

## **Animal Welfare Implications of Beef Industry Practices Including Dehorning, Castration, and Branding**

Jason K. Ahola

Associate Professor, Beef Management Systems  
Department of Animal Sciences, Colorado State University, Fort Collins, CO

### **INTRODUCTION**

An increasing number of consumers are making animal product purchasing decisions based on how animals were raised and cared for. This decision is, in most cases, based on labeling claims made on packaged products, point of purchase materials offered, and/or conversations with those selling the product. This issue is driven by consumers wanting to know more about how their food is raised and where it comes from. For the average consumer with no baseline knowledge, there appears to be a need for verification and validation that animals received appropriate care during their lifetimes and were treated as humanely as possible. As consumers want more information about their food products, and as brands are working to differentiate themselves, the third-party verification of these credence attributes (i.e. those claims made about a product that can't be determined by simply looking at the product) continues to be in demand. And, scrutiny over the use of traditional cattle industry practices (i.e. dehorning, castration, and branding) and whether pain mitigation is provided to cattle undergoing these procedures, is increasing.

### **THE FIVE FREEDOMS**

Much of the discussion about welfare of livestock over the years can be traced back to an early report (later known as the “Brambell Report”) written in 1965 by a British governmental committee established as a result of widespread concern over the welfare of animals raised in intensive livestock production systems. This committee identified 5 “freedoms” that animals raised under intensive livestock production systems should have (Conklin, 2014). These 5 freedoms were identified as:

1. Freedom from hunger and thirst
2. Freedom from discomfort
3. Freedom from pain, injury, and disease
4. Freedom to behave normally
5. Freedom from fear and distress

It appears that over the last 50 years, the freedoms identified in this report have provided part of the foundation for welfare-based changes to livestock production systems, including the components included in more recent animal welfare audits and questions related to traditional industry practices.

## **HISTORY OF ANIMAL WELFARE REGULATION**

Before discussing changes occurring in the industry, a brief history of animal welfare regulation is in order. Currently, only regulations to oversee the handling of cattle during the slaughtering process are in place. Prior to the 1958 Humane Slaughter Act, no U.S. laws governed humane slaughter practices. The original law focused on ensuring that proper methods were used to render cattle insensible before shackling, hoisting, casting, or cutting. The Humane Methods of Slaughter Act of 1978 was passed as a follow-up to address additional cattle handling concerns associated with the slaughter process.

According to the USDA, the reason for the Act is to prevent needless animal suffering, improve meat quality, decrease financial losses, and ensure safe working conditions. Compliance with the Act is ensured in beef packing plants via a USDA Food Safety and Inspection Service (FSIS) veterinarian as well as FSIS inspectors on the kill floor. The veterinarian enforces humane slaughter methods throughout the plant by observing methods of slaughter, ensuring corrective action is taken, and reporting inhumane treatment of cattle.

Several animal handling and welfare regulations are associated with the Act, and include: 1) animal handling while unloading trucks, 2) appropriate and functional facilities to prevent animal injury, 3) animal handling in pens, alleyways, and chutes, 4) handling of disabled or non-ambulatory (“downer”) animals, 5) access to water and potentially feed, and 6) stunning procedures.

Separate from the Humane Methods of Slaughter Act of 1978, the Animal Welfare Act has been in existence since 1966 (initially referred to as the Laboratory Animal Welfare Act of 1966). The Animal Welfare Act focuses on the use and treatment of animals in research laboratories, care and handling of pets, and prevention of cruel practices (including animal fighting). However, the Animal Welfare Act, which is administered by USDA APHIS, does not cover farm animals that are used for food and fiber. In place of federal laws addressing farm animal care, in recent years several states have passed legislation associated with farm animal welfare.

## **DEMAND BY RETAILERS, FOOD SERVICE AND CONSUMERS**

Separate from governmental regulation, in the 1990s the meat packing industry – led by the American Meat Institute (AMI) – initiated voluntary efforts to improve the handling of animals around the time of slaughter. In 1991, AMI published “Recommended Animal Handling Guidelines for Meat Packers”, which was authored by Dr. Temple Grandin at Colorado State University. These guidelines focused on animal handling, including the identification of problems with animal handling during the slaughter process (e.g. moving animals, stunning, achieving insensibility on the bleed rail, and managing non-ambulatory animals) and possible solutions to these challenges.

In 1997, a follow-up document, “Good Management Practices (GMP) for Animal Handling and Stunning,” was also authored by Dr. Grandin. This resource included information to help packing plants conduct self-audits of animal well-being. Ultimately, in 2004 AMI created one animal welfare document (“Animal Handling and Audit Guidelines for the Meat Industry”), which included AMI-approved forms for auditing beef plants.

Only since the mid-1990s has significant animal welfare research occurred, much of which has been led by Dr. Grandin. Her efforts began with a USDA-funded survey of stunning and handling practices in 24 federally inspected beef packing plants in 1996. This initial audit served as a baseline for animal welfare. Each plant was objectively scored for the percentage of cattle that:

- Had to be shot more than once with the captive bolt stunner
- Were sensible or partially sensible on the bleed rail
- Fell down or slipped
- Vocalized in the stunning chute area, stunning box, or restrainer
- Were prodded with an electric prod

A series of follow-up annual animal welfare audits began in the late-1990s, which were initiated by fast-food retailers (including McDonald's initially, followed by Wendy's and Burger King), and utilized Dr. Grandin and her approach to auditing packing plants. In those audits, a set of objective, measureable audit techniques were used to document incidence of the above traits, but primarily only around the time of slaughter. Targets identified for self- and third-party packing plant audits address the same categories that were included in the initial audit (i.e. stunning, bleed rail insensibility, falling/slipping, vocalization, prodding, etc.).

## **MARKET-DRIVEN ON-FARM ANIMAL WELFARE AUDITS**

In recent years, one retailer of beef producers has initiated a market-driven approach to addressing animal welfare in livestock. In 2010, Whole Foods Markets, a successful retail leader in natural, organic and locally produced foods, was the first grocery retailers to require that their beef, pork and poultry products would all be required to meet a set of standards. These standards consist of the 5-Step Animal Welfare Rating Standards program created by the Global Animal Partnership (GAP), a non-profit. Whole Foods launched the program in February 2011, and now requires a minimum of Step 1 compliance for all fresh chicken, pork and beef, and presently, there are only 5-Step standards for those three species.

The responsibility of GAP is to set animal care and well-being standards, and then to conduct training of independent certification companies to audit meat suppliers to the established standards. Currently, GAP has standards in place for beef, pork and poultry. The program requires independent, third-party certification companies to evaluate locations (farms/ranches, backgrounders, feedlots) to the 5-Step standards, and the GAP certification process will determine the Step Level achieved. The certifier follows ISO Guide 65 guidelines, which requires auditors to be independent of that which they are auditing, employ qualified and trained auditors and ensure consistency in the audits being conducted. Once the audit is conducted, the certifier determines compliance to the step within the standard and determines the location's approval for a 15-month period of time. The structure of the program is similar to other ISO Guide 65 models, such as certified organic or the USDA Processed Verified Program's (PVP) model for claims that could change with the animal over time, such as non-hormone treated cattle (NHTC), NeverEver3, etc.

In addition to GAP, there are other cattle welfare standard certification programs that are being used by food suppliers, such as Humane Farm Animal Care (HFAC), which is promoted with a “Certified Humane” label at foodservice and retail. The Animal Welfare Institute Standards promotes its program using the “Animal Welfare Approved” label. From an industry perspective, The AMI has recommended its Animal Handling Guidelines and Audit Guide (as mentioned above), NCBA has animal care and well-being guidelines as part of their Beef Quality Assurance (BQA) Program, and the Beef Marketing Group has a standard called the “Progressive Beef Standard.”

It has been documented that USDA supports the concept of the beef industry creating and voluntarily-implementing objective criteria for GMPs to ensure humane handling of cattle. For most cattlemen, this is preferred to the implementation of mandatory state or federal regulations. However, in the newly expanding market for verification of humane handling of cattle, there is a great need for science-based research related to the development of uniform consumer-driven standards for the proper management, care, handling, and transportation of animals. This includes specific research into the effects of typical on-farm and on-ranch practices (i.e. castration, dehorning, branding, etc.) on animal welfare.

The U.S. beef industry, compared to other more intensive animal production industries (poultry, swine, etc.), is generally viewed as having a much more solid track record in regard to the humane handling of cattle. This is due, in part, to the beef industry’s voluntary grassroots BQA Program – created by cattle producers to assure consumers that the safe, high quality, and wholesome beef they are purchasing is from cattle raised, cared for, and handled in a humane manner.

## **BEEF QUALITY ASSURANCE (BQA) AND CATTLE WELFARE**

Nearly 20 years ago, in an effort to address recent consumer concerns about animal welfare in the beef industry, the National BQA program developed the “Producer Code for Cattle Care” in 1996 (NCBA, 2014a). The code is a set of ideals consistent with proper cattle care (Table 1).

Table 1. Beef Quality Assurance (BQA) Producer Code for Cattle Care

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Provide adequate food, water and care to protect cattle health and well-being
Provide disease prevention practices to protect herd health
Provide facilities that allow safe and humane movement and/or restraint of livestock
Use appropriate methods to euthanize sick or injured livestock
Provide personnel with training to properly handle and care for cattle
Minimize stress when transporting cattle
Persons who willfully mistreat animals will not be tolerated

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Source: <https://www.beefusa.org/uDocs/factsheet-bqaandanimalwelfare.pdf>

The concepts included in the code were used by the National BQA Program in 2003 to create the “Cattle Industry’s Guidelines for the Care and Handling of Cattle” best practices guide (NCBA, 2014b). This guide provides recommendations for cattle production, including self-evaluation checklists to improve production practices.

In 2014, the National BQA Program developed a set of “Supplemental Guidelines”, which directly address animal welfare issues in the beef industry that are related to traditional industry practices. The guidelines address castration, dehorning (including disbudding), branding, tail docking in beef cattle, dairy calf management, and euthanasia. Development of the recommended guidelines was initiated by the National BQA Program Advisory Committee, which consists of veterinarians, animal scientists, cattle industry leaders, production managers and producers. The intent, as stated in the document, was for the guidelines to “focus on the animal and are aimed to satisfy scientifically valid and feasible approaches to meeting cattle health and welfare needs.”

**Castration.** The guidelines recommend that castration be done prior to 3 months of age, prior to leaving the farm of origin, and by trained personnel, as well as to utilize methods that promote “well-being and comfort of cattle”. While the guidelines do not indicate that analgesia or anesthesia have to be used, they encourage producers to seek veterinary guidance on this, particularly in older animals.

**Dehorning.** Relative to dehorning (including disbudding), the guidelines recommend the selection of polled cattle to avoid having to deal with dehorning, but also recognize that if dehorning is necessary, it should be done by trained personnel while horn development is at the horn bud stage to limit the amount of tissue trauma (which increases with horn development). As with castration, the suggestion is to discuss the use of anesthesia and/or analgesia with a veterinarian, particularly in older animals with advanced horn development.

**Branding.** Of importance to western cattle producers, branding is also addressed in the guidelines as it relates to permanent identification. The recommendation is to brand (freeze or hot-iron) quickly and expertly with trained personnel and proper equipment. Further, cattle should never be jaw or face branded. Consistent with castration and dehorning, the guidelines suggest that use of pain mitigation can be discussed with a veterinarian.

The areas of tail docking in beef cattle and neonatal dairy calf management do not directly apply to the vast majority of beef cattle producers. However, the supplemental guidelines do address euthanasia protocols to limit animal welfare problems.

## **AMERICAN VETERINARY MEDICAL ASSOCIATION (AVMA) PERSPECTIVE**

Since 2011, the AVMA has published several documents summarizing literature reviews of the welfare implications of castration, dehorning/disbudding, and hot-iron branding as they relate to cattle. In addition to summarizing the literature, AVMA clearly states their concerns with these industry practices and possible solutions to address them.

For instance, the AVMA indicates that “all methods of castration induce pain and physiological stress in animals of all ages”, based on the available scientific literature (AVMA, 2014a). Further, they suggest that pain and stress should be minimized, likely via both the use of anesthesia and analgesia. For branding, the AVMA recommendation is not as clear, in that the suggestion is that animal welfare should be considered when choosing a branding method, and that effort should be made to use methods that cause less pain and distress (AVMA, 2011). For dehorning/disbudding, the AVMA acknowledges

there is pain associated with these practices and limiting pain/stress is important (AVMA, 2014b). In addition to suggesting the use of polled genetics to avoid pain/stress associated with dehorning/disbudding, the AVMA suggestion is to use pre-emptive analgesia when dehorning/disbudding are done.

## CONCLUSIONS

Animal welfare has become a major concern among consumers as it relates to beef they purchase and consume. Governmental regulation of on-farm animal welfare has been extremely limited; however, over the last 20 years retail and food service companies have demanded substantial animal welfare auditing in packing plants, much of which has been addressed via regular in-plant auditing. On-farm auditing has only occurred more recently via a market-driven approach by one retailer where consumers pay a premium for assurance of proper animal welfare via third-party auditing of cattle producers. Coupled with this, in the past few years' large livestock industry organizations have identified some on-farm procedures that are associated with pain and/or stress. These organizations have taken different approaches as to recommendations for using pain mitigation when the procedures are conducted, due in part to situational variables including animal age, physiological development, and methods used. And, objective scientific research related to pain and stress associated with these procedures is limited. Regardless, consumers will likely continue to pressure the beef industry to produce beef while limiting animal welfare issues associated with the 5 freedoms identified in Britain some 50 years ago.

## ON-LINE RESOURCES

USDA Animal Welfare Information Center (<http://awic.nal.usda.gov>), includes animal welfare programs that are available.

Global Animal Partnership (GAP) 5-Step Animal Welfare Rating Standards ([www.globalanimalpartnership.com](http://www.globalanimalpartnership.com))

Beef Quality Assurance (BQA) Supplemental Guidelines ([http://www.bqa.org/Media/BQA/Docs/supplemental\\_guidelines\\_2014.pdf](http://www.bqa.org/Media/BQA/Docs/supplemental_guidelines_2014.pdf))

## LITERATURE CITED

AVMA. 2011. Literature Review on the Welfare Implications of Hot-Iron Branding and Its Alternatives. American Veterinary Medical Association. Available at: [https://www.avma.org/KB/Resources/LiteratureReviews/Documents/hot-iron\\_branding\\_bgnd.pdf](https://www.avma.org/KB/Resources/LiteratureReviews/Documents/hot-iron_branding_bgnd.pdf)

AVMA. 2014a. Literature Review on the Welfare Implications of Castration of Cattle. American Veterinary Medical Association. Available at: [https://www.avma.org/KB/Resources/LiteratureReviews/Documents/castration-cattle\\_bgnd.pdf](https://www.avma.org/KB/Resources/LiteratureReviews/Documents/castration-cattle_bgnd.pdf)

AVMA. 2014b. Literature Review on the Welfare Implications of the Dehorning and Disbudding of Cattle. American Veterinary Medical Association. Available at:

