

# NATIONAL BEEF QUALITY AUDIT–2022: TRANSPORTATION, LIVE CATTLE ASSESSMENTS, AND HARVEST FLOOR DEFECTS

Trent E. Schwartz<sup>1</sup>, Sydni E. Borders<sup>1</sup>, Thachary R. Mayer<sup>1</sup>, Jeffrey W. Savell<sup>1\*</sup>, Kerri B. Gehring<sup>1</sup>, Davey B. Griffin<sup>1</sup>, Christopher R. Kerth<sup>1</sup>, Keith E. Belk<sup>2</sup>, Lilly Edwards-Callaway<sup>2</sup>, J. Brad Morgan<sup>2</sup>, Jarrett B. Douglas<sup>2</sup>, Morgan M. Pfeiffer<sup>3</sup>, Gretchen G. Mafi<sup>3</sup>, Keayla M. Harr<sup>3</sup>, Ty E. Lawrence<sup>4</sup>, Travis C. Tennant<sup>4</sup>, Loni W. Lucher<sup>4</sup>, Travis G. O’Quinn<sup>5</sup>, Phil D. Bass<sup>6</sup>, Lyda G. Garcia<sup>7</sup>, Robert J. Maddock<sup>8</sup>, Chad C. Carr<sup>9</sup>, T. Dean Pringle<sup>10</sup>, Keith R. Underwood<sup>11</sup>, Bailey N. Harsh<sup>12</sup>, and Crystal M. Waters<sup>13</sup>

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

<sup>2</sup>Department of Animal Sciences, Colorado State University, Fort Collins, Colorado, <sup>3</sup>Department of Animal Science,

Oklahoma State University, Stillwater, Oklahoma, <sup>4</sup>Beef Carcass Research Center – Department of Agricultural Sciences, West Texas A&M University, Canyon, Texas, <sup>5</sup>Department of Animal Sciences and Industry, Kansas State University, Manhattan, Kansas, <sup>6</sup>Department of Animal, Veterinary, and Food Sciences, University of Idaho, Moscow

Idaho, <sup>7</sup>Department of Animal Sciences, The Ohio State University, Columbus, Ohio, <sup>8</sup>Department of Animal Sciences, North Dakota State University, Fargo, North Dakota, <sup>9</sup>Department of Animal Sciences, University of Florida, Gainesville,

Florida, <sup>10</sup>Department of Animal and Dairy Science, University of Georgia, Athens, Georgia, <sup>11</sup>Department of Animal Science. South Dakota State University, Brookings, South Dakota, <sup>12</sup>Department of Animal Sciences, University of Illinois

Urbana-Champaign, Urbana, Illinois, <sup>13</sup>College of Agriculture, California State University Chico, Chico, California

\*Corresponding author email: j-savell@tamu.edu

## I. INTRODUCTION

The first National Beef Quality Audit (NBQA) was conducted in 1991 [1] with subsequent audits about every 5 years with the most recent being the NBQA-2016 [2]. Over time, the audits have become more complex, but factors such as cattle brands, presence of horns, bruising, and offal condemnations have continued to be evaluated. The objective of these audits is to identify and quantify producer-related defects that occur in the fed cattle population.

## II. MATERIALS AND METHODS

Data were collected from 22 harvest facilities across 11 states from September 2021 to November 2022. Mode of transportation, cattle mobility, form of animal identification, hide color, horn presence, and brand presence and size were collected. After hide removal, liver, lung, viscera, head, and tongue condemnations, and carcass bruising were evaluated. Data were analysed using JMP Pro, Version 16.0.0 (SAS Institute Inc., Cary, NC) and Microsoft Excel 2018 (Microsoft Corporation., Redmond VA).

## III. RESULTS AND DISCUSSION

Cattle were transported on average 245.3 km with a travel time of 2.9 h, and 36 head per load. Trailers were 41.3 m<sup>2</sup>, used 3.7 compartments, and allotted 1.2 m<sup>2</sup> per animal. Cattle mobility exiting the trailer equated to 91.7% mobility score 1 (walks easily, no stiffness). Cattle identification was observed on 93.3% of the head evaluated: Lot visual tags (61.3%), individual tags (58.1%), electronic tags (29.4%), metal clip tags (11%), bar coded tags (2.4%), wattles (0.2%), and other (4.3%). Most cattle evaluated were black hided (62.3%), followed by Holstein (12.3%), red (11.3%), tan (4.9%), yellow (2.6%), gray (2.0%), brown (2.0%), non-Holstein dairy (1.7%), and white (1.1%). Cattle without brands was 70.5%, followed by butt brands (22.4%), side brands (7.0%), and shoulder brands (1.1%). The most common site to find mud/manure was on the legs (38.7%); however, 49.6% of cattle were free of mud/manure. Most cattle had no horns (84.1%) compared to 69.9% in NBQA-1991 [1], 77.3% in NBQA-2000 [3], and 83.3% in NBQA-2016 [2]. Table 1 presents a comparison of

bruise number and location between the NBQA-2016 [2] and the current study. There was a 13.4%-point reduction in cattle with no bruises compared to the NBQA-2016 [2]. Numerically, for this survey, more bruises were observed in the rib and loin (53.7%) compared to 44.1% in the NBQA-2016, but there were fewer (19.3%) in the round compared to 27.8% [2]. Dentition revealed that 4.6% of carcasses were 30-months of age or older. Percent of condemnations: liver (28.5%), lung (20.9%), viscera (12.5%), head (4.5%), and tongue (1.8%). Compared to NBQA-2016 [2], there was an increase in transportation time, an increase in trailer area allotted per animal, and a decrease in overall cattle mobility exiting the trailer. The use of electronic tags was observed more frequently. There was an increase in the percentage of black-hided cattle, a decrease in Holstein percentage, an increase in branding, a decrease in mud/manure amount found on the hide, an increase in cattle without horns, and an increase in cattle 30-months of age or older. There was a decrease in liver, viscera, and tongue condemnations, but an increase in lung and head condemnations.

Table 1. National Beef Quality Audit (NBQA): Percentage of fed cattle by bruise number and bruise location on the carcass compared to NBQA-2016 [2].

	Bruise number				
	0	1	2	3	4
NBQA-2016	61.1%	28.2%	8.2%	2.1%	0.3%
NBQA-2022	47.7%	29.8%	14.9%	5.9%	1.7%

  

	Bruise location				
	Loin	Rib	Chuck	Round	Brisket/Plate/Flank
NBQA-2016	29.7%	14.4%	16.4%	27.8%	11.6%
NBQA-2022	30.0%	23.7%	19.7%	19.3%	7.3%

<sup>1</sup>Total number of observations for carcass bruises were: 24,336 (NBQA-2016); 23,157 (NBQA-2022)

#### IV. CONCLUSION

The National Beef Quality Audit is one of the largest comprehensive surveys available when evaluating the U.S. fed steer and heifer market. Data from this study will be strategically adapted to further educate the beef industry. These data provide industry stakeholders with information needed to address current challenges associated with beef production.

#### ACKNOWLEDGEMENTS

This study was funded, in part, by the Beef Checkoff.

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