

Original Research Paper

# Evaluation of the Texas Feed Yard Workforce: Survey of Stockperson Attitudes and Perceptions towards Euthanasia, Animal Care and Employee Value

<sup>1</sup>Emily E. Ridge, <sup>2</sup>Ron Gill and <sup>1</sup>Courtney L. Daigle

<sup>1</sup>Texas A&M University Department of Animal Science, College Station Texas 77843, USA

<sup>2</sup>Texas A&M AgriLife Extension, College Station Texas 77843, USA

## Article history

Received: 22-02-2019

Revised: 11-05-2019

Accepted: 27-05-2019

Corresponding author:

Courtney L. Daigle

2471 TAMU, Room 212B

College Station TX 77843

USA

Tel: 979-862-9171

Email: cdaigle@tamu.edu

**Abstract:** A survey was administered to Texas cattle feedyard employees (n =111) from 31 different operations measuring stockperson perception, job satisfaction and socioeconomic status using Likert statements and multiple-choice questions. Differences among employment roles (manager, pen rider, processor (those who vaccinate and implant incoming calves), doctor (non-veterinarians)) were evaluated using a Kruskal-Wallis test followed by a Multiple Comparison procedure. Managers strongly agreed with the statement “beef cattle are not dirty” more than doctors ( $P = 0.03$ ) and that “cattle behavior is affected by the way we treat them” than pen riders ( $P = 0.002$ ) or processors ( $P = 0.01$ ). Managers were less likely than doctors, pen riders and processors to believe they have too many cattle to look after ( $P = 0.05$ ,  $P = 0.006$  and  $P = 0.01$ , respectively). Pen riders reported less confidence in performing euthanasia than doctors ( $P = 0.02$ ) and managers ( $P = 0.02$ ) and, along with processors, agreed that cattle were not always euthanized in a timely manner ( $P = 0.02$  and  $P = 0.02$ , respectively). While all roles viewed Holstein cattle unfavorably ( $P < 0.001$ ), processors viewed them more positively than pen riders ( $P = 0.05$ ) and managers ( $P = 0.001$ ). Socioeconomic results showed that Texas feedyards have a dedicated, passionate work force, with 43% of participants having worked in the industry for 9+ years and 49% of participants working at cattle feedyards because they enjoy working with animals. Unfortunately, it was evident that stock people are underpaid (57% of participants making between \$10-15/hr) and overworked (76% of participants working 50+ hrs/week). Survey responses identified critical role-dependent knowledge gaps and biases. A disconnect was observed among compensation, workload and the duration of time stock people spend interacting with cattle. Increasing industry investment in feedyard employees and providing breed-specific and employee role-specific education may promote an encouraging workplace that ensures feedlot cattle experience good welfare.

**Keywords:** Stockperson, Job Satisfaction, Animal Perception, Euthanasia

## Introduction

Awareness by livestock producers and consumers regarding the importance of the human-animal interaction (HAI) to livestock welfare is increasing as an overwhelming body of research suggests that stockperson behavior has the ability to directly impact animal behavior and health (Hemsworth and Coleman, 2011). Modern modes of animal agriculture demand that stock people

interact frequently with animals to provide daily care and maintenance. As regular interactions with humans are a critical component of dairy and swine production, the dairy and swine industries have quantified how stockperson personality, attitude, perceptions and behavior directly affects the productivity, growth and welfare of livestock (Hemsworth *et al.*, 1993). However, the impact of the HAI has not been objectively evaluated in the feeder cattle industry. Tucker *et al.*, (2015) summarizes that much of the

previous research evaluating beef cattle has emphasized nutritional efficiency, reproductive success, and the consequences of the HAI with regard to painful procedures (e.g., castration, dehorning, branding). Little research has explored the impact of group-housed feeder cattle caretakers (e.g., pen riders, processors, doctoring crews, feed truck drivers, and feed yard managers) on cattle welfare (Rouse, 2003). Husbandry guidelines have been developed for feeder cattle, yet these guidelines focus on housing and health management and do not explicitly outline expectations regarding the HAI (BCO, 2015).

A very small proportion of the United States population is engaged in animal agriculture, with less than 300,000 Americans working with “farm, ranch and aquaculture animals” (USBS 2018a). As a consequence, many of the individuals that constitute the current and future generations of stock people may not have the same inherent knowledge base as previous generations regarding animal husbandry and handling because they grew up in an urban environment, rather than in an agriculturally-centered community. This requires the current population of stock people to quantify and record their husbandry practices for use by the current and future generations and this need for documentation includes evaluating the impact of the HAI on cattle welfare. Therefore, to develop guidelines that can be transferred to the next generation of stock people, an objective understanding of the HAI between stock people and beef cattle is imperative.

Attitude based psychology suggests “as a general rule, we tend to behave in favorable ways with respect to things and people we like and display unfavorable behaviors towards things and people we dislike and, barring unforeseen events, we translate our plans into actions” (Janzen, 1991). This theory implies that a stockperson’s attitude, how much they like or dislike things, forms the perceptions they hold regarding job satisfaction and their work environment. Further, the Theory of Planned Behavior (Janzen, 1991) can apply to the stockperson-livestock relationship. The HAI can become easily impaired if the stockperson holds negative attitudes towards animals. If a stockperson does not like the animals in their care, they can translate this dislike into negative interactions with the animal. Previous research (Waiblinger *et al.*, 2002) suggests that affirmative stockperson attitudes were positively associated with positive handling experiences and positive attitudes have been connected to stock people that use gentle touching techniques and calm vocalizations to move animals (Hemsworth and Coleman, 2011). Therefore, positive stockperson attitude influences the prevalence of positive behaviors towards the animals in their care.

The relationship between stock people and livestock is dynamic and reciprocal (Carlstead *et al.*, 2019). Effective animal care and optimal animal productivity can be most easily achieved when there is a positive HAI on-farm. Stockperson attitudes and perceptions expressed as physical behaviors directly impacts the quality of HAI. In turn, any negative HAI experiences can produce a fear response by the animal. Fear can negatively affect livestock performance and welfare (Hemsworth and Coleman, 2011). Animals that display a strong fear response towards humans have been associated with reduced productivity, including decreased feed efficiency and egg laying rates in poultry (Hemsworth and Barnett, 1989) and lower average milk yield in dairy cows (Waiblinger *et al.*, 2002). Reducing the fear of humans by livestock is essential to ensure proper animal welfare and high rates of productivity. One mechanism to reduce fear induced by a negative HAI is to adjust the perceptions of stock people.

With more information on beef cattle stockperson attitudes and behaviors, the industry can begin to develop effective training interventions and workplace enrichments for livestock operations. Providing cattle with a welfare-positive environment requires stock people to possess a wide range of knowledge regarding animal handling, treatment and feeding-all of which require education, training and skill development. Providing training to stock people through behavioral intervention and physical training can improve the attitude of the stockperson and increase positive human-animal interactions (Hemsworth *et al.*, 2002). However, the educational and training needs must be identified prior to material generation and implementation.

In addition to improving the HAI, training is also beneficial for the well-being of the stockperson. Occupational psychology research observed that employees valued training, understood that training a necessary part of their jobs and that training benefited themselves, their co-workers and improved the workplace environment (Schmidt, 2007). Moreover, workplace training positively influenced employee attitudes and commitment (Schmidt, 2007). Swine operations that provided training interventions to their stock people experienced a 52% higher retention rate in those that received training compared to those that did not (Hemsworth *et al.*, 1994). Training has also been effective in increasing empathy in stock people, a critical component of a good HAI (Coleman and Hemsworth, 2014). Increased job commitment is mutually beneficial to the stockperson, the employer, and the animal.

Providing training to stock people communicates that employers are expressing care for both the animals and their employees and can have a positive impact on stockperson attitude regarding the workplace and job satisfaction. Employee perception of job satisfaction can subsequently lead to the growth of interpersonal relationships among co-workers and management (Sari and Judge, 2004). Which can have positive ramifications for the employee unit and

workplace culture. Therefore, investing in employees' satisfaction can not only have animal welfare impacts but also stockperson well-being and long-term sustainability for animal agriculture (Daigle and Ridge, 2018).

This study was designed to collect preliminary data on the population of stock people working in Texas beef cattle feed yards. A survey was administered to gather empirical evidence on the current job satisfaction, animal perceptions and socio-economic status of feed yard stock people. Information from this survey will facilitate the development of husbandry guidelines and management strategies designed to educate, train and retain feed yard employees in order to improve animal welfare and increase industry longevity.

## Materials and Methods

A survey was administered across three days as part of an annual Texas Cattle Feeders Association training session conducted in the Texas Panhandle. Feed yard employees (n = 111) from 31 different feed yards that attended the training session completed the survey. Survey questions addressed topics that included employee perception of livestock, job satisfaction and socio-economic variables. The research project and survey questions were approved by the Texas A&M University Institutional Review Board (IRB2017-0936M).

**Table 1:** Likert statement questions and percentage of responses by likert group for all roles

Statement	Strongly Agree	Somewhat Agree	Somewhat disagree	Strongly disagree	I don't know
<i>Empathy</i>					
I feel uncomfortable when my coworker hits cattle	89	90	00	00	20
I feel uncomfortable when my coworker inappropriately uses an electric prod	28	18	29	23	20
I feel uncomfortable when my coworker yells at cattle	38	37	14	90	30
I get upset more than other people when I see cattle in pain	54	26	90	50	60
<i>Perception of beef cattle</i>					
I like working with beef cattle	01	30	26	68	10
Beef cattle are not dirty	67	10	50	18	10
Beef cattle are smart	11	12	10	56	12
Beef cattle are individuals with their own personalities	13	16	21	37	13
Beef cattle are not tough	25	11	15	38	12
Beef cattle behavior is affected by the way we treat them	31	24	17	13	16
<i>Perception of dairy cattle</i>					
I like working with Holsteins	21	17	25	23	15
Holsteins are not dirty	37	16	12	24	11
Holsteins are smart	76	20	10	20	10
Holsteins are individuals with their own personalities	66	17	90	40	40
Holsteins are not tough	67	19	60	40	40
Holstein behavior is affected by the way we treat them	46	24	14	12	40
<i>Job satisfaction</i>					
I like my job	39	18	25	16	30
I like coming to work	58	12	23	80	00
I have enough time during my shift to do my job well	59	24	12	50	00
I do not have too many cattle to look after	70	23	40	20	10
I don't feel pressure to do my job quickly	52	30	70	70	50
<i>Trust and communication with co-workers and management</i>					
I find it easy to communicate with my boss	52	27	90	40	80
I find it easy to communicate with my coworkers	48	17	17	80	10
I feel confident asking for help when solving a problem at work	43	24	16	11	70
I trust my coworkers to provide good care to cattle when I am away from work	19	19	23	35	50
My coworkers are as good as I am at caring for cattle	34	33	15	11	60
<i>Perception of euthanasia</i>					
I feel confident that I know when cattle need to be euthanized	34	20	21	17	80
I think about cattle feelings when I euthanize it	61	32	20	30	30
If I had the choice I prefer I euthanize cattle rather than someone else	68	13	90	60	30
My coworkers do not wait longer than they should before euthanizing cattle	57	33	50	30	20
<i>Job knowledge</i>					
The best place to keep an electric prod is away from me	79	12	20	20	50
I am good at handling cattle	75	12	60	50	20
I have enough knowledge to know what to do with sick or injured cattle	16	11	20	43	90
It is easy to identify sick or injured cattle	34	16	13	30	80
I feel confident providing medical treatment to sick cattle	33	11	23	19	14

**Table 2:** Percentage of participant responses for each socio-economic related question for all roles

Question	Results (%)
<i>How long have you worked at a feedyard in your lifetime?</i>	
Less than 1 year	14
1 to 3 years	16
3 to 6 years	18
6 to 9 years	10
9+ years	43
<i>How long have you worked at your current feedyard?</i>	
Less than 6 months	24
6 months to 1 year	24
1 to 2 years	12
2 to 3 years	09
3+ years	30
<i>How many feedyards have you worked at within the last 5 years?</i>	
1	51
2	30
3	08
4	03
5+	07
<i>Why did you choose to work in a beef cattle feedyard?</i>	
Career	14
Needed a job	24
Family business	08
Pay	07
Enjoy working with animals	04
<i>Why do you stay working at a beef cattle feedyard?</i>	
Career	21
Needed a job	15
Family business	02
Pay	12
Enjoy working with animals	49
<i>Does a member of your family work at the same feedyard as you?</i>	
Yes	24
No	75
<i>How many hours per week do you work?</i>	
Less than 40 hours	02
40 to 50 hours	23
50 to 60 hours	38
60 to 70 hours	26
70+ hours	12
<i>What is your hourly wage? (per hour)</i>	
< \$10	08
\$10 to \$15	57
\$15 to \$20	28
\$20 to \$25	03
>\$25	03
<i>What is your highest level of education?</i>	
Less than high school	22
High school diploma/GED	32
Trade school	05
Some college	17
College degree	25
<i>Are you a veteran?</i>	
Yes	08
No	92
<i>I speak fluently in...</i>	
English only	50
Spanish only	14
Spanish and English	36

**Table 2:** Continue

<i>Are you the only member of your family that provides household income?</i>	
Yes	50
No	48
<i>How old are you?</i>	
Under 18	02
18 to 30	37
30 to 40	24
40 to 50	19
Over 50	19

Participants were asked to respond to Likert statements using a 5-point Likert scale, ranging from “strongly disagree” to “strongly agree” with an “I don’t know option”. Various questions were also administered using a multiple choice format. Survey responses were collected using iClicker remote technology. Prior to survey administration, participants were oriented to the iClicker technology and were able to familiarize themselves with the remote using a test question.

Participants remained anonymous as the iClicker remotes were provided to the participants randomly and the remotes were not connected to the participants’ identity. Survey questions were projected onto a whiteboard to be visually available for reading in both Spanish and English. Survey questions were read aloud in English and a Spanish interpreter provided verbal translations of the survey to the participants that spoke exclusively Spanish. The survey consisted of 50 questions total: 35 Likert scale questions (Table 1) designed to measure animal perception and job training and satisfaction and 15 multiple-choice questions (Table 2) addressing workforce demographics and individual socio-economic status. The survey took approximately 30 min to administer and was administered to 6 separate groups ranging from 6 to 31 participants. Participants were questioned in smaller groups to accommodate the other activities occurring as part of the on-farm training event.

Stock people participants were asked to identify their employment role as either a processor, pen rider, doctor, or manager. Processors are identified as individuals who are responsible administering growth implants and vaccinations to incoming calves as well as sorting and re-implanting fattened cattle. These employees interact directly with each animal that arrives at the feed yard and these interactions are typically while the human is on foot and occurs at a handling facility. Pen riders are characterized as employees who are responsible for the daily health and care of feedlot cattle. Pen riders will visually examine cattle in their home pen from either on foot or while riding horseback on a daily basis. Pen riders tend to work closely with doctors, as doctors are responsible for the medical treatment of any animals which were removed from the main herd by the pen riders due to illness. The doctoring crew will primarily

interact with cattle at the hospital facilities and these interactions typically occur while the human is on foot. Doctors also perform necropsies and euthanasia. Doctors are not typically college trained (i.e., not veterinarians or veterinarian technicians) but rather employees who have been trained on-the-job by consulting veterinarians to implement veterinarian approved protocols for treating cattle illnesses and injuries. Feedyard managers supervise pen riders, doctors, and processors, control animal feeding, and organize incoming and outgoing cattle shipments. Their interactions with cattle are limited compared to processors, pen riders and doctors; however, they may interact with cattle on foot, from horseback, or from a truck.

#### *Animal Perception (20 Statements)*

Stock people were asked about their general beliefs towards animals, specifically beef cattle and dairy cattle (Table 1). Statements evaluated how much the employee enjoyed working with each type of animal (beef cattle and dairy cattle) and how strongly the stockperson believed that each type of animal possessed emotions, individual personality, intelligence, constitution and whether the animal’s behavior can be influenced by human behavior. Stock people were also presented statements regarding on-farm animal euthanasia.

#### *Job Training and Satisfaction (15 Statements)*

Participants were asked to provide their perception of job satisfaction, workplace communication and coworker trust (Table 1). Statements included topics such as their perceived job knowledge, ability to identify and treat sick animals and how to handle cattle. They were asked to respond about how they feel towards their coworker’s behavior and to evaluate how well they communicate with their boss.

#### *Workforce Demographics and Socio-Economic status (15 questions)*

Participants were asked questions regarding employment history, wage, age, and education level using a multiple-choice format (Table 2). Topics included the motivation for employment at the feed yard, experience and preferences about their job.

## Statistical Analysis

Survey questions we evaluated as both individual questions and in Likert groups. Likert groups consisted of “empathy” (4 questions), “perception of beef cattle” (6 questions), “perception of dairy cattle” (6 questions), “job satisfaction” (5 questions), “trust and communication” (5 questions), “knowledge” (5 questions) and “euthanasia” (4 questions).

Likert scale questions were given values of 0 to 5, with “strongly agree” having the highest numerical value, “strongly disagree” having a numerical value of 1 and “I don’t know” scoring a zero. High Likert values represent a “positive perception” of the Likert statement, in which the participant is agreeing that they enjoy animal and their jobs and believe they possess adequate job knowledge. Low Likert values are associated with a “negative perception”, in which the participant is disagreeing that they enjoy animals and their workplace.

Individual Likert statements results were analyzed for perception differences by role (pen rider, processors, doctors and management) using a Kruskal-Wallis procedure. A pairwise Wilcoxon test was applied to any statement in which roles present different perceptions to determine the directionality and the role(s) that differed significantly from other roles. A multivariate non-parametric test was performed to determine the perception differences between beef and dairy (Holsteins being fed for meat production in a feed yard, not Holsteins residing in a dairy) breeds regardless of role. Differences regarding perception of Likert groups, regardless of role, was evaluated using a Multiple Response Permutation Procedure (MRPP). All procedures were performed using R Statistical Software (2018).

## Results

### Perception Differences by Role

Managers were more likely to agree than doctors ( $P = 0.03$ ) that “beef cattle are not dirty”. Managers also more strongly agreed that “beef cattle behavior is affected by the way we treat them” than pen riders ( $P = 0.002$ ) and processors ( $P = 0.01$ ). All roles displayed a strong dislike for working with dairy cattle ( $P < 0.0001$ ). Among roles, processors tolerated working with dairy cattle the most compared to managers ( $P = 0.006$ ) and pen riders ( $P = 0.005$ ).

Pen riders felt more uncomfortable performing euthanasia than doctors ( $P = 0.02$ ) and managers ( $P = 0.02$ ). Pen riders reported discomfort with euthanasia timing and agreed that euthanasia is not performed in a timely manner while management does believe euthanasia occurs when it should ( $P = 0.02$ ). Along with pen riders, processors also

disagreed with management in believing euthanasia does not occur in a timely manner on farm ( $P = 0.04$ ).

Role differed on job satisfaction Likert statements the least, with all roles displaying high levels of job satisfaction. Managers agreed that “they don’t have too many cattle to look after”, while doctors, pen riders and processors were less likely to agree with this statement ( $P = 0.05$ ,  $P = 0.006$  and  $P = 0.01$ , respectively).

None of the roles differed within the “knowledge”, “empathy”, or “trust and communication” Likert group statements. Participants displayed confidence regarding the ability to perform their jobs correctly, as shown by the high proportion of “strongly agree” answers for the “knowledge” statements (Table 1).

### Perception Differences Among all Roles

The median Likert scores of the roles in the Likert groups (empathy, beef, dairy, job satisfaction, trust and communication, euthanasia and knowledge) were evaluated (Table 3). Roles differed in their view of overall perception of beef cattle ( $P = 0.005$ ), where doctors and pen riders had the most positive perception of beef cattle. The Likert group “job satisfaction” differed by role, where processors had the lowest level of job satisfaction ( $P = 0.04$ ). Lastly, euthanasia Likert questions also differed by role ( $P = 0.01$ ). Pen riders and processors had median values of 2, signaling they lacked confidence regarding life-ending choices.

### Demographic Characteristics

Among the surveyed stock people, 36% were pen riders, 16% were doctors, 14% were processors, and 31% of participants were managers. Feed truck drivers accounted for 4% of participants but due to a low sample size, their answers were eliminated from the study. Demographic characteristics are summarized in Table 2. Across all roles, 76% of participants worked 50+ hours per week while the majority of participants (57%) made \$10-15 per hour. Most survey participants were aged 18-40 and 53% of all survey participants had worked in the beef cattle feed yard industry for 6+ years.

There was a wide range in education, age and language fluency among feed yard employees. Across all roles, 25% of employees possessed a college degree while 54% possessed a high school diploma or less. These results highlighted a generational gap, where 41% of participants were under 30 years of age while 39% were over 40. Language fluency also varied, where 50% of those surveyed spoke only English, 14% spoke only Spanish and 36% were bilingual in both Spanish and English.

Pen riders were asked two role-specific questions (Table 4). A majority of pen riders (84%) were responsible for riding 30+ pens per day. Many Texas feed yards house 150-200 animals per pen, suggesting that the average Texas pen rider is likely visually evaluating the health of approximately 6,000 animals per day. Pen riders were

asked which strategy (“wave” or “section”) was used to ride pens while conducting visual health observations. The “wave” method was used by 32% of surveyed pen riders and is characterized by pen riders riding through the entire feed yard as a group, moving from one end of the yard to the other, resulting in pen riders becoming familiar with the entire landscape of the

yard; however, they may not evaluate the same animals every day. Conversely, 52% of pen riders utilized the “section” method. The “section” method consists of the pen rider being assigned to a set of pens and riding these same pens every day, creating a scenario where a specific pen rider is responsible for a specific set of animals.

**Table 3:** Median Likert score for each statement, by role and corresponding p-value (P = 0.05). Values ranged from 5 or “strongly agree” to 1 or “strongly disagree”

Statement	Doctor	Pen rider	Processor	Manager	P-value
<i>Empathy</i>	4	4	4	4	0.60
I feel uncomfortable when my coworker hits cattle	5	3	4	4	0.69
I feel uncomfortable when my coworker inappropriately uses an electric prod	3	4	4.5	4	0.45
I feel uncomfortable when my coworker yells at cattle	4	2	2	1	0.54
I get upset more than other people when I see cattle in pain	4	4	4	4	0.93
<i>Perception of beef cattle</i>	5 <sup>a</sup>	5 <sup>a</sup>	4 <sup>b</sup>	4 <sup>b</sup>	<b>0.01</b>
I like working with beef cattle	5	5	5	5	0.08
Beef cattle are not dirty	1.5 <sup>a</sup>	2 <sup>ab</sup>	2 <sup>ab</sup>	4 <sup>b</sup>	<b>0.03</b>
Beef cattle are smart	4	4	4	4	0.17
Beef cattle are individuals with their own personalities	5	5	5	4	0.54
Beef cattle are not tough	1	1	1	1	0.68
Beef cattle behavior is affected by the way we treat them	5 <sup>ab</sup>	5 <sup>ab</sup>	4 <sup>b</sup>	5 <sup>a</sup>	<b>0.03</b>
<i>Perception of dairy cattle</i>	2	2	2	2	0.73
I like working with Holsteins	1 <sup>b</sup>	1 <sup>b</sup>	1.5 <sup>a</sup>	1 <sup>b</sup>	<b>0.01</b>
Holsteins are not dirty	1	1	2	2	0.58
Holsteins are smart	1	1	1	1	0.92
Holsteins are individuals with their own personalities	2	4	1.5	4	0.37
Holsteins are not tough	2	2	1	2	0.61
Holstein behavior is affected by the way we treat them	4	2	1.5	4	0.37
<i>Job satisfaction</i>	5 <sup>a</sup>	5 <sup>a</sup>	4 <sup>b</sup>	5 <sup>a</sup>	<b>0.04</b>
I like my job	5	5	5	5	0.20
I like coming to work	5	5	4	5	0.66
I have enough time during my shift to do my job well	5	5	5	5	0.22
I do not have too many cattle to look after	4 <sup>b</sup>	4 <sup>b</sup>	4 <sup>b</sup>	5 <sup>a</sup>	<b>0.02</b>
I don't feel pressure to do my job quickly	4	4	2	4	0.38
<i>Trust and communication with co-workers and management</i>	5	5	5	5	0.51
I find it easy to communicate with my boss	4.5	5	5	5	0.80
I find it easy to communicate with my coworkers	5	5	4	4.5	0.17
I feel confident asking for help when solving a problem at work	5	5	5	5	0.87
I trust my coworkers to provide good care to cattle when I am away from work	4.5	5	4.5	4	0.55
My coworkers are as good as I am at caring for cattle	5	4.5	4.5	4	0.81
<i>Perception of euthanasia</i>	5 <sup>a</sup>	2 <sup>b</sup>	2 <sup>b</sup>	4 <sup>a</sup>	<b>0.01</b>
I feel confident that I know when cattle need to be euthanized	5	5	5	5	0.12
I think about cattle feelings when I euthanize it	1	1	1.5	2	0.08
If I had the choice I prefer I euthanize cattle rather than someone else	5 <sup>bc</sup>	2 <sup>a</sup>	1.5 <sup>ac</sup>	4 <sup>b</sup>	<b>0.05</b>
My coworkers do not wait longer than they should before euthanizing cattle	4.5 <sup>c</sup>	2 <sup>bc</sup>	2 <sup>abc</sup>	4 <sup>a</sup>	<b>0.04</b>
<i>Job knowledge</i>	5	5	4	5	0.10
The best place to keep an electric prod is away from me	4	2	2	2	0.30
I am good at handling cattle	5	5	4.5	5	0.17
I have enough knowledge to know what to do with sick or injured cattle	5	5	4	5	0.06
It is easy to identify sick or injured cattle	5	4	4	5	0.34
I feel confident providing medical treatment to sick cattle	5	5	5	5	0.19

**Table 4:** Multiple choice questions and responses provided exclusively from pen riders

Question	Results (%)
<i>How many pens do you ride in a day?</i>	
Less than 20	50
10 to 20 pens	30
20 to 30 pens	30
30+ pens	84
<i>What method do you use to ride pens?</i>	
Waves	32
Sections	51
Both	80
Other	50

## Discussion

Survey results showed that Texas beef cattle stock people possess a high level of job satisfaction, believe themselves to hold adequate job knowledge and seem to trust and communicate with their coworkers. Stock people differed by role regarding animal perception, confidence in performing euthanasia and aspects of their daily workload. Regardless of role, all stock people displayed a negative bias towards dairy cattle in the feed yard.

### *Differing Views Regarding Euthanasia*

Differing perceptions among employees in different departments within the feed yard regarding timely euthanasia could contribute to a lack of continuity in animal treatment and on-farm protocols, and may influence the overall workplace culture, as disagreements about when euthanasia should be performed may create conflict among employees. Pen riders were reportedly less confident in performing euthanasia than doctors and management, potentially because they are less likely to perform euthanasia relative to the other roles. Pen riders reported lower levels of confidence in their coworkers' ability to make timely decisions about when an animal should be euthanized. Considering pen riders are the stewards of cattle health and directly interact with the cattle on a daily basis, their reported lack of confidence in performing euthanasia, combined with differing opinions among coworkers about when euthanasia is performed, indicates that continuing education regarding end-of-life decisions is needed and that additional training tools would benefit the employees and the animals.

Knowledge of how and when to perform euthanasia, confidence in performing euthanasia, and empathy all effect stockperson perception of performing and coping with euthanasia on farm (Rault *et al.*, 2017). In the swine industry, the physical capacity to perform euthanasia varied at the individual level (Widowski *et al.*, 2008) and can be influenced by the confidence level of the individual stockperson performing the euthanasia. Stock

people with less confidence in performing euthanasia were reportedly uncomfortable with the concept overall. Employees that had more difficulty deciding when to euthanize had less knowledge regarding how to perform euthanasia, suggesting that providing adequate training designed to increase knowledge and confidence regarding euthanasia could promote positive perceptions of euthanasia in the animal industry and minimize animal suffering (Rault *et al.*, 2017). These results illustrate that euthanasia protocol education for all employees that will be required to perform euthanasia and make end-of-life decisions is beneficial. All feed yard employment roles can benefit from end-of-life training as part of an effort to promote a positive animal welfare culture among feed yard employees and to propagate positive perceptions regarding on farm euthanasia.

### *Happy, but Overworked and Underpaid*

Participants had high levels of job knowledge (excluding timing of euthanasia), communication, and trust regardless of role. However, irrespective of these high levels of knowledge and communication, issues with animal care may still be present. Wambui *et al.* (2018) observed that, while Kenyan cattle stock people demonstrated high levels knowledge and positive attitudes toward animals, their animal handling practices were poor. This survey highlighted a disconnect among education, job satisfaction, and employee behavior. Understanding the relationship among these different factors provides feedback as to what information should be included in new industry training protocols. As animal handling is a skill that requires training and practice, active learning and hands-on training may be effective in communicating important concepts regarding animal handling to stock people. Integrating hands-on training to supplement the standard classroom-learning environment may reinforce and further develop a stockperson's skills throughout the whole duration of their career.

Providing satisfactory on-the-job training can promote job satisfaction through increasing job



knowledge (Schmidt, 2007) and can increase overall workplace well-being, which is essential to job satisfaction (Biggie and Cortes, 2013). By providing interactive and dynamic training, Texas feed yard operators can improve stockperson perceptions and behaviors, improve the HAI on farm and cultivate positive attitudes in the work environment. Through providing workplace-focused behavioral training to swine handlers, stock people viewed pigs in a more positive manner and pigs displayed less fear behaviors towards those stock people that had undergone training (Hemsworth *et al.*, 1994; Coleman *et al.*, 2000). Coleman *et al.* (2000) also concluded that swine stock people who have received training display higher levels of job retention. This research suggests that the initial benefits from providing stockperson training are tangible and providing targeted training can improve the HAI.

While the survey highlighted the positive workplace culture in Texas feed yards, a variety of socio-economic challenges were identified. Although there was substantial variety in employee education level, age, and language fluency, the survey results depicted a population of experienced and well-intentioned employees. The majority of the participants have been in the industry for over 6 years and were choosing to work in the industry because they were dedicated to animal care. Educational requirements for stock people are changing as more feed yard employees are becoming college educated.

Youth raised in urban settings are gaining agriculture knowledge exclusively in classroom setting. Subsequently, a generational gap in knowledge acquisition is forming between the younger and the older, more experienced stock people, who were likely trained using hands-on, on-the-job training, or through being raised in an agricultural setting (Daigle and Ridge, 2018). However, despite the high level of experience and the increasing educational requirements, most participants are working well over 40 hrs/wk for less than \$15/hr.

According to the USBLS (2018b), annual non-managerial stockperson salary (\$25,470) is less than \$1,000 above the national poverty line for a 4-person household in the United States (\$24,848). Considering the survey results report that over half of the participants served as the sole source of income for their whole household, the low level of pay should be concerning from both a monetary and “employee retention” perspective. Relative to other occupations that interact with animals on a daily basis, stock people receive the lowest compensations, regardless of working long hours in adverse conditions (Daigle and Ridge, 2018).

The survey also provided evidence that beef cattle stock people are overworked. Increased urbanization, fewer trained stock people in the livestock industry and the unrealistic work expectations of stock people are contributing to an overworked employee base in the industry (Daigle and Ridge, 2018). The average

employed American works about 40.3 hrs/wk (USBLS, 2018c), yet 76% of survey feed yard employee participants work over 50 hrs/wk. Stock people work an average of 54.9 hrs/wk (Jensen and Mark, 2010) and these long hours can have detrimental consequences to cattle welfare and beef sustainability, including employee fatigue, poor decision making, improper animal handling, or higher employee turnover (Daigle and Ridge, 2018). Alonso and colleagues (2017) highlighted that working over 48 hrs/wk increases burnout, puts employees at a higher risk of anxiety and depression and reduces sleep time. Regulating the workload and increasing the pay of stock people and feed yard employees is needed to retain good stock people, provide employees with a living wage, promote positive public perception of agricultural animal stock people and maintain positive on-farm cattle welfare and agricultural sustainability in the United States.

### *Perception of Cattle and Breed Biases*

In this survey, stock people tended to view cattle in a negative manner regarding their cleanliness. The phrase “cattle are dirty” could have been interpreted differently at the individual stock person level, influencing the results. Although these results do not indicate a direct dislike of animals, this does suggest there is potential for negative HAI on farm. Stock people in the swine industry who viewed pigs as “dirty” and “glutinous” were more likely to have negative interactions (e.g. forceful slaps) with the pigs in their care (Coleman and Hemsworth, 2014). The internal perceptions and attitudes of stock people motivate their external actions towards animals and have the potential to influence the valence of the human-animal relationship (Coleman and Hemsworth, 2014). Understanding a stockperson’s attitude and perception may provide insight into the type of HAI that may be occurring between the stockperson and the cattle in their care.

A majority of cattle stock people view Holstein cattle unfavorably. This is a concern considering Holsteins fed in commercial feed yards account for approximately 15% of the marketed fed cattle on the United States (Queck-Matzie, 2019). Although research has not been conducted on Holsteins in a feed yard, substantial research has evaluated the impact of the HAI on Holsteins housed in the dairy industry. For example, stock people within the dairy industry possessing positive attitudes toward animals displayed higher levels of patience when moving and milking cows and were more willing to have physical contact with cows (e.g., hands-on cow grooming). Alternatively, the same study observed that dairy stock people with negative attitudes towards cows were more likely to punish (e.g., hit) cows while milking (Waiblinger *et al.*, 2002). In swine abattoirs, handlers with negative attitudes toward pigs tended to use

the electric prod more frequency when moving pigs compared to those who viewed swine in more positive manner (Coleman *et al.*, 2003). In commercial swine operations, stock people who believed in petting pigs and using minimal force and noise to move pigs tended to have fewer negative beliefs about pigs (Hemsworth and Coleman, 2011). Therefore, the dislike of certain cattle types by Texas stock people suggests that Holstein cattle may be treated differently than traditional beef breeds.

Surveyed pen riders and processors were more likely to disagree that “cattle behavior is not effected by the way we treat them”, identifying that the stock people that have the most frequent and intense interactions with cattle may not understand the importance of their actions to cattle welfare, especially their ability to induce a fear response. Fear is physiologically evident through increased, long-term release of corticosteroids and can be behaviorally quantified by avoidance behaviors (Hemsworth and Coleman, 2011). Pigs observed on a commercial swine operation receiving inconstant and unpleasant interactions with handlers had increased blood corticosteroid concentrations and displayed more avoidance behaviors than pigs that experienced minimal and pleasant interactions with humans (Hemsworth *et al.*, 1987).

The fear response induced from negative handling compromises not only welfare, but also productivity and product quality. Dairy cows that received more negative tactile interactions had significantly decreased milk protein and fat, and cattle handled at faster handling speeds exhibited decreased milk yields (Breuer *et al.*, 2000). In beef cattle, distressful HAI has been observed to negatively impact cow reproductive success. Macedon *et al.* (2011) observed that when performing embryo retrieval from *Bos indicus* beef cows, individual animals that experienced intense, negative handling situations prior to embryo retrieval produced 19% fewer viable embryos than animals that experienced positive stockperson interactions. A lack of stockperson understanding that human behaviors effects animal welfare signals a gap in knowledge in HAI. All stock people may not be aware of how their actions impact the animal’s fear response and subsequent productivity of food animals. This emphasizes the importance of educating employees about the HAI during training and that continuing education is critical to employee performance and overall sustainability (Daigle and Ridge, 2018). Empirical evaluation of how stockperson perception of cattle affects handling is needed to elucidate the strength and severity of this relationship with regards to beef cattle.

### *Implications for Feedlot Cattle Welfare and Beef Sustainability*

Each employee at the feed yard, irrespective of role, has an impact on cattle welfare. Feed truck drivers and

feed mill workers contribute to cattle welfare through the provision and distribution of properly prepared food while yard crew employees ensure a safe and comfortable environment and fresh water. Pen riders and doctors develop a positive human-animal relationship and maintain good animal health across the feed yard. Processing crews administer vaccinations and, as the first feed yard employees to interact with incoming cattle, play a role in establishing that the feed yard is a safe and comfortable place for cattle to live. Managers influence cattle welfare through the choices they make regarding cattle management and employees actions.

Strikingly, no yard crew employees and very few feed truck drivers participated in the training or survey. Feed truck drivers should be trained in cattle behavior as they regularly see the cattle from a non-threatening perspective (from a feed truck) performing behaviors that provide pleasure. Therefore, cattle will be less likely to mask injury or sickness as part of the prey survival instinct. Yard crews manage cattle environments and keep water tanks clean, directly impacting welfare. These employees have regular and direct interactions with cattle throughout the day, thus the type of interactions these employees have with the cattle may be different compared to pen riders and their actions can influence welfare, cattle behavior and profitability. Future educational efforts should strive to include all employees at the feed yard, as those that are not engaged in continuing education may have a substantial impact on cattle welfare and feed yard profitability.

Survey results also highlighted potential difficulties that may be faced by the Texas beef industry in the near future. As the population of the United States becomes increasingly urban, securing the next generation of animal-agricultural employees will prove to be a challenge (Daigle and Ridge, 2018). Gaps in age, education and language will only expand over time. Results show that 38% of the survey participants were over 40 years of age. This dedicated subgroup of the workforce will begin aging out of feed yard work within the next two decades, creating a large demand for employees in the animal agriculture field. The workforce is diverse not only in age, but in educational background. While 54% of participants have less than or equal to a high school education, as the methods of production evolve and precision agriculture becomes more mainstream, the demand for college educated employees is may increase (USBLS, 2018a). The industry must adapt to these changes to ensure long-term workforce sustainability and to create workplace environments that foster positive animal welfare.

Differing education levels and the addition of Spanish as a primary dialect in the stockperson

community creates a diverse and changing workforce. Effective communication is paramount to the efficient use of time, resources, and transfer of knowledge. Lack of communication can influence veterinary treatments and animal health status updates, both of which compromise welfare and productivity. Identifying strategies that facilitate effective communication among employees, without burdening those that serve as translators, would benefit the cattle and the employees.

## Conclusion

Moving forward, focus must be placed on improving and maintaining the employee perception towards animals to ensure that all animals are being handled in a manner that minimizes fear and fosters a positive human-animal relationship. All stock people, irrespective of role, must increase their level of comfort regarding euthanasia techniques and protocols in effort to provide ethical life-ending decisions for cattle. Initial and continuing education that combines hands-on learning with classroom style teaching and emphasizes the importance of the stockperson to cattle welfare is critical for improving stockperson attitudes and creating a long-term educated workforce. Investing in employees by providing training that is engaging and caters to the areas of improvement identified by this survey may not only increase animal welfare knowledge but also increase job satisfaction and workplace morale.

The socio-economic results of the survey highlight that stock people are overworked and underpaid, which undermines any effort to encourage people outside the realm of animal agriculture to consider a career as a cattle stock person. Workload and pay must be adjusted to reflect physical and mental demands of the job as well as the strength of impact stock people can have on the productivity, profitability and social acceptability of animal agriculture. The beef cattle industry must prepare for these impending workforce changes, as younger and more college-educated stock people enter the field. The increasing gaps in language and age will provide a hurdle for Texas feed yard employers, but adaptation is necessary to maintain a dedicated workforce. Through expressing gratitude and placing value on this diverse workforce, the industry can increase animal welfare and promote long-term sustainability of beef cattle production.

## Acknowledgments

The authors would like to thank the Texas Cattle Feeders Association for allowing us to administer the survey at their event; also the Statistical Computing Center at Texas A&M University, College Station for their assistance in the statistical analysis of the results.

Thank you to Dr. Ted McCollum for his support of this project. Additionally, thank you to Michelle Calvo-Lorenzo and Hector Levy-Jimenez for translating the survey from English to Spanish.

## Author Contributions

Survey creation, data exploration and article construction was conducted as a joint effort of Courtney L. Daigle and Emily E. Ridge. Ron Gill established industry connection as well as aided in survey development.

**Emily. E. Ridge:** Survey development, data collection and analysis, manuscript preparation

**Ron Gill:** Survey development, manuscript preparation

**Courtney L. Daigle:** Survey development, data collection and analysis, manuscript preparation.

## Conflict of Interest

There is no conflict of interest associated with this study.

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