

Cows and bulls are the foundation of cattle herds. They are also sources of beef that are significant and worth understanding.

The beef industry conducted its first Market Cow and Bull Audit in 1994 to complement the National Beef Quality Audit for Fed Cattle. That initial Market Cow and Bull Audit found that carcasses had excessive bruising and were often condemned, too many market cows and bulls were disabled prior to harvest, cows and bulls frequently had inadequate muscling, and animals were often not marketed in a timely manner. Since then, the industry has made significant improvements in herd management techniques; animal well-being and handling; injection-site location; and mobility.

The 2022 research assessed progress in managing these issues and suggested improvements for increasing the value and marketability of cows and bulls. The audit consisted of individual interviews, in-plant research and a strategy session that allowed industry members to weigh in on the areas of most importance, direction for future efforts and how goals could be accomplished.

With supply chain disruptions and a backlog of cattle due to the COVID-19 pandemic, the data from the 2022 National Beef Quality Audit for Market Cows and Bulls was collected under extraordinary circumstances and stands apart from previous (and future) audits. Weather impacts, such as drought across most of the country, also impacted 2022 NBQA results. It is important to note that data was collected at a specific point in time and results provide a representation of what was occurring in the industry at that time.

➤ **PATHWAY** *to a Successful Future*

2022 National Beef Quality Audit for Market Cows and Bulls



➤ During the NBQA Strategy Session, more than 70 individuals representing every sector of the beef industry met to review results of the research and use data to develop ideas to improve industry in the future. Outcomes from that meeting provide quality guidance to the industry for the next five years.

POSITIVE CHANGE

Results from the 2022 National Beef Quality Audit for Market Cows and Bulls show that there have been improvements made in the quality of market cows and bulls since the first non-fed beef audit in 1994. The following areas have seen improvements since the last audit:

IMAGE

The market cow and bull sector is viewed more favorably by the beef supply chain than in the past because it provides an alternative product and a secondary value to animals once their original purpose is no longer suitable. When it comes to product fabrication, market cows and bulls are typically associated with ground beef production. Over time, the industry has realized that some market cows and bulls have the potential to yield valuable primals to be fabricated and sold as retail cuts and to the restaurant trade.

TRANSPORTATION

Since 2016, there has been an increase in the amount of trailer loads that allotted sufficient space as outlined in the Animal Handling Guidelines. In addition, there were no cattle in the current survey that were hauled longer than 24 hours. Of truck drivers surveyed, 63.6% reported to be BQA certified. This was a new area of research for the 2022 Audit added to gather data since the launch of BQA Transportation certification options in 2018. Increased trucker training provides confidence that animals coming to harvest are being handled properly, thus reducing the risks of bruising, downers, stress, and negative public perception.

MOBILITY AND DEFECTS

Of market cows and bulls entering the packing facility, 77% were sound with a mobility score of 1. There was a higher incidence of cattle with a mobility score of 2, compared to downers and scores of 3 and 4, displayed in the current audit. Approximately 45.1% of all cattle surveyed had no visible defects and 37.9% of cattle with defects only displayed a single defect. This demonstrates that producers are making an effort to market cows and bulls before mobility issues and health-related defects progress further, however, there is still room for improvement.

A very large majority of cattle and carcasses surveyed had no instances of knots (98.2%) or injection site lesions (97.1%) visible on the exterior carcass surface, indicating great strides in producer education on the proper administration of injections.

There was a high frequency of native hides (88.3%), and of branded hides, the majority of brands were located in the rump or hip area to preserve hide quality as recommended by the Beef Quality Assurance National Manual.

AREAS FOR FOCUSED IMPROVEMENT

While there is evidence of improvements being made in the market cows and bulls sector, there is also room for improvement, especially in the following areas:

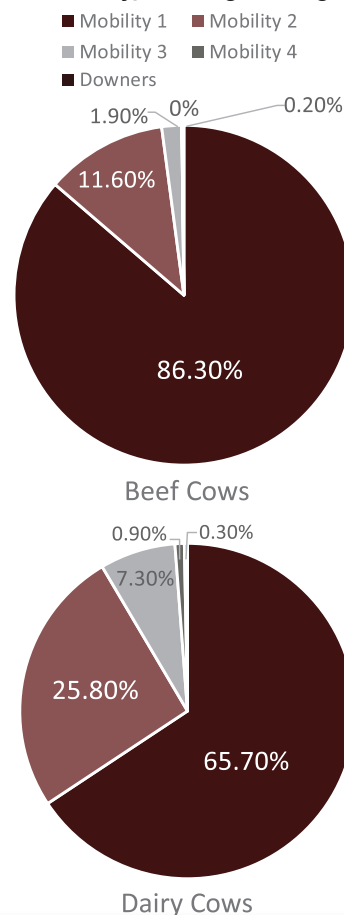
BRUISING

Today, 68.6% of all trailers with mixed-gender loads surveyed did not separate cows from bulls, leading to an increased risk of bruising and injury. Bruise damage is still a leading cause of trimming and finding ways to eliminate bruising should be a priority for the industry. Fewer instances of bruising allow for less trim loss and therefore increase the value of market cow and bull carcasses.

BODY CONDITION SCORE

The current audit displayed the highest percentage of cattle that were too light muscled across all audits for the past 27 years, and there was an increase in the percentage of cattle categorized as too thin, according to body condition scores. Producers should consider market cows and bulls and their eligibility for feeding prior to harvest in order to increase their muscling and finish, thus returning more revenue.

Figure 1: Mobility Score of Market Cows (Beef and Dairy) Entering Packing Plants



Mobility Score 1 - Normal, walks easily with no apparent lameness or change in gait.

Mobility Score 2 - Exhibits minor stiffness, shortness of stride or a slight limp but keeps up with normal cattle in the group.

Mobility Score 3 - Exhibits obvious stiffness, difficulty taking steps, an obvious limp or obvious discomfort and lags behind normal cattle walking as a group.

Mobility Score 4 - Extremely reluctant to move even when encouraged by a handler. Described as statue-like.

DEFECTS

Full udders are considered a defect at the plant, and of all the defects in cows identified in this year's audit, 47.5% were due to full udders. When full udders are removed, milk can potentially empty in the plant and contaminate product causing food safety issues. Full udders can also cause mobility issues, impacting the animal's well-being. In addition, 25.4% of the cows surveyed carried a fetus. Cows should be checked for pregnancy prior to harvest or culled prior to breeding.

Instances of liver condemnations remained stable since the last audit, with 45% condemned in 2022 compared to 44.6% in 2016. Abscesses continue to be the leading cause of liver condemnations. In addition to condemnations, liver abscesses that have progressed far enough have the potential to adhere to the body wall of the animal, resulting in trim loss. If producers elect to feed cattle high concentrate diets prior to harvest for improvements in fat deposition and color as well as muscle, caution should be taken to ensure liver abscesses are not being caused as a result.

FOREIGN OBJECTS

All plants reported finding foreign objects during the harvest and fabrication of market cows and bulls, and a majority of surveyed plants (53.3%) reported instances of customers finding foreign objects in their products. While plants have installed metal detectors and x-rays to help prevent adulterated product from reaching the consumer, foreign objects remain a problem throughout the beef supply chain.

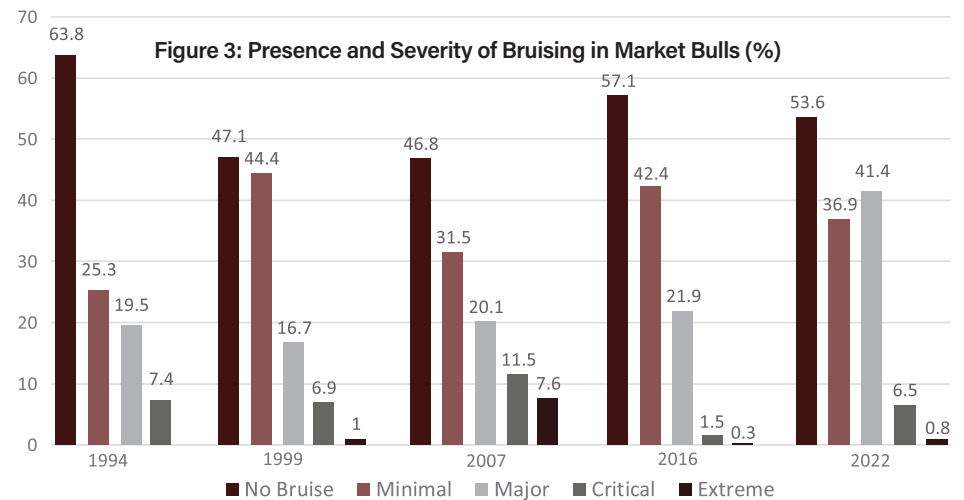
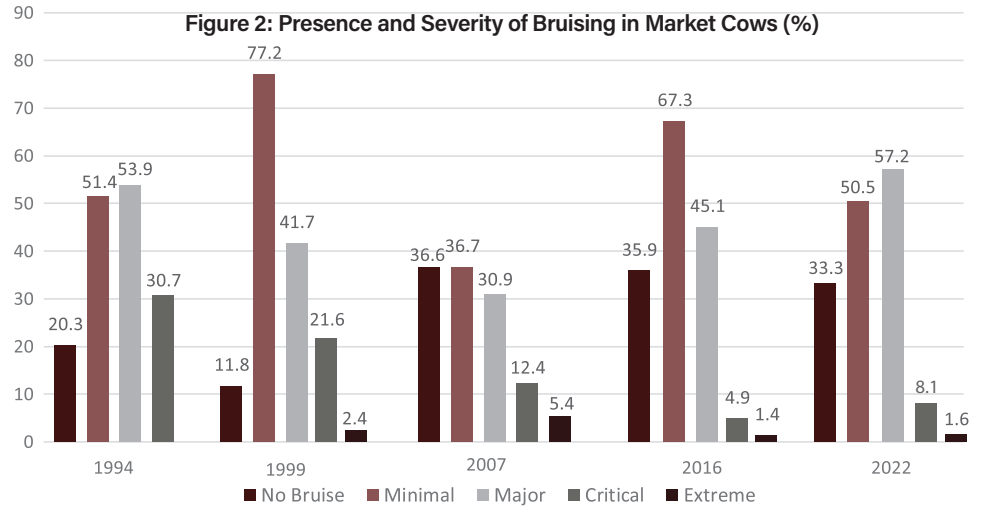
A continued emphasis on producer, transporter, and packer education through extension, the BQA program, and other avenues for research should be focused on the appropriate management, handling, and marketing of market cows and bulls to increase their overall value and enhance animal well-being.

Table 1: Percentage of Plants Reporting Foreign Objects

FOREIGN OBJECTS	PERCENTAGE (%)
Buckshot/Birdshot	100%
Bullets	18.8%
Needles	18.8%
Wire	18.8%
Darts	18.8%
Other	12.5%

Detection Systems:
X-Ray (87.5%) | Metal Detectors (75%)

BRUISE SIZE KEY	
Minimal	< 1 lb surface trim loss
Major	1-10 lbs trim loss
Critical	> 10 lbs trim loss
Extreme	Entire Primal



*Percentages do not add up to 100% due to some animals that possessed multiple bruises, some of varying severity.



LOST OPPORTUNITIES

The weight and value of market cows and bulls have steadily increased over time. This amplifies the effect of dollars lost due to inadequate muscling, live cattle/whole carcass condemnations, and bruising. These losses also contribute to a negative sustainability outcome by not capturing the value of these animals in the food supply. Depending on market status and cattle condition, market cows and bulls can be sold for ample market prices. By monitoring the health and condition of their animals, ensuring proper animal husbandry practices, and monitoring the market, cattle producers can capture profit from their market cows and bulls.

Declines in market cow and bull quality such as live animal defects, carcass defects, and the market or sale of animals unfit for consumption leave dollars on the table for cattle producers. To capture these lost opportunities for economic return, producers should abide by the “Three M’s”: manage cattle to minimize defects, monitor the health and condition of their cattle, and market their cattle in a timely manner.

Table 2: Lost Opportunities for 2022 NBQA Market Cows & Bulls

	2022	2016	1999	1994
Live cattle/whole carcass condemnations	\$28.71	\$6.82	\$4.11	\$11.99
Head, tongue, heart liver condemnations	\$5.16	\$2.56	\$1.90	\$1.75
Hide defect	\$0.54	\$7.74	\$6.27	\$6.92
Arthritic joints	\$1.82	\$1.89	\$9.72	N/A
Bruises	\$7.27	\$3.71	\$2.24	\$3.91
Injection-site lesions	\$0.10	\$0.10	\$1.46	\$0.66
Yellow fat	\$7.36	\$12.47	\$6.48	\$2.27
Inadequate muscling	33.34	\$31.59	\$18.70	\$14.43
Total	\$84.30	\$122.77	\$62.46	\$59.73
Total (-) DC and Fat	\$84.30	\$66.31	\$50.88	\$41.93

CONCLUSION

The beef industry is focused on continuous improvement, especially in the areas of safeguarding food supply and cattle care and handling. Here are the key findings from the 2022 National Beef Quality Audit for Market Cows and Bulls:

- Food safety is non-negotiable and an expectation for those who purchase beef.
- Market cows and bulls have the potential to yield valuable retail cuts, beyond ground beef.
 - » Reducing defects allows the market cow and bull sector to capture additional value.
- Appropriate management of market cows and bulls can increase muscle condition before harvest.
- Animals should be culled before physical defects are severe, and there should be more timeliness in the marketing of animals at both ranch and dairy.
- Although the percentage of producers using technology for recordkeeping and data collection has increased, there is a concern among the beef supply chain that animal disease could impact the industry and current traceability efforts do not provide a robust enough system in the U.S. to combat this potential threat.
- Producer education on the use of projectiles when handling cattle could help to reduce food safety concerns due to foreign objects and further improve animal well-being.
- Animal well-being has improved through a focus on better animal handling at all levels.
- Education in the Dairy FARM and Beef Quality Assurance programs can propel the momentum of the market cow and bull industry.
- The Beef Quality Assurance Transportation program can improve communication about animals that are not fit for transport.
- Full udders are considered a defect at the processing facility potentially causing food safety issues, and they impact the animal's well-being.

The NBQA remains an important measure for the U.S. beef industry as it strives to improve quality and consumer demand. Results from the 2022 NBQA can be utilized by all segments of beef production to improve upon current management practices and implement innovative techniques ultimately enhancing consistency and quality of cattle and beef products across the U.S. beef supply chain.

More information about the 2022 National Beef Quality Audit can be found on the Beef Quality Assurance website at www.bqa.org.



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