

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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Abstract

Feedlot consulting veterinarians (n=23) in the United States and Canada participated in a beef cattle health and well-being recommendation survey. The objective of the survey was to determine the recommendations of consulting feedlot veterinarians in the United States and Canada for cattle health and well-being, and to compare these recommendations to those made in a survey conducted in 2009. Participants answered 78 questions on feeder cattle husbandry, health, and preventative medicine recommendations. Survey results showed that veterinarians visit feedlots in their practice an average of 1.7 times/month. Feedlot veterinarians train employees on pen riding, processing procedures, necropsy, and many other areas of cattle health and well-being. The majority of veterinarians use Beef Quality Assurance concepts as part of employee training. Veterinarians also give recommendations on routine surgical procedures, such as dehorning and castration, metaphylaxis, feed-grade antibiotics, vaccination programs, and treatment regimens. Morbidity and mortality rates for feedlots consulted were obtained, along with other information about risk factors for morbidity rates. Cattle health risk was considered the most important factor for predicting morbidity in both 2009 and 2014. This survey provides valuable information on the current recommendations of feedlot consulting veterinarians in the United States and Canada, helps track industry changes over time, and offers benchmarking data for the industry.

Key words: cattle, feedlot, health, well-being, survey

Résumé

Des vétérinaires consultants dans des parcs d'engraissement (n = 23) aux États-Unis et au Canada ont participé à un sondage concernant les recommandations sur la santé et le bien-être des bovins. L'objectif du sondage

était de déterminer les recommandations des vétérinaires consultants dans des parcs d'engraissement aux États-Unis et au Canada au sujet de la santé et du bien-être des bovins et de comparer ces recommandations à celles faites dans un sondage de 2009. Les participants ont répondu à 78 questions concernant les recommandations sur l'élevage des bovins d'engraissement, leur santé et les mesures de médecine préventive. Les résultats du sondage montraient que les vétérinaires visitaient en moyenne les parcs d'engraissement dans leur pratique 1.7 fois par mois. Les vétérinaires dans ces parcs formaient les employés en ce qui concerne les procédures de manipulation, la nécropsie et bien d'autres aspects reliés à la santé et au bien-être des bovins. La plupart des vétérinaires utilisent les concepts basés sur l'assurance de la qualité du bœuf dans la formation des employés. Les vétérinaires fournissent aussi des recommandations sur les chirurgies de routine, comme la castration et l'écornage, la métaphylaxie, les antibiotiques dans la moulée, les programmes de vaccination et de traitement. Les taux de mortalité et de morbidité dans les parcs d'engraissement consultés ont été obtenus de même que de l'information sur les facteurs de risque associés aux taux de morbidité. Le risque de santé des bovins était considéré comme le facteur le plus important pour prédire la morbidité tant en 2009 qu'en 2014. Ce sondage fournit de l'information précieuse concernant les recommandations actuelles des vétérinaires consultants dans les parcs d'engraissement aux États-Unis et au Canada, permet d'identifier des tendances dans le secteur en fonction du temps et génère des données d'étalonnage pour le secteur.

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.⁴⁸ The scientific literature is often robust on topics such as vaccination,^{15,16,38} use of antibiotics^{13,16,18,19,23,26,30,34,36,40,41,42,50,53} and antiparasitics,^{20,22,33,37,41} ancillary therapies,^{1,2,8,9,10,11,17,29,d} routine surgical procedures,^{6,7,21,39,45,46,54} and other areas of management.^{4,5,12,24,25,27,28,31,32,35,43,44,47} However, little data is 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 in 2007 by Vasconcelos and Galyean reported baseline recommendations of select feedlot nutritionists in the United States.⁵¹ This survey is to be repeated every 4 to 5 years as changes in recommendations can be useful for 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.⁴⁸ The objective of the current survey is to report specific recommendations currently being made by feedlot consulting veterinarians, and to compare the current recommended practices to those recommended in the survey conducted 5 years earlier. The information gleaned from the survey is intended for use by industry veterinarians to compare their personal practices to others in the industry. The information from this survey is not necessarily meant for emulation, but rather an example of practices currently utilized by veterinarians deeply involved in the beef cattle industry.

Materials and Methods

Survey Participants

As with the previous survey by Terrell et al, selection of veterinarians for this study was based upon personal knowledge of their consulting areas and their reputations within professional veterinary organizations.⁴⁸ Twenty-three consulting feedlot veterinarians were contacted by phone to inform them of the purpose of the survey and to request their participation; all veterinarians agreed to participate. Approval to conduct the survey was granted by the Kansas State University Institutional Review Board (IRB #7431).

Data Collection

Data were collected using Kansas State University's web-based survey system^a. Participants were provided a URL to the survey via an email communication. Participants were given 10 weeks to complete the survey after receiving the email containing the URL.

Survey Questions

The survey consisted of 78 questions involving 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); re-

vaccination (n=5); disease diagnosis and treatment, including pen riding (n=8); morbidity and mortality (n=15); and euthanasia and necropsy (n=5).

Data Analysis

Data collected via the web-based survey system were downloaded into Microsoft Excel^b for summary and analysis. Answers given as ranges, i.e. bunk space 12 to 14 inches (30.5 to 38.1 cm), were reported as a calculated average for summary statistics and analysis. The number of responses, mode, mean, and variation around means were calculated using Microsoft Excel. For reporting purposes, as not all participants responded to all questions, percentages shown are expressed as the number of answers out of the number of total responses to a particular question.

Results and Discussion

General Information

Response rate to the survey was 100%; however, not all participants responded to all questions. Twenty-two of the 23 respondents provided their country of practice; 19 (86.4%) of the 22 were headquartered in the United States, and 3 (13.6%) had home offices in Canada. Of the veterinarians who responded with a home office in the United States, 2 (10.5%) were in Colorado, 1 (5.3%) was in Idaho, 3 (15.8%) were in Kansas, 5 (26.3%) were in Nebraska, 1 (5.3%) was in Oklahoma, and 7 (36.8%) were in Texas.

The total one-time capacity of feedlots serviced by the practices of veterinarians surveyed ranged from 25,000 to 2.5 million head, and average total capacity was 712,818 head. The majority of respondents (77.3%) reported the average capacity of feedlots they serviced was over 15,000 cattle. Veterinarians were asked to estimate the percentage of feedlots they serviced that were considered backgrounder, finisher, and stocker operations. The average percentage of backgrounder feedlots was 12.4%, with a minimum of 1% and a maximum of 35%, while the average percentage of stocker operations consulted was 7.8%, with a minimum of 3% and a maximum of 15%. Eighty-six percent of feedlots serviced by respondents were considered finishing-cattle feedlots, with a minimum of 60% and a maximum of 100%. Veterinarians indicated that they visited feedlots an average of 1.7 times/month, with a minimum of 1 and a maximum of 4 visits/month.

Employee Training/Animal Welfare

Employee training is essential for maintenance of good animal health and welfare. Beef Quality Assurance (BQA) concepts are utilized in the BQA Feedlot Assessment tool.³ When asked if they were familiar with the BQA Feedlot Assessment tool, all respondents reported that they were, and 21 respondents reported that they train employees on BQA concepts. Sixteen respondents (72.7%) indicated that they conduct the BQA assessment at their clients' feedlots (Table 1). While the

Table 1. Number and percentage of feedlot veterinarians that responded positively when asked about Beef Quality Assurance (BQA) training and assessment tools.

	Number of positive responses	Number of total responses	% of responses
Are you familiar with the BQA (Beef Quality Assurance) Feedlot Assessment tool?	22	22	100
Do you conduct BQA assessments for your feedyards?	16	22	72.7
Do you train employees on BQA concepts?	21	22	95.5

previous survey did not specify which feedlot assessment tool was utilized, the percentage of feedlot veterinarians reporting that they perform feedlot welfare assessments was higher in the current survey than in the 2009 survey (72.7% and 52.2% in 2014 and 2009, respectively). This may be due to cattle buyers' pressure to assure consumers that animal health and welfare in feedlots is acceptable, or perhaps an evolution of the beef industry toward using this tool to improve cattle management and food safety practices in the field.

Twenty-two of 23 respondents (95.7%) indicated they participated in training of pen riders. Training tools utilized included videos (81.8% of respondents), printed materials (72.7%), pictures (72.7%), and live web demonstrations (18.2%). All respondents used hands-on training to instruct pen riders. These results are similar to those in the 2009 survey. Furthermore, respondents stated they helped train personnel on hospital pen management.

Two of 23 respondents (8.7%) speak Spanish. Some consulting veterinarians hire bilingual employees to aid training of Spanish-speaking feedlot workers^c.

Processing and Receiving

The processing crew is an important animal health team in cattle feedlots. Feedlot veterinarians surveyed recommended that the number of employees on a processing crew be 3 to 6 employees, with an average of 4.

The percentage of high health-risk cattle in feedlots serviced by survey respondents ranged from 11% to 90%, with an average of 81.8%. Optimum number of high-risk cattle/pen varied widely among veterinarians surveyed. Ten respondents gave numerical responses, ranging from 35 head to 150 head of high-risk cattle/pen, with an average of 81 head/pen. Other respondents indicated that the fewer the number of high-risk cattle in a pen, the better. Still others made recommendations based on square footage/animal, ranging from 175 to 400 ft² (16 to 37 m²)/head. Three respondents indicated that they recommend 1 truckload of high-risk cattle/pen, if possible. Finally, 2 respondents indicated that available bunk space is used to determine the number of high-risk cattle/pen. Recommended bunk space for high-risk cattle ranged from 6 to 24 inches (15 to 61 cm)/animal, with an average of 15.5 inches (39.4 cm)/animal, compared to a range of 10 to 21 inches (25.4 to 53.3 cm)/animal and a mean of 13.9 inches (35.3 cm)/animal in 2009.⁴⁸ Regardless of how stocking density and bunk man-

agement decisions are made, it is clear that much thought is given to pen space recommendations for high-risk cattle by the veterinarians surveyed.

There is little published information on the effect of resting cattle before processing after arrival at the feedlot.¹⁴ When asked if a rest period was recommended for long-haul (defined as ≥ 8 hours) cattle prior to processing, 17 respondents (77.3%) answered "yes". This is higher than the percentage of veterinarians that recommended a rest period in the 2009 survey (47.8%).⁴⁸ The length of the rest period varied from 4 to 72 hours, with a mean of 26.5 hours.

Vaccine protocols and administration are cornerstones to biosecurity in cattle-feeding facilities. Veterinarians most commonly recommended infectious bovine rhinotracheitis virus (IBRV) and bovine viral diarrhea virus (BVDV) vaccine (types 1 and 2) for both high- and low-risk cattle. This is likely due to the risk of high morbidity caused by these viral pathogens, and the need to control viremia within cattle populations. All respondents recommended vaccinating all

Table 2. Vaccine recommendations by feedlot veterinarians for high-risk and low-health risk feeder cattle at processing (% of total responses; total responses = 22).

	High-risk cattle	Low-risk cattle
IBRV vaccine*	22 (100.0%) ^a	22 (100.0%)
BVDV type 1 vaccine [†]	20 (90.9%)	20 (90.9%)
BVDV type 2 vaccine	20 (90.9%)	21 (95.5%)
BRSV vaccine [‡]	15 (68.2%)	11 (50.0%)
PI3V vaccine [§]	15 (68.2%)	12 (54.5%)
<i>Histophilus somni</i> bacterin	7 (31.8%)	0 (0.0%)
<i>Moraxella bovis</i> bacterin	0 (0.0%)	0 (0.0%)
<i>Leptospira</i> bacterin	0 (0.0%)	0 (0.0%)
Clostridial bacterin-toxoid	10 (45.5%)	7 (31.8%)
<i>Mannheimia haemolytica</i> bacterin	17 (77.3%)	0 (0.0%)
<i>Pasteurella multocida</i> bacterin	8 (36.4%)	0 (0.0%)
<i>Mycoplasma bovis</i> vaccine	2 (9.1%)	0 (0.0%)
Autogenous bacterin	5 (22.7%)	0 (0.0%)
Other vaccine/bacterin	0 (0.0%)	0 (0.0%)

*Infectious bovine rhinotracheitis virus vaccine

[†]Bovine viral diarrhea virus vaccine

[‡]Bovine respiratory syncytial virus vaccine

[§]Parainfluenza-3 virus vaccine

^aNumber of responses (percentage of responses)

cattle with IBRV vaccine (Table 2). Vaccinating with BVDV (types 1 and 2) vaccine was recommended for all classes of cattle by over 90% of respondents, while parainfluenza type-3 virus vaccine was recommended by 15 (68.2% of respondents) and 12 (54.5%) respondents for high-risk and low-risk cattle, respectively. The recommendation for use of bovine respiratory syncytial virus vaccine was similar, with 15 (68.2%) veterinarians recommending it for high-risk cattle, and 11 (50.0%) for low-risk cattle. *Mannheimia haemolytica* bacterin-toxoid was recommended for high-risk cattle by 17 participants (77.3%), but none recommended it for low-risk cattle. Eight participants (36.4%) recommended *Pasteurella multocida* bacterin for high-risk cattle, but none recommended this vaccine for low-risk cattle. Autogenous vaccines were recommended by 5 respondents (22.7%) for high-risk cattle, but none recommended their use in low-risk cattle. The recommendation to use autogenous vaccines is higher in the current survey than in the 2009 survey; however, the specific antigens recommended for autogenous vaccines were not explored in either survey.

Ear notching to test for cattle persistently infected with BVDV was not recommended by a majority of the participants for either high- or low-risk cattle (4.3% and 0.0%, respectively).

Revaccination of Cattle

Twelve (53.3%) participants recommended revaccination of high-risk cattle. Recommended time of revaccination varied, but the most common recommended time for revaccination was 21 days-on-feed (33.3% of respondents). Four participants (17.4%) recommended revaccination of low-risk cattle; all 4 recommended revaccination at the time of reimplant. All veterinarians that recommended revaccination stated that they recommend IBRV vaccine; revaccinating with BVDV type 1 vaccine was recommended by 60.0% of respondents, BVDV type 2 vaccine was recommended by 53.3% of respondents, 26.7% recommended bovine respiratory syncytial virus vaccine, and 26.7% recommended revaccination with parainfluenza-3 virus vaccine. *Histophilus somni* bacterin was recommended by 6.7% of respondents, *Mannheimia haemolytica* bacterin-toxoid by 20.0% of respondents, *Pasteurella multocida* bacterin by 13.3% of respondents, *Mycoplasma bovis* vaccine by 6.7% of respondents, and autogenous vaccines by 6.7% of respondents. No distinction was specified between high-risk and low-risk cattle in this question, therefore the interpretation of the question was open to the respondent.

Metaphylaxis and Feed-Grade Antibiotics

All survey respondents recommended utilizing metaphylaxis to control BRD in high-risk cattle, while 3 (13.6%) recommended metaphylaxis for low-risk cattle. Feed-grade antimicrobials were recommended for control or treatment of BRD in high-risk cattle by 17 respondents (77.3%), and 10 respondents (45.5%) recommended feed-grade antimicrobials to low-risk cattle during the receiving

period. Knowing these recommendations is important in current and future surveys because the level of antibiotic use is of interest to many veterinary and producer groups. The Veterinary Feed Directive, which will be required to use feed-grade antibiotics at the end of 2016, will likely influence future use of antibiotics in feed.⁵²

When asked if they recommended generic parasiticide products in place of pioneer or trade-name products, 17 respondents (77.3%) answered no. Seven respondents (31.8%) recommended injectable parasiticides, 1 respondent (4.5%) recommended pour-on products, none recommended oral administration only, and 14 (63.6%) recommended a combination of these routes of administration for parasiticides. More veterinarians recommended combination routes of administration of parasiticides in the current survey than in 2009, when only 21.7% of feedlot veterinarians recommended treating with a combination of routes of administration.⁴⁸ A number of factors may have contributed to this change, including the development of resistant parasites^{20,41} or new or developing research on the effectiveness of different parasiticides and routes of administration.⁴¹

Castration, Dehorning, and Pregnancy Management

Castration, dehorning, and pregnancy diagnosis are all common veterinary practice procedures. Welfare considerations such as pain management when castrating bull calves is a current topic of discussion and research.^{39,45,46} Documentation of procedures in the field will contribute to understanding current veterinary practices.

Recommended methods to castrate bulls of various weight classes are shown in Figure 1. Banding is more commonly recommended by veterinarians surveyed as body weight of cattle increases. Twenty of 21 respondents (95.2%) recommend vaccination with tetanus toxoid if bulls are castrated using a band. Three of 23 respondents (13%) recommend pain management when bulls are castrated. Veterinarians play an important role in training feedlot em-

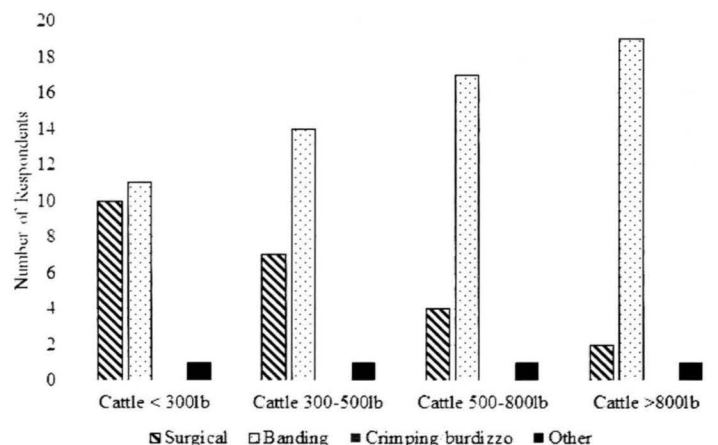


Figure 1. Recommendations by feedlot veterinarians for castration method for each weight class of cattle (n=22 respondents).

ployees to properly castrate and perform other routine surgical procedures. Producers and veterinarians alike should strive to implement good animal welfare practices before, during, and after any surgical procedure. Best management practices, such as castrating at a young age, should always be considered.

Dehorning procedures were not queried in the previous survey.⁴⁸ In the current survey, 16 participants (69.6%) believed that packing plants have a restriction on horn length in cattle; however, only 9 respondents (42.9%) recommended the removal of horns or horn tips. Of these 9, 1 (11.1%) veterinarian recommended removal of the entire horn and 8 (88.9%) recommended removal of horn tips only.

Twenty-one respondents (91.3%) recommended that heifers be checked for pregnancy during arrival processing. Seventeen (73.9%) did not recommend mass abortions without first checking for pregnancy. One veterinarian recommended administering abortifacient drugs to all heifers unless pregnancy status is known. If feedlots performed mass abortions without pregnancy checks, the classes of heifers were described by the participants, with the majority (>60%) recommending it for heifers weighing more than 600 lb (272 kg).

Pen Riding and Treatment

Survey respondents were asked the number of high-risk cattle that should be observed and tended by 1 pen rider; responses ranged from 1000 to 10,000 cattle/pen rider. The average recommended number of high-risk cattle to be managed by 1 pen rider was 3,464 head, with a mode of 5,000. The majority of participants (86.4%) recommended 1 pen rider/1,500 to 5,000 head of high-risk cattle. The same question was asked regarding low-risk cattle. The average recommended number of low-risk cattle/pen rider was 6,405, with a mode of 5,000 head. The majority (81.8%) of participants indicated that 1 pen rider could manage 5,000 to 10,000 head of low-risk cattle. The recommended number of both high-risk and low-risk cattle that should be tended by 1 pen rider is higher in the current survey than in the 2009 report. In that survey, the average recommended number of high-risk cattle/pen rider was 2,739 head, and the recommended average number of low-risk cattle/pen rider was 5,591 head.⁴⁸

Participating veterinarians indicated that there should be 1 feedlot doctor for each 2,000 to 20,000 head of cattle on feed. On average, they recommended that feedlots employ 1 doctor for each 7,594 head of high-risk cattle on feed, with a mode of 10,000 head. The recommended number of low-risk cattle on feed that could be managed by 1 doctor ranged from 1,500 to 50,000 head, with an average of 17,147 head and a mode of 15,000. This compares to an average of 1 doctor/7,083 head of high-risk cattle and 1 doctor/15,972 head of low-risk cattle in the 2009 survey.⁴⁸ Information about labor requirements for different classes of cattle is useful for understanding industry standards, and aids veterinarians in

making recommendations to feedlot managers on employee staffing levels.

Most feedlot veterinarians continue to recommend that the feedlot doctors make a diagnosis chute-side for animals pulled from the home pens by pen riders. Sixteen (69.6%) veterinarians in the survey recommend that cattle pulled for BRD by pen riders be examined by the doctors before making a final treatment decision, thus not supporting automatic treatment of pulls. Seventeen (73.9%) veterinarians recommended the use of rectal temperature to initiate treatment of cattle pulled for BRD. The rectal temperature recommended for initiating treatment of BRD ranged from 103 to 105° F (39.4 to 40.6° C), with an average of 104° F (40° C). Five (21.7%) of participants train employees to use lung auscultation to diagnose BRD, which is less than the number reported in 2009 (65.2%).⁴⁸

Morbidity and Mortality

Morbidity, mortality, and case fatality rates varied greatly among participants. Cattle morbidity rates ranged from 3% to 50%, mortality rates ranged from 0.5% to 5%, and case fatality rates ranged from 3% to 25% for cattle treated in feedlots serviced by survey participants. Such variation could be due to differences in classes of cattle, management styles, and differences in geographical location and climate of the various feedlots consulted.

Seven factors related to prediction of morbidity and mortality were provided to survey participants to be ranked in order of importance. Factors presented were brand of vaccine, class of antibiotic used for treatment, class of antibiotic used for metaphylaxis, cattle health risk, weather patterns, receiving nutrition program, and amount and quality of labor available. Table 3 shows the rankings given in the 2014 survey, and those in the 2009 survey.⁴⁸ Cattle health risk

Table 3. Ranking of 7 factors utilized by feedlot veterinarians to predict morbidity and mortality in feeder cattle in feedyards, and comparison of the rankings found in the current survey to those in the 2009 survey.*

	Numerical ranking	
	2014	2009
Cattle health risk	1	1
Amount and quality of labor available	2	4
Receiving nutrition program	3	3
Weather patterns	4	2
Class of antibiotic used for metaphylaxis	5	5
Class of antibiotic used for treatment	6	6
Brand of vaccine	7	7

*Terrell SP, Thomson DU, Wileman BW, Apley MD. A survey to describe current feeder cattle health and well-being program recommendations made by feedlot veterinary consultants in the United States and Canada. *Bov Pract* 2011;45:140-148.

was considered most important in both surveys.⁴⁸ Receiving nutrition program was ranked as the third most important prediction of BRD in both surveys as well. In addition, class of antibiotic used for metaphylaxis, class of antibiotic used for treatment, and brand of vaccine were ranked 5, 6, and 7, respectively, in both surveys.⁴⁸ Changes in weather patterns over the years and available labor force could be contributors to these 2 ranking differences in the factors provided.

Ancillary Therapy for Treatment BRD

Scientific evidence to support ancillary therapy is limited, and the recommendations of the participants reflect that uncertainty. Half of the respondents recommended ancillary therapy when treating cattle for BRD, similar to the 2009 survey.⁴⁸ A variety of products are recommended as adjunct therapy for treatment of BRD, including probiotics, virus vaccines, B vitamins, vitamin C, dexamethasone, flunixin meglumine, antihistamines, fluids, and “other”. Vitamin C was the most commonly recommended ancillary therapy (Figure 2). Lack of consensus on recommendations for ancillary therapy for BRD treatment may be due to economic considerations,¹ personal experience, and/or inconclusive or inconsistent results in the available research.^d

Realizers

Realizer cattle are unthrifty, unproductive animals sold prior to penmates to salvage some of the monetary investment,⁴⁸ most often because of chronic illness. The most common reported cause for cattle being sold prematurely was non-responsive BRD, according to 16 participants (72.7%). Six (27.3%) respondents indicated that lameness is the most common reason that cattle are marketed as realizers. Digestive disorders, such as chronic bloat, were not classified as a common reason for realizers by any respondent. Twenty-six percent of surveyed veterinarians reported that realizers from high-risk cattle populations were the result of non-responsive BRD, and 9.4% of respondents reported that chronic BRD was the cause of realizers in low-risk cattle populations. When asked where feedlots market realizer

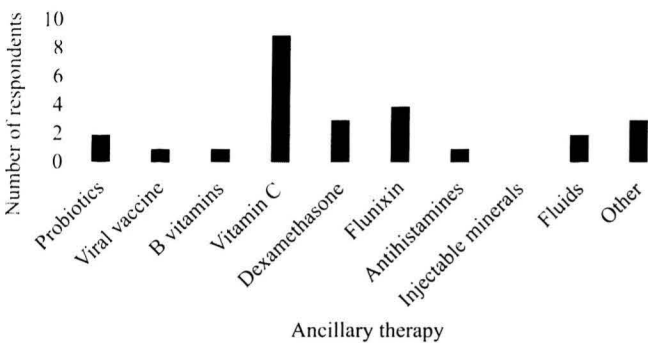


Figure 2. Recommendations by feedlot veterinarians for ancillary therapy products for treatment of BRD (n=22 respondents).

cattle, most (81.8%) reported that cattle were sent to salvage slaughter, compared to 96.65% reported in 2009.⁴⁸ Other markets for realizers were rendering companies, livestock auction markets, and private treaty (Figure 3). It is noteworthy that 69.6% of participants reported that realizer cattle were euthanized and rendered in the 2009 survey, while only 4.5% of respondents reported euthanasia and rendering in the current survey.⁴⁸ Such differences in cattle marketing between 2009 and 2014 could be due to a number of factors, and high cattle prices could be a significant influence on marketing decisions.

Euthanasia and Necropsy

Euthanasia is an unwanted but necessary animal welfare practice in food animal production units. Feedlot veterinarians were asked what method was used to euthanize feedlot cattle. The majority of participants (90.9%) reported gunshot was the most commonly used method for humane euthanasia of feedlot cattle, which is similar (86.9%) to the 2009 responses.⁴⁸ Captive bolt was used for euthanasia in feedlots served by 2 participants (9.1%), which is lower than reported use in 2009 (13.0%).⁴⁸ Thomson et al suggested that the more efficient method for euthanasia of cattle is gunshot, which may have contributed to the increase in reported use in the current survey.⁴⁹

Necropsies are commonly performed on cattle that die in feedyards. Twenty-two of the 23 veterinarians surveyed (95.7%) reported that they train feedlot employees to perform necropsy examinations. Fifteen veterinarians (65.2%) reported that necropsies are performed on all dead cattle in the feedlots they serve. Five participants (21.7%) reported

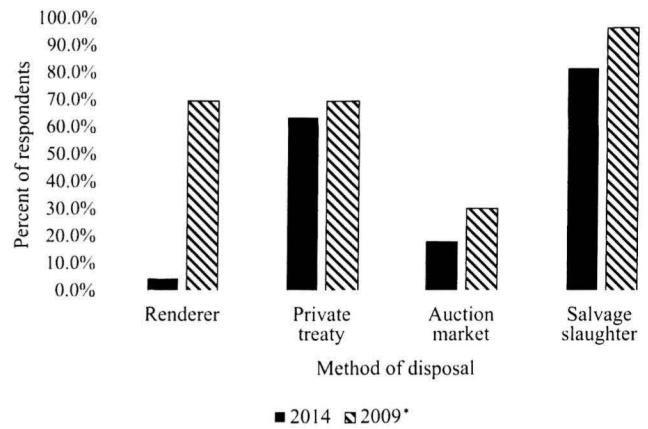


Figure 3. Methods of disposal of realizer cattle by feedlots serviced by surveyed veterinarians in the current survey compared to those in 2009. Respondents were instructed to select all that apply.

*Terrell SP, Thomson DU, Wileman BW, Apley MD. A survey to describe current feeder cattle health and well-being program recommendations made by feedlot veterinary consultants in the United States and Canada. *Bov Pract* 2011; 45:140-148.

that they utilize digital pictures of cattle before necropsy. Such pictures could potentially be tools for future employee training; however, the survey did not ask if the consulting veterinarians take pictures during the necropsy examination. Twenty participants (87.0%) reported that samples are occasionally submitted to a diagnostic lab after necropsy, while 3 participants (13.0%) submitted samples very often.

Conclusions

While this survey provides valuable insight into the more common current recommendations made by feedlot veterinarians in the United States and Canada, it is important to note limitations of survey data. The current survey reports the recommendations of only a portion of consulting feedlot veterinarians in the United States and Canada, and such recommendations can change over geographical space and time, with fluctuations in the cattle market, and with ongoing differences in personal experiences of each veterinarian surveyed. In addition, the interpretation of questions asked and terms used may be different among survey participants; 1 example is that the definition of high- and low-risk cattle was left to each surveyed veterinarian. However, findings of this survey and the comparison to the earlier survey improves our knowledge of common recommendations made by feedlot consulting veterinarians, and can have an impact on the cattle feeding industry and the veterinary profession. Such data also offers a look at the changes in those recommendations over time. This information will be valuable both today and in the future, when other surveys contribute to an expanding base of knowledge.

Endnotes

^aQualtrics Online, Kansas State University Survey Services, Manhattan, KS

^bMicrosoft, Redmond, WA

^cJose Valles, personal communication

^dWilson BK. Ancillary therapy use and trace mineral supplementation in beef cattle: impacts on clinical health, immune response variables, animal performance, and carcass traits [thesis]. Stillwater, OK: Oklahoma State University, 2014.

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