This is similar to findings by Step et al. (2008) who looked at differences in performance and bovine respiratory disease between steers that were either from a single-source ranch or multiple-source steers from an auction barn. The calves from the ranch were either weaned and shipped directly to the ranch; weaned on the ranch for 45 days but not administered any vaccinations; or weaned, vaccinated with a modified live viral vaccine, and held on the ranch for 45 days before shipping. Step et al. (2008) explained calves in the preconditioning program had lower health costs ($8.30/head and $8.93/head compared to $13.54/head and $13.24/head) compared to the steers from an auction barn and those weaned and shipped directly to the feedyard. Cravey (1996) also reported preconditioned calves had lower medicine costs and decreased morbidity compared to non-preconditioned cattle. This is similar to what Pate and Crockett (2002) reported on preconditioned calves having less morbidity and mortality compared to calves transported directly to the feedlot at weaning. Roeber et al. (2001) reported morbidity rates of 34.7, 36.7, and 77.3% and mortality of 1.1, 1.1, and 11.4%, respectively, for cattle that had been through two Kentucky preconditioning programs compared to auction-barn calves. An report by USDA-APHIS (2000a) explained most feedlot producers believe that preconditioning cattle is somewhat to extremely beneficial in decreasing morbidity and mortality in cattle weighing less than 318 kg. USDA-APHIS (2001) said most feedyard operators thought preconditioning management practices (introduction to feed bunk, respiratory vaccinations given 2 weeks prior to weaning, respiratory vaccinations given at weaning, calves weaned 4 weeks prior to shipping, calves castrated/dehorned 4 weeks prior to shipping, and calves treated for parasites prior to shipping) were extremely or very effective. Avent et al. (2007) reported feedlot managers associate preconditioning with reduced morbidity and mortality, increased ADG, and

improved feed conversion, higher carcass quality, and fewer nonconforming or severely discounted carcasses. The authors also stated feedlot managers responding to the survey perceived preconditioned calves to be worth a mean of $5.25/cwt. compared to calves not from a preconditioned program.

Preconditioning programs can also add value to both the cow-calf producer's calf crop and have been shown to positively influence profitability in fed cattle. From a cow-calf producer's standpoint, Dhuyvetter et al. (2005) suggested that based on a 45-d post-weaning preconditioning program a $14.00 increase in returns can be realized compared with the sale of calves at weaning that are not preconditioned. The same study explained that feedlot producers also can benefit from such programs and therefore can afford to pay premiums for preconditioned calves. Research has shown calves that went through a preconditioning program garnered premiums when marketed through special sales held at auction barns (McKinnon and Greiner, 2002; Lalman and Smith, 2007; Macartney et al., 2003; King and Seeger, 2004). The researchers found the premiums to range from $2.30/cwt. to $8.75/cwt. King et al. (2006) studied the sales price of calves (421,478 head/3,584 lots) from 1995 to 2005 from sales obtained from a livestock video auction service with different preconditioning programs. Calves entered in the V24 program were 2-4 months of age and still suckling their dams when they were administered vaccines against 7 types of clostridia, IBR, PI3, BVDV, BRSV and Mannheimia haemolytica or Pasteurella multocida. Cattle in the V34 program were still suckling their dams when given vaccines against seven types of clostridia at branding or at 2-4 weeks before shipment from the ranch; they were also administered vaccines against IBR, PI3, BVDV, BRSV, and M haemolytica and P multocida. The V45 program required calves to be weaned a minimum of 45 days before shipment form

the farm or ranch plus received the clostridial and viral vaccines as the V24 and V34 programs. King et al. (2006) concluded beef calves that qualified for the V45 certified health program sold for a significantly higher mean calf purchase price ($120.72/cwt.), compared to the mean sales price of calves in the V24 and V34 programs along with the calves that were only viral vaccinated and those not vaccinated. The calves bringing less money were not from a certified health program, had not been weaned and were not vaccinated against respiratory viruses prior to shipment from the farm or ranch of origin. The same study explained calves that qualified V24, V34 and viral-vaccinated brought significantly less money than calves in the V45 program. Roeber and Umberger (2002) stated cattle from two different preconditioning programs returned $46.83 and $49.54/head more than calves that came directly to the feedyard from an auction barn with no known pre-feedyard management history. McKinney (2008) reported steers that went through a preconditioning program brought more premiums compared to steers not in a program, but heifers in a preconditioning program did not warrant premiums like the steer calves did. Thrift and Thrift (2011) conducted a review of preconditioning beef calves prior to sale and explained the premiums and strategies behind previous research conducted on this topic.

There are other things to consider before implementing a preconditioning program. One thing to consider is what Macartney et al. (2003) stated about buyers not likely to pay a premium for preconditioned calves if they are not uniform, look stale or have respiratory issues such as nasal discharge. White and Larson (2008) reported that not all preconditioned calves are risk free and Thedford (2003) found some preconditioned calves still encountered a BRD disease challenge. Thrift and Thrift (2011) explained that producers should be aware that preconditioning by itself will have little effect on selling price of calves that lack

uniformity or are perceived to be of an inferior genetic type, where buyers may associate genetic type with items such as color, disposition, frame size, muscling, fleshiness, or other factors. They also explained that in video auctions, private treaty, or perhaps in local sale barn sales, producer reputation can influence a buyer's bid price. Additionally, Thrift and Thrift (2011) explained if previous preconditioned calves sold by a producer performed satisfactorily as stockers or feeders and can be source verified it is likely that producer reputation will influence a buyer's bid. A report by USDA (2008a) found this is especially true for large cow-calf operations where repeat buying may be more readily encountered.

Based on previous mentioned research, the significance of health on feedlot performance, carcass characteristics and overall profitability is apparent and warrants serious consideration for cow-calf producers to implement a preconditioning program. Some feedlots are willing to pay premiums for cattle that are healthy and have been backgrounded, taught to eat grain and been given several rounds of vaccinations. Enhanced communication is needed across the different sectors of the beef cattle industry to enable the production of a wholesome, safe and consistent product. The cow-calf producer needs to know what the feedlot manager wants and needs in the cattle arriving to the feedyard, and the feedlot manager needs to know exactly what the packer needs from an optimal carcass composition and quality standpoint. Anything beef producers can do to enhance the quality of beef products we deliver to the food supply chain should be implemented. With that stated, our beef producers need to be rewarded for taking the initiative to deliver a load of cattle that is healthy, knows how to consume grain and arrives at the feedyard without any setbacks. The objectives of this research trial were to:

1) Assess calves arriving at the feedyards for receiving health protocols, lot uniformity, origin, and value added management practices in the cow-calf and stocker sectors.
2) Examine how those factors and management practices impacted feedyard performance.
3) Examine the preferences of backgrounders, order buyers and by feedyard managers when purchasing feeder calves.
4) Identify management practices that might impair the quality of beef products sold to consumers.

MATERIALS AND METHODS

Cattle that were recently received by the feedyard in load lots were evaluated for this project. The Texas Cattle Feeder's Association along with the Nebraska Cattlemen's Association assisted in identifying a total of 12 feedyards from Texas and five from Nebraska that would participate in this project. Each feedyard was identifying the lots of cattle to be used in the study. The types of feedyards utilized in the project ranged from corporate yards to privately-owned operations and included a one-time capacity level range that represented small-scaled and large-scaled feedlots. The researchers along with both organizations established protocols for how the data would be retrieved, organized and sent to Texas A&M for processing and analyzing. Correlation meetings were conducted to train personnel from West Texas A&M University, Texas Tech University, and GPVEC that were responsible for assisting with data collection.

Within each feedyard, 20 lots of cattle from two different samplings, were used to collect data. The first sampling was 10 lots of calves that arrived at each feedyard from October to November 2010. The second sampling was 10 lots of cattle that arrived to each feedyard during March and April 2011. For each sampling period, every feedyard was asked to select five lots of known origin, where traceability would likely be accomplished and five lots from questionable origins, where traceability would be less likely. This helped to assure the goal of having a representation of the cattle being produced under a wide variety of production systems and management practices. The lots of feeder calves were shipped to the feedyards from numerous locations around the US and Mexico. The feedyard sector of the industry was selected to conduct the sampling primarily because it represents the interface between the cow-calf, auction markets, and stocker phases to the packing house industry.

For each feedyard assessment, it was requested that the feedyard manager identify the 10 lots of cattle and gather information on each lot prior to the researchers arriving at the feedyard. This included receiving and processing sheets plus production data forms for each lot. The following forms were requested by the researcher upon arrival to the feedyard:

- Yard sheet with each lot's supplier(s) information
- Hand written receiving records for each lot during each sampling
- Processing order for each lot during each sampling (Appendix 1, see example form)
- Comprehensive yard sheet with current production information
- Sheet describing codes used in the feedyard codes

Upon arrival to each feedyard, researchers obtained the previously requested forms, reviewed them to ensure everything was present, and asked the manager to complete a Beef Quality Assurance survey (Appendix 2). The researchers then asked for the pen number and location of each lot in the sampling and then went to each lot and performed a live animal assessment. During the live animal assessment, the researchers recorded the types of identification (i.e. ranch tags, lot tags, EID tags, brand frequency and location), hide color, estimated breed type, and other physical traits of the cattle. Visual appraisal of the cattle included the evaluators scoring uniformity or variability for each lot for the following traits: weight, frame size, muscling, breed type and an overall basis. The scores were assessed using a 6.5-inch continuous scale (see form used in Appendix 3). The distance from the origin was measured and as a percent of the distance of the whole scale was calculated. The scale ranged from extremely variable (0%) to extremely uniform (100%), and so the closer the percentage mark was to 100% the more uniform the lot was for that specific trait. The middle of the scale (50%) was marked with a 50/50, and a mark by the evaluator above the

50/50 mark was considered in the uniform range, whereas a mark below the 50/50 mark is considered to be in the variable range. In addition to completing the form for each lot, a minimum of 2 minutes of video footage or 20 pictures were captured for each lot.

The researchers also requested each feedyard to provide closeout information on each lot after the cattle were sold to the packer. The researchers also requested the feedyard provide the carcass data from the lots when available. Carcass data were not obtained on the lots of cattle that were marketed to the packer on a live cash basis.

Calf supplier information and origin of each lot were also evaluated. Researchers used a web-based mapping program to calculate the distance each lot traveled to the feedyard, and this only included the distance from the point of sale to the feedyard and did not account for the distance traveled to get to the point of the sale. The calf supplier information was used to attempt to contact the ranchers that had supplied the calves in the selected lots to determine how they were managed prior to entry to the feedyard. A phone interview was attempted with each calf supplier, and a minimum of three attempts were made for each supplier. Of the over than 300 suppliers that researchers attempted to contact, there were a total of 72 interviews successfully conducted. The interview incorporated one of three survey forms depending on the source of the cattle. Separate surveys were used for ranch cattle, stocker cattle and livestock auction market/order bought cattle suppliers (see Appendix 4 for these survey instruments). The Institutional Review Board at Texas A&M University approved these surveys.

Information was provided and collected from 17 feedyards, with 12 yards operating in Texas and five in Nebraska. The 17 feedyards, collectively, have a one-time capacity totaling over 673,000 cattle. At least partial information was provided on 314 groups of

cattle that have been placed into 260 lots of cattle by the feedyards. The evaluated lots directly represented 42,704 head of cattle. Not all feedyards were able to provide all requested data on every lot.

Statistical analysis was conducted using Microsoft Excel and SAS. Means and frequency distributions were calculated based on the number of lots when information had been provided for that particular trait. Frequency distribution and analysis of variance were used to study the lots for how uniformity, distance traveled, point of origination, and number of supplier sources affected health, feedyard performance and carcass traits.

RESULTS

Data were collected as a component of the National Beef Quality Audit in order to assess upstream, supply chain production information on U.S. feedlot cattle. Results from the analyses are presented so that information about feedyard characteristics and protocols from feedyard surveys are provided first, then information from calf supplier surveys, and finally, information about specific lots that were evaluated at the feedyards.

Feedyard manager surveys

Part of this study included a survey that feedyard managers were asked to complete regarding questions pertaining to beef quality assurance (BQA) management practices, cattle procurement requirements and fed-cattle marketing alternatives (see Appendix 1 for survey instrument). Of the 17 feedyard managers that were surveyed, 16 completed the form. These survey results are provided and discussed below.

Beef quality assurance

Tables 1-5 shows the results of the Feedyards Manager BQA survey component. Of the 16 managers that replied, 100% had a BQA plan implemented and adhered to the majority of the prescribed production BQA practices such as daily observation of cattle, record keeping for medicine usage, administering injections with the appropriate route and correct location, and avoiding residue and withdrawal issues (Table 1). All of the feedyards that responded had BQA practices incorporated into their daily management strategies.

The responding feedyards had very strict record keeping systems in place, with 97.3% saying they keep written processing protocols for their employees. They were also very disciplined to keep records for two years (100%), implement a quality control program for feedstuffs (87.5%) and record all serial and lot numbers for medicine usage (87.5%). The

majority of the feedyards (87.5%) required their employees to complete a BQA training program while 100% of the managers said they have animal handling training for their employees.

Table 1. Results of the BQA Feedyard Manager Survey (n = 16) regarding production practices and BQA oriented practices (percentages).

Question	Yes	No
Feedyards with BQA plan	100	0.0
Feedyards requiring BQA from supplier	37.5	62.5
Suppliers with health program	62.5	37.5
Feedyard-owned cattle have purchase specs	56.3	43.7
Feedyards with animal handling training	100	0.0
Feedyards with trucker handling training	25.0	75.0
Feedyards with employee BQA training	87.5	12.5
Feedyards that observe cattle daily for health	100	0.0
Feedyards that keep written processing protocols	93.7	6.3
Feedyards that always give vaccines SQ (when approved)	100	0.0
Feedyards give injectable vaccines SQ/IV (when approved)	100	0.0
Feedyards that keep written records of usage	100	0.0
Feedyards that review withdrawal time accordance	100	0.0
Feedyards that review nonperformers for residues	100	0.0
Feedyards with quality control program for feedstuffs	87.5	12.5
Feedyards that record serial and lot numbers for medicine	87.5	12.5
Feedyards that keep all records for two years	100	0.0

In regard to purchasing protocols, 56.3% responded that they have specifications in-place for feedyard-owned cattle, and 62.5% required their suppliers to have a herd health program in their operations. The most apparent areas where improvement was needed based on the survey responses were:

1) % of feedyards that require trucker handling training (25%)
2) % of feedyards that require their suppliers to have completed BQA training (37.5%)

Overall, the feedyards definitely are being managed with BQA practices in-place.

It was a common management practice for feedyards to routinely use the expertise of consulting nutritionists and veterinarians (Table 2). The majority of feedyard managers said their nutritionist made monthly visits to the yard (81.3%), while 68.7% explained how their veterinarian made monthly visits. It was very apparent that of the wide array of feedyard types represented in this study one common management strategy was to consistently seek the consultation of nutritionists and veterinarians.

Table 2. Frequency distribution (%) of nutritionist and veterinarian feedyard visits (n = 16).

Visitation type	Monthly	Weekly	Daily
Feedyard nutritionist visit frequency	81.3	18.7	0.0
Feedyard veterinarian visit frequency	68.7	25	6.3

Part of the survey asked managers to estimate the percentage of incoming calves their feedyard purchased from various sources (Table 3). Of the 16 managers that responded, the estimated highest percentage of calves to be purchased through an order buying service (39.1%), followed by directly from the ranch (22.8%), live auction markets (17.5%), stocker operators (12.4%) and video auctions (6.3%). These data suggested that some feedyard managers typically use the same order buyers to fill their weekly orders.

Table 3. Percentages of cattle that were received from certain marketing avenues (n = 16).

Type of Supplier	Mean (%)	Minimum (%)	Maximum (%)	Std Dev (%)
Ranch	22.8	0	100.0	30.1
Video auction	6.3	0	20.0	7.1
Live auction	17.5	0	70.0	18.3
Order buyer	39.1	0	100.0	28.2
Stocker	12.4	0	30.0	12.3
Other	1.9	0	30.0	7.5

When the feedyard managers were asked how their feedyards sold their fat cattle to the meat packer (Table 4), the greatest percentage, 35.4% of the cattle they sold were on a grid followed by a live cash basis (23.7%) and on a formula basis (22.3%). A small number of feedyards sold all of their cattle to the packer utilizing only one method of marketing finished cattle.

The managers were also asked about specialized programs they would consider marketing their finished cattle. Of the alternative methods of raising and marketing their finished cattle, the highest percentage of slaughter cattle (19.3%) were marketed through a branded beef alliance. A very small percentage (2.0%) were marketed through an all-natural program and there were not any fat cattle marketed as organic beef within the feedyards involved in this particular study.

Table 4. Results of BQA Feedyard Manager Survey for percentage of slaughter cattle sold in various marketing strategies and alternative programs (n = 16).

	Mean (%)	Minimum (%)	Maximum (%)	Std Dev (%)
Marketing category				
Sold live	23.7	0.0	99.0	37.1
Sold grid	35.4	0.0	100.0	44.2
Sold formula	22.3	0.0	100.0	40.1
Sold grade/yield	12.6	0.0	100.0	33.2
Sold beef	6.0	0.0	96.0	24.0
Alternative programs[1]				
Natural	2.0	0.0	25.0	6.5
Organic	0.0	0.0	0.0	0.0
Branded	19.3	0.0	100.0	40.1
Grass fed	0.0	0.0	0.0	0.0
Other[2]	19.4	0.0	100.0	40.0

[1]Some categories overlap and were included in both rows. For example, a branded beef program may have been both a natural program and branded beef program.
[2]A large portion of these cattle would be classified as age and source verified.

Of the feedyard managers that responded to the survey, selling slaughter cattle on a carcass grid-based system was the most frequent method used to market finished cattle (68.7%), while selling cattle on the live cash market was the second most frequent marketing technique used across the feedyards surveyed (56.3%) (Table 5).

Table 5 also illustrates the percentage of feedyards that utilized specialized marketing systems to sell their cattle. Nearly half of those surveyed had at least a small portion of their cattle that were marketed as age and source verified (43.7%). Managers would also use branded beef programs as an alternative marketing strategy for some of their finished cattle (31.3%). None of the feedyards that were involved in the study used organic marketing or sold any of their cattle as grass-fed.

Table 5. Results from the BQA Feedyard Manager Survey for percentage of feedyards that utilize certain marketing categories to market their slaughter cattle (n = 16).

	% of feedyards
Type of marketing category	
Sold live	56.3
Grid	68.7
Formula	31.3
Grade/yield	25.0
In beef	6.3
Marketing Alternative	
Natural	12.5
Organic	0.0
Branded	31.3
Grass fed	0.0
Age and source verified	43.7
Non-hormone treated	6.3

Receiving protocol for calves

Table 6 summarizes use of pharmaceutical products in cattle when received at the feedyards. A portion of the feeder calf assessment involved the collection of receiving forms

and processing records for each lot. Table 6 shows the percentage of the lots of cattle that were administered certain vaccinations and health products. There were several products that were consistently used by the majority of the feedyards. Most of the lots routinely received viral (98.9%) and clostridial (94.7%) vaccinations, were treated with a de-worming application (89.1%) and administered an implant upon arrival to the feedyard (89.7%). Approximately one half of the lots of cattle received at the feedyard were re-implanted (50.4%). There were only a very small percentage of lots that were treated with an antibiotic upon arrival to the feedyard (20.4%) and even a smaller amount of the lots that were mass treated with antibiotics such as metaphylaxis (9.8%). There were not many lots of incoming calves that received an injectable vitamin dosage (15.4%). It appeared that common management practices involved cattle entering the feedyard to be vaccinated against viral and clostridial diseases, treated for parasites and given an implant to enhance their feedyard performance and efficiency.

Table 6. Frequency of animal health products and implant strategies administered to incoming lots of cattle (n = 254).

Administration type	% of lots
Viral	
No	1.1
Yes	98.9
Clostridial	
No	5.3
Yes	94.7
Metaphylaxis	
No	90.2
Yes	9.8
Vitamin	
No	84.6
Yes	15.4
Antibiotics (treat illness)	
No	79.6
Yes	20.4
Wormer	
No	10.9
Yes	89.1
Implant upon Arrival	
No	10.3
Yes	89.7
Reimplant	
No	49.6
Yes	50.4

Cattle supplier surveys

During each feedyard visit, researchers requested contact information for the calf suppliers for the sampled lots in the study. Assistants to the researchers attempted over 300 phone interviews with the cattle suppliers, and of those 72 were successfully completed. The researchers developed separate surveys depending on if the cattle were sent from the ranch, a livestock auction marketplace/order buyer, or a stocker operation and these were utilized based on the origin of the lots of cattle.

Table 7 provides results from lots that came directly from a ranch and shows the average number of days the calves were weaned prior to being shipped to the feedyards along

with the percentage of respondents that replied "yes" to routinely following particular management strategies and BQA practices. On average, calves were weaned for 78 days and then shipped to the feedyard directly from the ranch of origin. The range in the number of days weaned was from 0 to 130, and the standard deviation was 48 days. The vast majority of the calves were vaccinated (98.0%), castrated (94%) and then boostered (91.8%) prior to shipping. Of the completed surveys, 42% of suppliers said they tagged their calves while only 10.2% of the suppliers consistently implanted their cattle.

The majority of ranchers followed BQA management practices including keeping written records (79.4%) and protocols (76.5%), and 67.7% of the respondents indicated they were BQA certified. There seemed to be an area of potential improvement across the ranchers in the survey because only 5.9% said they recorded and maintained written vaccine information.

Table 7. Ranch direct source – Processing management practices and BQA principles (n = 34).

Average days weaned before shipping	78
Processing practices	% Yes[1]
Castration	94.0
Tip horns	6.1
Dehorn	46.9
Ear tag	42.0
Wormed	79.6
Implanted	10.2
Vaccinate	98.0
Boostered vaccination	91.8
BQA practices	
Written protocols	76.5
Written records	79.4
Record vaccine info	5.9
BQA operation training – on site	73.5
Operation BQA certified	67.7

[1]Percentage of ranch calf suppliers who said that these practices were performed on the cattle shipped to the feedyard.

Table 8 shows the pre-feedyard health performance of the cattle, purchase specifications that were required for the calves being shipped to the feedyard from a salebarn or order buying services, and the percentage of survey respondents that followed certain management strategies and BQA practices. All of the respondents replied "yes" to always giving injections subcutaneously when approved by the label to do so. The two most common purchase specifications were muscle score (64.2%) and frame size (57.1%), which is logical given both are assessed by USDA graders at the livestock marketplaces for feeder calves. Interestingly, health program (14.3%) and days weaned (7.1%) were specified less frequently. The percentage of the suppliers that responded to this survey that said they perform specific production practices was lower than the percentages found for either supplier of cattle that were direct from the ranch or direct from a stocker operation, but 85.7% said they administer vaccinations. Overall, only 21.5% of the livestock auction/order buyers indicated they were BQA certified and only half of the respondents indicated they keep written protocols to follow.

Table 8. Order Buyers and Market Auctions cattle supplier survey information - Processing management practices and BQA principles (n = 14).

Performance of cattle	
Morbidity	2.0% std. dev. 2.3
Mortality	1.4% std. dev. 1.3
Treated	9.8% std. dev. 7.0
Give injections sub-Q when approved	100% said always
Specified purchase specifications (% of cattle supplied to feedyard)	% Yes [1]
Breed type	35.7%
Health program	14.3%
Frame size	57.1%
Muscle score	64.2%
Days weaned	7.1%
Processing practices of cattle on arrival	% Yes[1]
Castration	42.9%
Tip horns	28.6%
Dehorn	42.9%
Ear tag	64.3%
Vaccinations	85.7%
Deworm	78.6%
Implanted	21.4%
Use vet to process	23.1%
BQA practices	% Yes[1]
Written protocols	50.0%
Written records	77.8%
Record vaccine info	33.3%
Operation BQA certified	21.5%

[1]Percentage of Livestock Auction/Order Buyer calf suppliers who said that these practices were performed on the cattle shipped to the feedyard

Table 9 shows the responses from the stocker calf supplier survey. The respondents indicated that on average the calves were weaned for 50.3 days prior to their arrival at the stocker operation, and 62.5% of the respondents said that days weaned was a specification when they purchased cattle. Additionally, the respondents said that frame size (90.0%) and breed type (82.6%) were frequent purchase specifications for calves. Only 37.5% of the respondents said that health programs were one of their purchase specifications for calves.

All of the respondents vaccinated their cattle upon arrival to their respective operations, and most respondents said they dewormed (90.9%), ear tagged (81.8%) and

implanted (81.8%) their calves upon arrival. Similar to the other two producer surveys, very few respondents recorded specific vaccine serial number information. Of the stocker operation respondents, 41.7% indicated they, personally, were BQA certified and only 8.3% actually have on-the-job BQA training for their workers.

Table 9. Stocker calf supplier survey information - Processing management practices and BQA principles (n = 24).

Performance of cattle	
Days weaned before arrival (mean)	50.3 days std. dev. 42.7
Morbidity	7.9% std. dev. 6.8
Mortality	2.1% std. dev. 1.6
Treated	8.8% std. dev. 6.5
Give injections sub-Q when approved	90.9% said always
Specified purchase specifications (% of cattle supplied to feedyard)	% Yes[1]
Breed type	82.6%
Health program	37.5%
Frame size	90.0%
Muscle score	58.3%
Days weaned	62.5%
Processing practices on arrival	% Yes[1]
Castration	72.7%
Tip horns	68.2%
Dehorn	31.8%
Ear tag	81.8%
Vaccinations	100%
Deworm	90.9%
Implanted	81.8%
Use vet to process	58.3%
BQA practices	% Yes[1]
Written protocols	58.3%
Written records	70.8%
Record vaccine information	12.5%
BQA operation training – on site	8.3%
Operation BQA certified	41.7%

[1]Percentage of Stocker calf suppliers who said that these practices were performed on the cattle shipped to the feedyard.

Individual lot information

The average number of cattle per lot was 157.2 head, ranging from a 5-animal lot to 708- animal lot with a standard deviation of 97.1 (Table 10). Across the lots evaluated, the cattle were on feed for an average of 185.7 days. Of the lots selected, 57.3% were steers, 30.9% were heifers and 11.8% were steer/heifer mixed lots. The lots of cattle traveled an average of 468.0 miles from their point of origin to the feedyard. The distance the cattle traveled to the feedyard ranged from 5.3 miles to 1674.0 miles.

Table 10. Means for total animal number per lot, days on feed in the feedyard, and distance traveled from supplier to the feedyard (n = 254).

	Mean	Minimum	Maximum	Std Dev
Head per lot	157.2	5.0	708.0	97.1
Days on feed	185.7	119.0	360.0	54.4
Miles traveled	468.0	5.3	1674.0	415.4

Cattle source

The large majority of cattle arriving to the feedyards on the trucks were from one point of origination (83.8%) (Table 11). For example, a group of cattle that were put together in Enid, OK and then shipped to a feedyard were fed together as a single-origin lot. The particular point of origination could include ranches, stocker operations, livestock auction markets, order buying stations and/or backgrounding/preconditioning yards. Realistically, many of these lots that traveled to the feedyard from one point of origination more than likely came to that point of origination from several various sources. If all of the cattle could have been traced back to the actual original source there could be an enormous quantity of cattle operations represented in this study. Sixteen percent of the lots had calves from two or more points of origination prior to arrival at the feedyard (Table 11). The

majority of these mixed-origin lots were cattle owned by the feedyard, and a common management practice for a feedyard is to sort incoming cattle from multiple origins into different lots according to weight, type and projected outcome. The lots in this study represented cattle from 23 different states across this nation (96.3%), with the balance of the lots coming from Mexico (3.7%) (Table 11). Of the cattle that originated in the United States, the largest percentage came from Texas (26.9%) followed by Nebraska (15.9%), Oklahoma (9.6%) and California (9.1%). Of all the lots evaluated, 11.9% came from multiple states. The investigators were successful in obtaining information on lots of cattle from a wide array of sources, states and management systems. This was done to provide lots of feedlot cattle that were representative of the U.S. fed-cattle population. Also, this allowed for the cattle in the study to represent multiple regions and various production systems throughout the nation.

Table 11. Frequency distribution and percentage of lots for single versus multiple sources and by state and country (n = 254).[1]

	Frequency	% of lots
Origins		
Single	196	83.8
Multiple	38	16.2
State origin		
AL	2	0.9
AR	3	1.3
AZ	2	0.9
CA	20	9.1
CO	2	0.9
FL	5	2.3
GA	2	0.9
IA	2	0.9
ID	2	0.9
KS	2	0.9
KY	2	0.9
LA	3	1.3
MO	6	2.8
MS	4	1.8
MT	2	0.9
NE	34	15.4
NM	6	2.8
OK	21	9.6
SC	2	0.9
SD	1	0.4
TN	2	0.9
TX	59	26.9
WY	2	0.9
Multiple states	26	11.9
Mexico	8	3.7

[1]Point of origin is the location from which the cattle were shipped immediately prior to arriving at the feedyard for a particular lot.

Each lot of incoming cattle had information for purchase price and feedyard performance and costs associated with the feeding period (Table 12). Of the cattle that arrived during the fall and spring seasons there was a vast variation in the procurement costs on a per cwt. basis ($65-$146/cwt., with a standard deviation of $13.70). The average weight of the cattle incoming to the feedyards was 648.9 lbs., but had a wide range of different

weight classes (272 lb minimum to 1038 lb maximum), and left the feedyard for the packer at an average weight of 127.5 lbs.. The range of fat cattle leaving for the slaughter facility was from 1033 lb to 1496 lb.

In regard to actual performance during the feeding period, the lots averaged 3.2 lbs./day, ranging from slow performers (1.9 lb/day) to fast gaining cattle (4.4 lb/d). Like most industry trends suggest, the lots in this study averaged 6.2:1 efficiency, ranging from very efficient types (5.5:1) to poor doing convertors (9.9:1). The lots in the study averaged 21.6 lb/d consumption during the overall feeding period. Average daily costs were $3.30/head/day, with a wide range from $2.00 to $5.60/head/day.

Table 12. Means for selected feedyard performance traits on a lot basis from closeout sheets.

	Mean	Minimum	Maximum	Std Dev
Purchase price/cwt[1]	$114.80	$65.00	$146.00	$13.70
Avg weight in[1]	648.9	272.0	1038.0	140.3
Avg weight out[1]	1271.5	1033.0	1496.0	94.7
ADG[1]	3.2	1.9	4.4	0.4
Conversion[1]	6.2	5.0	9.9	0.7
Intake/day-DM (lbs.)[1]	21.6	15.2	34.9	4.3
Ration cost-DM (ton)[2]	$275.20	$167.50	$385.20	$51.00
Total cost/day/head[3]	$3.30	$2.00	$5.60	$0.60

[1](n = 252)
[2](n = 165)
[3](n = 195)

Across the lots that reported the total head in and total head out, death loss % averaged 1.7%, with a range of 0.0% to 16.7%. Health costs were reported on most closeouts that were received. Table 13 also breaks down the health costs accrued by the feedyards during the feeding period. Of the 221 lots of cattle where closeout information was provided, the average processing costs on a per head basis was $14.47, with a vast range

from $0.80 to $53.08 per head. The average medicine cost per head was $5.22, with the most expensive lot having $179.29 per head. Of the 60 lots that reported a morbidity % by the actual lots, the mean morbidity % was 19.6%, ranging from 0.0% to 76.1% and a standard deviation of 17.2%.

Table 13. Means for death loss and treatment costs.

	n	Mean	Minimum	Maximum	Std. Deviation
Death loss %	247	1.7	0.0	16.7	2.2
Morbidity %	60	19.6	1.0	76.1	17.2
Processing costs/head	221	$14.47	$0.80	$53.08	$9.91
Medicine costs/head	209	$5.22	-$1.39	$179.29	$12.92

Visual assessment of each feedyard lot

During each feedyard visit, researchers conducted visual observations of each lot of cattle. See appendix 3 to view the form used during the visual assessment of each lot. Table 14 shows the types and frequencies of identification used for each lot of calves. Almost every lot of cattle was tagged with a lot ear tag (98.8%), but the majority of the calves did not have a ranch tag in their ear (68.3%). Also, the majority of the cattle did not an electronic ID tag (14.6%) or metal tag (2.3%). From a permanent identification standpoint, approximately two-thirds of the lots had cattle with brands. 35.4% of the lots of cattle had 100% native hides (i.e. no brands).

Table 14. Frequency of feedyard tags, ranch tags and brands on cattle in the selected lots observed during the visual assessment (n = 254).

Administration type	% of lots
Lot ear tag	98.8
Ranch tag	31.7
EID	14.6
Metal tags	2.3
Brand(s)	64.3

During the visual assessment, researchers scored the pens according to uniformity and variability. The distance from the origin on the scale was measured and a percent of the distance of the entire scale was calculated. The closer the assessment is to 100%, the more uniform the calves were for the given trait to be measured. The scale that was used ranged from extremely variable (0%) to extremely uniform (100%). Table 15 has the mean uniformity score for lots of cattle in several different categories; however, the average score would be characterized as moderately uniform on this scale (72.8% overall). The lots of cattle averaged 71.4% when evaluated for overall weight uniformity. The lots of cattle ranged from very uneven in regard to weight (12%) to very uniform (99%). Similarly, the mean for frame size was 72.1%, and again, the range was rather large from 6% to 100%. The overall muscling uniformity was 72.6%, while the overall breed type uniformity was 70.3% with a range from extremely variable (3%) to perfectly uniform (100%). Of all the lots of cattle assessed for the uniformity traits in the feedyards, the lots of Holstein calves scored the highest on the uniformity scale.

Table 15. Lot uniformity measures for finishing cattle (percentages based on a scale 0%-100%.[1]) (n = 254).

Variable	Mean	Minimum (%)	Maximum (%)	Std. Dev. (%)
Weight uniformity	71.4	12	99	18.30
Frame size uniformity	72.1	6	100	19.70
Muscling uniformity	72.6	16	100	18.45
Breed type uniformity	70.3	3	100	22.41
Overall uniformity	72.8	14	99	18.43

[1]Uniformity/Variability Scale: 0-25% - Moderately Variable to Extremely Variable, 26-50% - Slightly Variable to Moderately Variable, 51-75% - Slightly Uniform to Moderately Uniform, 76-100% - Moderately Uniform to Extremely Uniform

The large majority of lots were considered by the evaluators to be on the uniform side of the assessment scale. The researchers assessed 17.1% of the lots to be deemed at least

slightly variable, while 35.4% were assessed to be slightly uniform to moderately uniform and 47.5% of the lots were called moderately uniform to extremely uniform. The frequencies in Table 16 suggest feedyard managers and suppliers of the cattle to the feedyards did a good job of sorting them into uniform projected outcome lots, when assessed on a visual basis.

Table 16. Frequency distribution for lots of cattle for uniformity in 25% categories (n = 254).

Uniformity/Variability	0-25%	26-50%	51-75%	76-100%
Overall	6.6%	10.5%	35.4%	47.5%

0-25% - Moderately variable to extremely variable
26-50% - Slightly variable to moderately variable
51-75% - Slightly uniform to moderately uniform
76-100% - Moderately uniform to extremely uniform

Table 17 shows the different color patterns and solid hide colors within the lots the researchers visually assessed. The predominant number of cattle in the lots evaluated had a solid hide color (70.7%); 8.6% of the lots were Holstein. The majority of the cattle in the lots for this study were black-hided calves (49.6%), followed by red-hided (19.2%). Table 17 also explains that of all the calves visually evaluated in the study, 20.2% had horns. It appeared the industry has made progress in making the hide color more consistent, but can still improve dehorning strategies during the earlier sectors prior to arrival at the feedyard.

Table 17. Percentage for color patterns, hide color and horns/scurs of calves visually observed by researchers (n = 254).

	% of cattle
Color pattern[1]	
Solid hide	70.7
Spotted	3.0
Baldy	10.3
Hereford	3.2
Holstein	8.6
Hide color[2]	
Black	49.6
Brown	1.7
Red	19.2
Gray	7.9
Yellow	6.7
White	4.6
Horns	20.2

[1]Not all color patterns presented in this table
[2]Color was based on the predominant color (51% of the hide)

Of the 12 yards in Texas that were evaluated, processing and medical costs were available for most lots. Table 18 shows average processing costs on a per head basis ranged from $1.10/animal to $25.48/animal across 11 feedyards. The average medicine costs per head ranged from $0.47 to $11.82 per animal across 11 feedyards. There appears to be a large variation in mean health costs associated with feeding cattle out for harvest. The differences are in part due to the source of the cattle and pre-feedyard management.

Table 18. Average health costs associated with each feedyard among lots surveyed(n = 192).

	Processing costs/animal				Medicine costs/animal			
Feedyard	Mean	Min	Max	Std Dev.	Mean	Min	Max	Std Dev.
1	$1.10	$0.80	$1.59	$0.21	$7.16	$3.70	$31.93	$5.98
2	$3.96	$1.71	$6.03	$1.31	$1.78	$0.15	$5.48	$1.64
3	$11.46	$9.48	$16.83	$2.12	$5.12	$0.81	$27.84	$8.03
4	$15.70	$9.47	$31.19	$8.17	$4.11	$0.34	$20.16	$5.21
5	$10.29	$3.74	$34.13	$6.11	$3.51	$0.34	$15.13	$3.35
6	$10.62	$4.37	$13.89	$2.18	$3.66	$0.69	$9.42	$2.30
7	$20.50	$14.91	$30.15	$3.72	$5.24	$2.79	$10.93	$1.87
8	$10.67	$6.13	$16.58	$3.50	$6.82	$0.00	$22.10	$7.70
9	$25.48	$22.65	$27.95	$1.65	NA	NA	NA	NA
10	$9.53	$3.71	$13.66	$2.43	$6.93	$2.30	$12.63	$3.61
11	$8.14	$0.81	$19.99	$4.84	$0.47	$-1.39	$9.60	$2.43
12	NA	NA	NA	NA	$11.82	$7.24	$23.00	$5.05

Table 19 shows the correlation coefficient was 0.12 ($P = 0.16$) for the relationship of processing and medicine costs and that processing costs were not significantly correlated with medicine costs at the feedyard. Also, there was low non-significant correlation between the miles traveled by the lots of feeder calves to get to the feedyard ($r = 0.05$; $P = 0.61$), therefore the mileage the lots traveled were not correlated with the medicine costs for the lots evaluated in this study. As the distance the lots traveled to the feedyard increased, the processing costs per head increased as the correlation coefficient was 0.55 ($P < 0.001$). This may indicate that feedyard managers increase the amount of vaccinations and medicine they administer to the lots of cattle that travel greater distances to the yards. Table 19 also shows the relationship between the overall uniformity of each lot and the distance each lot of cattle had to travel from their point of origin to the feedyard. These results showed the overall uniformity to increase as the distance the cattle traveled to the feedyard increased. Initially, these results seem interesting to understand, but perhaps a rational explanation is due to the order buyers and sale barn operators doing an effective job of sorting the cattle prior to

shipping them to the feedyard. Another explanation could be that because of the known health risk with shipping cattle great distances, those buying and putting the cattle together are striving to make them as uniform as possible to keep the manager from having to make multiple sorts on the lots upon arrival to the feedyard. Table 19 also shows there was no relationship between overall lot uniformity and average daily gain. There was a relationship between the overall uniformity and feed:gain conversion ratio within a lot of cattle. The correlation coefficient was -0.18161 ($P = 0.02$). The negative correlation coefficient showed that as the overall lot uniformity increased the feed:gain conversion ratio decreased. This means that as a lot became more uniform, they also became more efficient with regard to feed conversion (reduced feed per unit of weight gain). During the time of record grain prices and cost of gains, this explained how a manager can select for more uniformity and improve the lot's efficiency and hopefully position for a greater chance of profitability.

Table 19. Correlation coefficients between health, distance traveled, uniformity and feedlot performance.

Variable	Correlation coefficient	*P*-value
Medicine/processing costs	0.11561	0.160
Medicine costs/distance traveled	0.04843	0.614
Processing costs/distance traveled	0.54772	< 0.001
Uniformity/distance traveled	0.26553	0.001
Uniformity/ADG	-0.02565	0.739
Uniformity/feed:gain	-0.18161	0.017

SUMMARY

This study has provided the beef cattle industry greater insight about the characteristics and management practices associated with cattle entering the U.S. commercial feeding industry. It is very important for the industry to continually assess and improve the quality of products delivered to the retail marketplace. One key component to achieving this goal involves a transparent flow of information between industry sectors to where each segment is aware of what management practices have been done to the cattle entering the supply chain. This would facilitate cattle being managed in the future with the most effective strategies to create optimal feedyard performance, profit and product desired by consumers. Until the industry sectors unite and begin collaborating it is likely for inconsistencies to continue. The beef cattle industry has a great product with a positive story to illustrate to the public; the issues simple in theory but difficult in practice is communicating what each sector needs to meet consumer demand and working as a cohesive industry to meet the needs of the segments and demands of those purchasing the final product.

For the cattle involved in this project, there was a very large range in the distance they traveled to the feedyard. There will continue to be cattle transported very long distances because numerous regions where cow-calf enterprises operate are far from the ideal cattle feeding locations. This suggests producers and/or those putting together sets of cattle who know their cattle will be transported great distances should consider implementing longer weaning periods and detailed health protocols involving primary and booster vaccinations prior to shipment of the calves. Previous research had been conducted on the effects of transportation on health and risk to diseases important to the cattle feeding industry. Cernicchiaro et al. (2012) found that as the distance cattle traveled increased the incidence

with BRD morbidity and overall mortality. This finding was similar to Sanderson et al. (2008) who reported that as the distance traveled to the feedyard increased, the likelihood that cattle would be treated for BRD also increased. Additionally, Arthington et al. (2003) found calves that were transported had more mean serum amyloid-A concentration compared to cattle not transported. Our results are a direct reflection that prior research has been noted and appropriate management decisions are now in place in the cattle feeding industry because of the positive correlation observed between distance and processing costs ($r = 0.55$, $P < 0.001$). This illustrates that managers are aware of the negative impacts that hauling calves long distances can have on stress, and potentially in turn on feedlot health. However, the correlation between distance to feedyard and medicine costs in our project was not significant, which contradicts results from the aforementioned studies; however, there were potentially large confounding issues involving distance, processing costs and medicine costs with other factors within and across feedyards as this project was not a designed study but instead a general survey.

The data in this project showed the majority of the lots were from a single source origin, but this should be interpreted carefully as a single origin was defined as a group of calves that came out of the same location (such as a ranch or auction barn, etc.) to the feedyard. Obviously, many of the lots that originated at a sale barn were potentially from several different producers who all marketed at the same time period at that respective auction marketplace. Both Step et al. (2008) and Sanderson et al. (2008) found calves from multiple sources or sale barns to have a greater chance to be treated for BRD. Findings like this have made the feedyard managers aware of the importance of bringing calves in to the feedyard from a single-source. If this type of project is conducted again, perhaps these

should be treated as multiple-source origins rather than a single-sourced to be more correct with regard to where the calves actually originated. It appears important for managers to be knowledgeable of the origin of the lots coming into the feedyard to plan health protocols and receiving orders based on whether they are single-sourced or came from many different producers.

Waggoner et al. (2007) suggested management practices that reduce the potential for morbidity during the finishing phase must be identified, and this remains a challenge for retained ownership and high-risk cattle of undocumented origin as through auctions. Several studies have shown preconditioned calves have commanded premiums over beef calves not managed under a preconditioning program (Cole, 1985; Turner et al., 1991; Macartney et al., 2003; Avent et al., 2004; Dhuyvetter et al., 2005; Bulut et al., 2006; King et al., 2006; Avent et al., 2007; Lalman and Smith, 2007; Ward et al., 2007; Troxel et al., 2010; Laurent et al. 2010). This provides incentive for beef cow-calf producers to consider preconditioning programs rather than marketing their calves upon weaning, which in turn hopefully increases overall efficiency of the production system.

Based on this survey, feedyard managers indicated that they have implemented and are adhering to Beef Quality Assurance specifications on a very consistent basis. All of the managers stated to have a BQA plan in place, and the managers also stated that they were consistently observing their cattle daily for health, are obiding by the BQA guidelines for administering injections, and are keeping detailed records for vaccination and medicine usage. There needs to be improvement with regard to the feedyards requiring their calf suppliers to have a BQA plan and also for the truck drivers that haul the cattle to have proper cattle handling training. These two items were identified as the areas for the greatest need

for improvement. It is crucial for each person involved in the beef cattle industry to adhere to the BQA guidelines to help ensure product integrity throughout the production system and resulting consumer acceptance. Also, the feedyard managers indicated that they obtained professional veterinary and nutritional consultation on a consistent basis. This is a crucial management practice to ensure the cattle are healthy and perform at their optimal level once in the feedyard, both of which is beneficial to carcass value of the cattle.

It is apparent feedyard managers are purchasing calves and marketing fat cattle from a wide array of sources, with the majority of cattle coming into the yard from order buying services. They are also utilizing multiple marketing strategies. The majority of cattle leaving the feedyard for the packing plants are being marketed on a grid-based pricing system, but alternative marketing strategies are also utilized as cattle are being put through branded beef programs and marketed as age and source verified. The industry has seen increases in the percentage of lots being marketed through alternative programs with the goal of enhancing product quality, consistency and knowledge.

Feedyard managers seem to have implemented effective receiving protocols with regard to processing strategies. A large percentage of incoming lots were administered viral, clostiridal and de-worming vaccinations plus given an implant upon arrival. Most managers were not implementing antibiotics or metaphylaxis to the receiving protocols. Once at the feedyard, the lots involved in the project had large ranges for average daily gain and feed efficiency values. This indicates there still needs to be more consistency in the fed cattle population for performance and feed conversion going forward. The results from the feedyard close-out sheets also indicated a large variation in the purchase price (per cwt) of the lots involved in the study. Perhaps this is due to the type of cattle, weight class of the lots

and/or previous management practices done to the lots. Again, more consistency across the fed cattle supply system would create less variation in the purchase price of the lots. Cattle lots involved in the study experienced large ranges for death loss and morbidity percentages, although the means for both were low. This indicates there is still inconsistency across our beef cattle population, and each producer and marketer of cattle need to implement effective health plans to their herds and preventive measures each time cattle change ownership. The TAMU Ranch to Rail data were the first of its kind to deliver feedback information back to the cow-calf producer to illustrate how important their management practices are to feedlot performance and carcass value. More programs are continually needed that give data back to ranchers so that they can understand the benefits of particular management practices, especially herd health.

Vast improvements in visual uniformity measures seem to have been made across our industry. Most lots in the study were labeled as uniform or very uniform based on visual assessment. This can be attributed to breeding decisions, sorting before and/or upon arrival to the feedyard, and enhanced knowledge of producers nation-wide. More specifically, increases in the percentage of cattle with solid hide colors within lots assisted in this uniformity. There were 20 lots of exclusively dairy cattle (Holstein steers) involved in this study, and each of those lots originated from the same calf ranch and was finished at the same feedyard. Findings in this feedlot survey coincide with results from the cooler assessment portion of the 2011 National Beef Quality Audit (McKeith et al., 2012) that found 61.1% of the 18,000 head of cattle in the study to be black-hided along with 12.8% to be red-hided. This suggests beef cattle producers are utilizing genetics for solid color. The industry must continue to make improvements in the genetic base of cow herds and sire selection to

increase the consistency, performance, profit and value of the beef cattle being produced, and find ways to accordingly financially reward producers. Another similarity to the cooler portion of the audit was the percentage of cattle that had individual lot tags. McKeith et al. (2012) found 97.5% of the cattle had some means of identification, with 85.7% having lot tags and 20.1% had electronic ID's. In this study, 98.8% of the cattle had lot tags, while only 14.6% had EID's. Advancement in regard to animal ID in the production cycle has come from the occurrence of electronic ID tags on the lots in the project. Looking into the future, producers will need to weigh the costs associated with new technology versus the premiums warranted by them to understand if they are practical for their respective operation. The majority of the lots were branded (64%), which is the most traditional way to permanently identify ownership of cattle, but there are still issues with the incidence of multiple brands and brand location. This contrasts with results from the cooler portion of the Beef Quality Audit, which found 55.2% to not have any brands; this may simply be fluctuation across animals sampled, or may be a function of the feedyards surveyed. This Feeder Cattle Audit found 20% of the cattle surveyed had horns, which is similar to the cooler assessment where McKeith et al. (2012) found 23.8% of the cattle had horns. It is apparent the infusion of particular breeds into the beef cattle industry has resulted in the fed-cattle population being more consistent in regard to hide color and removal of horns through breeding and mechanical processes.

This project provides insight to management techniques that occur at the cow-calf, stocker and feedyard sectors of the industry. Understanding what each sector needs to ensure industry sustainability is essential to long-term success. Therefore, each segment must respect the needs of each other's and strive to implement practices that coincide with each

sectors' goals. There needs to be continuous improvements in genetics, herd health plans and health specifications for cattle coming into the feedyards. Advancements in training requirements for cattle handling will be a crucial aspect moving forward, especially as social media and animal activist groups continue to negatively persuade the general public about beef production. The U.S. beef industry must openly share production practices, health protocols and management techniques in order to illustrate to domestic and export markets that the industry has cattle well-being in mind, and, that the industry continually strives to deliver a safe, wholesome product that earns the respect of the consumer.

This project should continue to be conducted every several years to provide benchmark data for the industry. This type of project will allow producers, feeders and packers the chance to monitor what advancements have been made through the industry, and what areas are still in need of improvement to ensure the industry is producing a quality product with the most efficiency. Should this project continue, there are a few components that could be altered to perhaps make it more useful. First, the same person(s) should visit all of the feedyards to collect the processing, source and receiving information on each lot; along with assessing the uniformity measures for each lot. This would ensure the proper information was gathered on each lot, and allow for a more consistent approach to the visual appraisal components of the project. When multiple personnel are involved in the process, there might be a chance for more variation in the assessments made. It is also imperative to gather as much valid contact information and knowledge of the sources for all of the lots involved allowing for the researchers to make contact with them. Another alteration to better benefit the project would be the revision of the surveys used to gather information from the direct source, sale barn and stocker cattle. The interview length of each producer type should

be shorter and more consistent across each sector type. It is important to attempt to gather information on where each lot of cattle originally was produced, and track down the precise management practices those cattle were raised under. This would allow for more insight as to why the lots performed a particular way or endured certain health issues. Another key issue to the beef industry's sustainability lies in the across-segment communication factor that is essential to producing a product that is safe and quality-driven. The beef cattle industry is rich in heritage of animal husbandry and has a responsibility to communicate the true story of the industry and its associated production practices.

LITERATURE CITED

Arthington, J. D., S. D. Eicher, W. E. Kunkle, and F. G. Martin. 2003. Effect of transportation and commingling on the acute phase protein response, growth, and feed intake of newly weaned beef calves. J. Anim. Sci. 81:1120–1125.

Arthington, J. D., X. Qiu, R. F. Cooke, M. B. Vendramini, D. B. Araujo, C.C. Chase Jr., S. W. Coleman. 2008. Effects of pre-shipping management on measures of stress and performance of beef steers during feedlot receiving. J. Anim. Sci. 86:2016–2023.

Avent, R. K., C. E. Ward, and D. L. Lalman. 2007. Economic value of preconditioning feeder calves. Oklahoma Cooperative Extension Fact Sheet AGEC-583. http://osufacts.okstate.edu. (Accessed July 25, 2012).

Bailey, D., and N. J. Stenquist. 1996. Preconditioning calves for feedlots: Managing for today's cattle market and beyond. Accessed July 2, 2010. http://ag.arizona.edu/arec/wemc/Todays CattlePub.html.

Blecha, F., S. L. Boyles, and J. G. Riley. 1984. Shipping suppresses lymphocyte blastogenic responses in Angus and Brahman x Angus feeder calves. J. Anim. Sci. 59:576.

Boyles, S. L., S. C. Loerch, and G. D. Lowe. 2007. Effects of weaning management strategies on performance and health of calves during feedlot receiving. Prof. Anim. Sci. 23:637.

Brooks, K. R., K. C. Raper, C. E. Ward, B. P. Holland, C. R. Krehbiel, and D. L. Step. 2011. Economic effects of bovine respiratory disease on feedlot cattle during backgrounding and finishing phases. Oklahoma Coop. Ext. Serv. P-1027. http://osufacts.okstate.edu. (Accessed July 22, 2012).

Buckham Sporer, K. R., P. S. Weber, J. L. Burton, B. Earley, M. A. Crowe. 2008. Transportation of young beef bulls alters circulating physiological parameters that may be effective biomarkers of stress. J. Anim. Sci. 86:1325–1334.

Buhman, M. J., L. J. Perino, M. L. Galyean, T. E. Wittum, T. H. Montgomery, and R. S. Swingle. 2000. Association between changes in eating and drinking behaviors and respiratory tract disease in newly arrived calves at the feedlot. Am. J. Vet. Res. 61:1163–1168.

Bulut, H., J. D. Lawrence, and R. E. Martin. 2006. The value of third-party certification claims at Iowa's feeder cattle auction. www.iowabeefcenter.org. (Accessed July 30, 2012).

Camp, T. H., D. G. Stevens, R. A. Stermer, and J. P. Anthony. 1981. Transit factors affecting shrink, shipping fever and subsequent performance of feeder calves. J. Anim. Sci. 52:1219.

Cernicchiaro, N., B. J. White, D. G. Renter, A. H. Babcock, L. Kelly, R. Slattery. 2012. Associations between the distance traveled from sale barns to commercial feedlots in the United States and overall performance, risk of respiratory disease, and cumulative mortality in feeder cattle during 1997 to 2009. J. Anim. Sci. 90:1929-1939.

Cole, N. A. 1985. Preconditioning calves for the feedlot. Vet. Clin. North Am. Food Anim. Pract. 1:401.

Cravey, M. D. 1996. Preconditioning effect on feedlot performance. Page 33 in Proc. Southwest Nutr. Manage. Conf., Amarillo, Texas.

Dhuyvetter, K. C., A. M. Bryant, and D. A. Blasi. 2005. Case Study: Preconditioning beef calves: Are expected premiums sufficient to justify the practice? Prof. Anim. Sci. 21:502–514.

Duff, G. C., and M. L. Galyean. 2007. Board-Invited Review: Recent advances in management of highly stressed, newly received feedlot cattle. J. Anim. Sci. 85:823–840

Fazio, E., and A. Ferlazzo. 2003. Evaluation of stress during transport. Vet. Res. Commun. 27 (Suppl.):519–524.

Fulton, R. W., B. J. Cook, D. L. Step, A. W. Confer, J. T. Saliki, M. E. Payton, L. J. Burge, R. D. Welsh, and K. S. Blood. 2002. Evaluation of health status of calves and the impact on feedlot performance: Assessment of a retained ownership program for post-weaning calves. Can. J. Vet. Res. 66:173.

Fulton, R. W., R. E. Briggs, M. E. Payton, A. W. Confer, J. T. Saliki, J. F. Ridpath, L. J. Burge, and G. C. Duff. 2004. Maternally-derived humoral immunity to bovine viral diarrhea virus (BVDV)1a, BVDV1b, BVDV2, bovine herpesvirus-1, parainfluenza-3 virus, bovine respiratory syncytial virus, Mannheimia haemolytica and Pasteurella multocida in beef calves, antibody decline by half-life studies and effect on response to vaccination. Vaccine 22:643–649.

Galyean, M. L., L. J. Perino, and G. C. Duff. 1999. Interaction of cattle health/immunity and nutrition. J. Anim. Sci. 77:1120.

Gardner, B. A., H. G. Dolezal, L. K. Bryant, F. N. Owens, and R. A. Smith. 1999. Health of finishing steers: Effects on performance, carcass traits, and meat tenderness. J. Anim. Sci. 77:3168.

Grandin, T. 1997. Assessment of stress during handling and transport. J. Anim. Sci. 75:249–257.

Griffin, D., L. Perino, and T. Wittum. 1995. Feedlot respiratory disease: Cost, value of preventives and intervention. Proc. Am. Assoc. Bov. Pract. 27:157.

Gupta, S., B . Early, and M. A. Crowe. 2007. Effect of 12-hour road transportation on physiological, immunological and haematological parameters in bulls housed at different space allowances. Vet. J. 173:605–616.

Kent, J. E., and R. Ewbank. 1986. The effect of road transportation on the blood constituents and behavior of calves. III. Three months old. Br. Vet. J. 142:326–335.

King, M. E., M. D. Salman, T. E. Wittum, K. G. Odde, J. T. Seeger, D. M. Grotelueschen, G. M. Rogers, and G. A. Quakenbush. 2006. Effect of certified health programs on the sale price of beef calves marketed through a livestock videotape auction service from 1995 through 2005. J. Am. Vet. Med. Assoc. 229:1389.

King, M.E. and J.T. Seeger. 2004. "Nine-Year Trends at Superior Livestock Auction Confirm Higher Prices Go to Calves in Value-Added Health Programs." Pfizer Animal Health Technical Report.

Kreikemeier, K. K., J. T. Johns, G. L. Stokka, K. D. Bullock, T. T. Marston, and D. L. Harmon. 1997. The effect of the timing of vaccination on health and growth performance of commingled calves. J. Anim. Sci. 75(Suppl. 1):37 (Abstr.).

Lalman, D., D. Gill, G. Highfill, J. Wallace, K. Barnes, C. Strasia, and B. LeValley. 2002. Nutrition and management considerations for preconditioning home raised beef calves. Oklahoma Cooperative Extension Fact Sheet ANSI-3031. http://osufacts.okstate.edu. (Accessed July 22, 2012).

Lalman, D., and R. Smith. 2007. Effects of preconditioning on health, performance and prices of weaned calves. http://osufacts.okstate.edu. (Accessed July 24, 2012).

Laurent, K., T. Dietrich, and W. R. Burris. 2010. Summary of Kentucky certified preconditioned for health (CPH-45) feeder calf sales. 2010 Research and Extension Beef Report. Dept. Anim. Food Sc., Univ. Kentucky, Lexington.

Macartney, J. E., K. G. Bateman, and C. S. Ribble. 2003a. Comparison of prices paid for feeder calves sold at conventional auctions versus special auctions of vaccinated or conditioned calves in Ontario. J. Am. Vet. Med. Assoc. 223:670.

McKinney, D. 2008. "2007 Value-Added Calves Marketed Through Oklahoma Livestock Markets." www.beefextension.com . (Accessed December 13, 2012).

McKinnon, B.R., and S. Greiner. 2002. "Beef Quality Corner VQA Feeder Cattle Program Update." Virginia Coop. Ext. Serv. Available at http://www.ext.vt.edu/news/periodicals/livestock/aps-02_07/aps-117.html. (Accessed December 13, 2012).

McNeill, J. W. 1993. 1992–1993 Texas A&M Ranch to Rail Summary Report. College Station, TX: Texas Agricultural Extension Service, Department of Animal Science, Texas A&M University.

McNeill, J. W. 1994. 1993–1994 Texas A&M Ranch to Rail North/South Summary Report. College Station, TX: Texas Agricultural Extension Service, Department of Animal Science, Texas A&M University.

McNeill, J. W. 1995. 1994–1995 Texas A&M Ranch to Rail North/South Summary Report. College Station, TX: Texas Agricultural Extension Service, Department of Animal Science, Texas A&M University.

McNeill, J. W., T. McCollum, and J. Paschal. 2003. "Ranch to Rail Summary Report" (various years), Texas A&M Univ. Coop. Ext. Serv. Available at http://animalscience.tamu.edu/ansc/publications/rrpubs/rr_all.html. (Accessed December 13, 2012).

Montgomery, T. H., R. Adams, N. A. Cole, D. P. Hutcheson, and J. B. McLaren. 1984. Influence of feeder calf management and bovine respiratory disease on carcass traits of beef steers. Proc. West. Sec. Am. Soc. Anim. Sci. 35:319–322.

Murarta, H. 1989. Suppression of lymphocyte blastogenesis by sera from calves transported by road. Br. Vet. J. 145:257–261.

Parker, W. R., J. A. Winder, M. L. Galyean, and R. L. Cravens. 1993. Effects of vaccination at branding on serum antibody titers to viral agents of bovine respiratory disease (BRD) in newly weaned New Mexico calves. J. Anim. Sci. 71(Suppl. 1):121 (Abstr.).

Pate, F. M., and J. R. Crockett. 2002. Value of preconditioning beef calves. Institute of Food and Agricultural Sciences Bul. 499, Univ. Florida, Gainesville. http://edis.ifas.ufl.edu/AN042. (Accessed August 14, 2012).

Patel, J. R. 2005. Characteristics of live bovine herpesvirus-1 vaccines. Vet. J. 169:404–416.

Perino, L. J. 1997. A guide to colostrum management in beef cows and calves. Vet. Med. (January):85-82.

Peterson, E. B., D. R. Strohbehn, G. W. Ladd, and R. L. Willham. 1989a. Effects of preconditioning on performance of beef calves before and after entering the feedlot. J. Anim. Sci. 67:1678.

Reinhardt, C. D., W. D. Busby, and L. R. Corah. 2009. Relationship of various incoming cattle traits with feedlot performance and carcass traits. J. Anim. Sci. 87:3030–3042.

Reinhardt, C. D., M. L. Hands, T. T. Marston, J. W. Waggoner, and L. R. Corah. 2012. Relationships between feedlot health, average daily gain, and carcass traits of Angus steers. Prof. Anim. Sci. 28:11-19.

Roeber, D. L., N. C. Speer, J. G. Gentry, J. D. Tatum, C. D. Smith, J. C. Whittier, G. F. Jones, K. E. Belk, and G. C. Smith. 2001. Feeder cattle health management: Effects on morbidity rates, feedlot performance, carcass characteristics, and beef palatability. Prof. Anim. Sci. 17:39–44.

Roeber, D. and W. Umberger. "The Value of Preconditioning Programs in Beef Production Systems." Selected paper presented at Western Agricultural Economics Association Annual Meeting, Long Beach, CA. July 29, 2002.

Sanderson, M . W., D. A. Dargatz, and B. Wagner. 2008. Risk factors for initial respiratory disease in United States' feedlots based on producer-collected daily morbidity counts. Can. Vet. J. 49:373–378.

Smith, G. C., J. W. Savell, R. P. Clayton, T. G. Field, D. B. Griffin, D. S. Hale, M. F. Miller, T. H. Montgomery, J. B. Morgan, J. D. Tatum, and J. W. Wise. 1992. In: G. C. Smith (Ed.) The Final Report of the National Beef Quality Audit–1991. p 236. Colorado State University, Fort Collins and Texas A&M University, College Station.

Speer, N. C., G. Slack, E. Troyer. 2001. Economic factors associated with livestock transportation. J. Anim. Sci. 79:166-170.

Stanger, K. J., N. Ketheesan, A. J. Parker, C. J. Coleman, S. M. Lazzaroni, and L. A. Fitzpatrick. 2005. The effect of transportation on the immune status of Bos indicus steers. J. Anim. Sci. 83:2632–2636.

Step, D. L., C. R. Krehbiel, H. A. DePra, J. J. Cranston, R. W. Fulton, J. G. Kirkpatrick, D. R. Gill, M. E. Payton, M. A. Montelongo, and A. W. Confer. 2008. Effects of commingling beef calves from different sources and weaning protocols during a forty-two-day receiving period on performance and bovine respiratory disease. J. Anim. Sci. 86:3146.

Stovall, T. C., D. R. Gill, R. A. Smith, and R. L. Ball. 2000. Impact of bovine respiratory disease during the receiving period on feedlot performance and carcass traits. Pages 82–86 of the 2000 Oklahoma State University Animal Science Research Report. Oklahoma Agric. Exp. Stn., Oklahoma State Univ., Stillwater.

Texas A&M AgriLife. 2005. Value added calf (VAC)-management program. ASWeb-120. Texas AgriLife Extension Service. http://animalscience.tamu.edu/images/pdf/beef/beef-vac-mgmt.pdf. (Accessed July 25, 2012).

Thedford, T. R. 2003. Vaccines: Their use, handling and care. Oklahoma Coop. Ext. Serv. VTMD-9100. http://osufacts.okstate.edu. (Accessed July 13, 2012).

Thrift, F. A., and T. A. Thrift. 2011. Review: Update on preconditioning beef calves prior to sale by cow-calf producers. Prof. Anim. Sci. 27:73.

Troxel, T., B. Barham, S. Cline, J. Foley, D, Hardgrave, R. Wiedower, W. Wiedower. 2010. Improving the value of feeder cattle. University of Arkansas Agriculture and Natural Resources.

Turner, S. C., N. S. Dykes, and J. McKissick. 1991. Feeder cattle price differentials in Georgia teleauctions. South. J. Agric. Eco. 23:75.

USDA. 2008a. Beef 2007–08, Part I: Reference of beef cow-calf management practices in the United States, 2007–08. USDA-APHISVS, CEAH. Ft. Collins, CO. #N512–1008, p. 59. http://nahms. aphis.usda.gov/beefcowcalf/. (Accessed August 10, 2010).

USDA.-APHIS. 2000a. Attitudes towards pre-arrival processing in U.S. feedlots. Report N340.1100. USDA-APHIS, Fort Collins, CO.

USDA.-APHIS. 2000b. Part II: Baseline reference of feedlot health management, 1999. U.S.D.A.:APHIS:VS, CEAH, National Animal Health Monitoring System. Fort Collins, CO. N335.1000.

USDA.-APHIS. 2001. National animal health monitoring system. Info Sheet—Veterinary Services. Treatment of respiratory disease in U.S. feedlots. Available: http://www.aphis.usda.gov/vs/ceah/ncahs/nahms/feedlot/feedlot99/FD99treatresp.pdf

Waggoner, J. W., C. P. Mathis, C. A. Loest, J. E. Sawyer, F. T. McCollum, and J. P. Banta. 2007. Case study: Impact of morbidity in finishing beef steers on feedlot average daily gain, carcass characteristics, and carcass value. Prof. Anim. Sci. 23:174-178.

Ward, C., C. D. Ratcliff, and D. L. Lalman. 2007. Price premiums from the Oklahoma quality beef network. Oklahoma Cooperative Extension Fact Sheet AGEC-599. http://osufacts.okstate.edu. (Accessed July 28, 2010).

White, B. J., D. Blasi, L. C. Vogel, and M. Epp. 2009. Associations of beef calf wellness and body weight gain with internal location in a truck during transportation. J. Anim. Sci. 87:4143.

White, B. J., and R. L. Larson. 2008. Preconditioned calves in the feedyard. Page 628 in Current Veterinary Therapy: Food Animal Practice. 5th ed. D. E. Andersen and D. M. Rings, ed. Sanders Elsevier, St. Louis, MO.

Wittum, T. E., and L. J. Perino. 1995. Passive immune status at postpartum hour 24 and long-term health and performance of calves. Am. J. Vet. Res. 56:1149–1154.

Wittum, T. E., N. E. Woollen, L. J. Perino, and E. T. Littledike. 1996. Relationships among treatment for respiratory tract disease, pulmonary lesions evident at slaughter, and rate of weight gain in feedlot cattle. J. Am. Vet. Med. Assoc. 209:814–818.

Zimmerman, A. D., R. E. Boots, J. L. Valli, and C. C. L. Chase. 2006. Evaluation of protection against virulent bovine viral diarrhea virus type 2 in calves that had maternal antibodies and were vaccinated with a modified live vaccine. J. Am. Vet.Med. Assoc. 228:1757–1761.

APPENDIX

Appendix A - feedyard manager survey form

FCQA - Feedyard Manager BQA Information and Survey

Date	Project Number (TAMU/Uneb use)	
Recorder		
Recorder Phone Number	Recording Institute	
Feedyard Name		
Feedyard Adress		
City	State	Zip
Please tell us the % of cattle that you purchase which fall into the following categories Ranch Video Auction Order Buyer Stocker Other _____		
What percent of cattle are owned by Customer Feedyard Shared Ownership		
When purchasing calves do you have an program they will be directed when finished Describe the Program and percentage Natural Organic Branded Grass fed Other Desribe _____		
What % of the finished cattle will be sold Live Grid Formula Grade/Yield		
Is you operation certified in a state/association BQA Plan? Yes No		
Do you ask your calf suppliers to meet BQA Guidelines? Yes No		
Do you purchase calves that go through a presribed health care program? Yes No If yes what is the percentage? Described _____		
On feedyard owned cattle do specify purchase specifications? Yes No Describe Specs		
Do you have handling training for your those who work with your cattle? Yes No		
Do you require all your truckers to have cattle handling training? Yes No		
Do you have a BQA training program for all employees? Yes No		
Do you observe cattle every day to evaluate their health and wellbeing? Yes No		
Have written protocols for all processing, health treatments and feed additive usage? Yes No		
Give all Vaccine SQ when approved to do on the label. Yes No		
Give all injectable medications SQ or IV when approved to do on the label. Yes No		
How often does a consulting nutritionist review feedyard? Annually Monthly Weekly Daily		
How often does a veterinarian review your feedyard? Annually Monthly Weekly Daily		
Keep written records for all vaccine, medication and feed additive use. Yes No		
Review processing, treatment & feed records for withdrawal time before shipping Yes No		
Review the records for all non-performing cattle for potential residues before marketing Yes No		
Have a quality control program in place for all incoming feed stuffs Yes No		
Record all lot & serial number for all vaccines, medications and feed additives used Yes No		
Keep all processing, treatment and feed records for at least 2 years. Yes No		

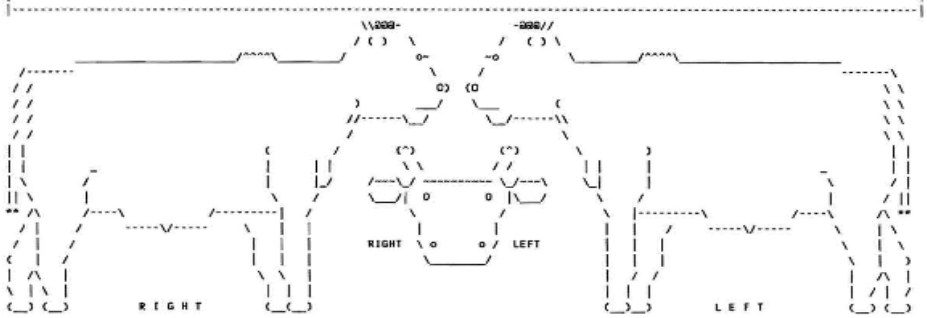
Appendix B - processing order form

Yard : 12 — Owner # 0 — Work Order :28363
Sex : Heifers — Head : 21 — Avg. Wt. : 649.0 — Owner Name : — Date : 11/03/2010
Tag : — Range : - — Origin : — Codes : 3H

Item	Item Description	Dosage	# Units	Dollars	Instructions	Drug Lot #	Who
144	Titanium 3	2 CC	42.0	3.90			
305	COMPONENT TE-IH/TYLAN	1 IMPL	21.0	45.15			
315	IVOMEC	6 CC	126.0	21.99			
327	TAGS	1 EACH	21.0	4.83			
328	CALIBER 7	2 CC	42.0	7.12			
330	CHUTE-PROCESSING	1 HEAD	21.0	0.00			
334	PALPATING CHARGE	1 HEAD	21.0	0.00			

Signed By : BC — Total Dollars : 82.99 — Head Processed : 21

Notes : orange



Appendix C - feeder calf supplier surveys

Calf Supplier - Livestock Market Auction, Order Buyers

Date		Project Number (TAMU/UNeb use)		
Recorder				
Recorder Phone Number		Recording Institute		
Feedyard Name			Lot Ear Tag	
Feedyard Pen ID				
Name of Operation				
City	State		Zip	
Did you purchase the cattle or were they born on your ranch?			Purchased	Born on the Ranch
How many cattle do you manage or own anually?				
What were the purchase specifications you had for these cattle				
Breed type	Initial Weight	Health Program		
Frame Size	Muscle Score			
Other Information				
Please define Beef Quality Assurance				
What was performed at processing			Implant Type	
Castration	Tip Horn	Dehorning	Given Ear Tag	
Vaccinations		Dewormer	Antibiotic	
Health Status	% mortality	% morbidity	% treated	
Is you operation certified in a state/association BQA Plan?			Yes	No
Have you or a member of your company been through a state level BQA progr			Yes	No
Do you observe cattle every day to evaluate their health and wellbeing?			Yes	No
Have written protocols for all processing, health treatments and feed additive usage?			Yes	No
Give Vaccine SQ when approved to do on the label.			Always	Sometimes Never
Do you use the services of a veterinarian when processing and treating cattle			Yes	No
Keep written records for all vaccine, medication and feed additive use.			Yes	No
Do you have a BQA training program for your employees?			Yes	No
Record all lot & serial number for all vaccines, medications and feed additives used			Yes	
What locations do you place subcutaneous injections?				
What location do you place intramuscular injections?				
How many days were these cattle weaned prior to the purchase?				
Improved Pasture	Wheat pasture	Native Pasture	Hay	Manufactured feed
Other				
Previous Owner/Supplier Information				
Number of Head	Name Supplier			
Supplier Address			City	
State	Zip	Supplier Phone Number		
Previous Owner/Supplier Information				
Number of Head	Name Supplier			
Supplier Address			City	
State	Zip	Supplier Phone Number		
Previous Owner/Supplier Information				
Number of Head	Name Supplier			
Supplier Address			City	
State	Zip	Supplier Phone Number		
Previous Owner/Supplier Information				
Number of Head	Name Supplier			
Supplier Address			City	
State	Zip	Supplier Phone Number		
Previous Owner/Supplier Information				
Number of Head	Name Supplier			
Supplier Address			City	
State	Zip	Supplier Phone Number		

Calf Supplier - Ranch Direct Source

Date		Project Number (TAMU/Uneb use)	
Recorder			
Recorder Phone Number		Recording Institute	
Feedyard Name		Lot Ear Tag	
Feedyard Pen ID			
Owner of the calf before the feedyard			
City and State close to where cattle were raised			
Distance the cattle traveled.			
What were the purchase specifications you had for these cattle			
Breed type	Weight	Health Program	
Frame Size	Muscle Score		
Please define Beef Quality Assurance			
What was performed at processing when the cattle arrives		Implant Type	
Castration	Tip Horn	Dehorning	Given Ear Tag
Vaccinations		Dewormer	Antibiotic
Is you operation certified in a state/association BQA Plan?		Yes	No
Do you observe cattle every day to evaluate their health and wellbeing?		Yes	No
Have written protocols for all processing, health treatments and feed additive usage?		Yes	No
Give all Vaccine SQ when approved to do on the label.		Yes	No
Do you use the services of a veterinarian when processing and treating cattle		Yes	No
Keep written records for all vaccine, medication and feed additive use.		Yes	No
Do you have a BQA training program for all employees?		Yes	No
Record all lot & serial number for all vaccines, medications and feed additives used		Yes	No
What location do you place subcutaneous injections?			
What location do you place intrsmuscular injections?			
How many days were these cattle weaned prior to the sale?			
Were these cattle implanted? Yes No		Were they wormed?	Yes No
Did these calves have vaccinations against calfhood diseases?		Yes	No
Were they boostered? Yes No			
Discribe the program			
How were these cattle managed prior the feedyard			
Calf-fed	Wheat pasture	Native Pasture	Drylot
Other			
What breeds were use to produce this calf?		Were these cattle produced through natural or AI?	
Sire		Bull	AI
Dam			

Calf Supplier - Stocker

Date	Project Number (TAMU/Uneb use)
Recorder	
Recorder Phone Number	Recording Institute

Feedyard Name   Lot Ear Tag

Feedyard Pen ID

Stocker Company

City   State   Zip

How many cattle do you manage or own anually?

What were the purchase specifications you had for these cattle

Breed type   Initial Weight   Health Program

Frame Size   Muscle Score   Days weaned

Other Information

Please define Beef Quality Assurance

What was performed at processing when the cattle arrives   Implant Type

Castration   Tip Horn   Dehorning   Given Ear Tag

Vaccinations   Dewormer   Antibiotic

Health Status   % mortality   % morbidity   % treated   Specific General

Is you operation certified in a state/association BQA Plan?   Yes   No

Have you or a member of your company been through a state level BQA program?   Yes   No

Do you observe cattle every day to evaluate their health and wellbeing?   Yes   No

Have written protocols for all processing, health treatments and feed additive usage?   Yes   No

Give Vaccine SQ when approved to do on the label.   Always   Sometimes   Never

Do you use the services of a veterinarian when processing and treating cattle?   Yes   No

Keep written records for all vaccine, medication and feed additive use.   Yes   No

Do you have a BQA training program for your employees?   Yes   No

Record all lot & serial number for all vaccines, medications and feed additives used   Yes   No

What locations do you place subcutaneous injections?

What location do you place intramuscular injections?

How many days were these cattle weaned prior to the purchase?

What kind of feed was provided at your operation?

Improved Pasture   Wheat pasture   Native Pasture   Hay   Manufactured feed

Other

Previous Owner/Supplier Information

Number of Head   Name Supplier

Supplier Address   City

State   Zip   Supplier Phone Number

Previous Owner/Supplier Information

Number of Head   Name Supplier

Supplier Address   City

State   Zip   Supplier Phone Number

Previous Owner/Supplier Information

Number of Head   Name Supplier

Supplier Address   City

State   Zip   Supplier Phone Number

Previous Owner/Supplier Information

Number of Head   Name Supplier

Supplier Address   City

State   Zip   Supplier Phone Number

Appendix D - feeder calf visual assessment form

FCQA - Feeder Calf Visual Assessment

Date	Recorder, Phone & Institution	Project Number (will be supplied by the university)	
Feedyard Name	Address:	Manager:	Phone
Date In:	Lot Ear Tag #	Current location in yard	Country of Origin
Date In:	Ave off truck wt.	Number received:	Condition: Thin - Medium - Fleshy
Estimate Sale Date:	Steers: (If some bulls, what % to be casterated:), Heifers:		Mixed S&H:
	Source or buyer:	Origin (City, State):	
Describe Type of Identification (Brands, Tags, EID, Others):		Brand Location	Brand Design
Predominant Breed Type			

Rank the Following According to Variability (Place a mark on the line for each trait to designate the uniformity or variability of the entire lot)

Weight	Extremely Variable	50 / 50	Extremely Uniform
Frame Size	Extremely Variable	50 / 50	Extremely Uniform
Muscling	Extremely Variable	50 / 50	Extremely Uniform
Breed Type	Extremely Variable	50 / 50	Extremely Uniform
Overall	Extremely Variable	50 / 50	Extremely Uniform

Hide Color Indicate the percentage of each color within the lot

% Color	Solid	Spotted	Baldy	Hereford	Holstein	Brown	
	Black	Red	Gray	Yellow	White	Other	% Horns

Other Comments: