinarians for this study was based upon personal knowledge of their consulting areas and their reputation within professional veterinary organizations. Twenty-three consulting feedlot veterinarians were contacted by phone to inform them of the purpose of the survey and to request their participation. If interested, participants were provided a link to the survey via an email communication. All 23 veterinarians agreed to participate. Approval to conduct the survey was granted by the Kansas State University Institutional Review Board (IRB #7431). Data were collected using Kansas State University's web-based survey system. The survey consisted of 78 questions covering general information/demographics (n=8); employee training (n=9); receiving and processing practices, including BVD testing (n=10); castration, dehorning, and pregnancy management (n=10); metaphylaxis and feed-grade antibiotics (n=8); revaccination (n=5); disease diagnosis and treatment, including pen riding (n=8); morbidity and mortality (n=15); and euthanasia and necropsy (n=5). Data were downloaded into Microsoft Excel for summary and analysis.