

# 2018 Reciprocal Meat Conference – Meat and Poultry Quality and Composition- Measurement and Prediction

Meat and Muscle Biology™



## National Beef Quality Audit- 2016: Frequency Distributions of Beef Ribeyes within Usda Quality Grades

C. C. Steele<sup>1</sup>, C. A. Boykin<sup>2</sup>, L. C. Eastwood<sup>1</sup>, M. K. Harris<sup>1</sup>, D. S. Hale<sup>1</sup>, C. R. Kerth<sup>1</sup>, D. B. Griffin<sup>1</sup>, A. N. Arnold<sup>1\*</sup>, K. B. Gehring<sup>1</sup>, J. D. Hasty<sup>3</sup>, K. E. Belk<sup>3</sup>, D. R. Woerner<sup>3</sup>, R. J. Delmore, Jr.<sup>3</sup>, J. N. Martin<sup>3</sup>, D. L. VanOverbeke<sup>4</sup>, G. G. Mafi<sup>4</sup>, M. M. Pfeiffer<sup>4</sup>, T. E. Lawrence<sup>5</sup>, T. J. McEvers<sup>5</sup>, T. B. Schmidt<sup>6</sup>, R. J. Maddock<sup>7</sup>, D. D. Johnson<sup>8</sup>, C. C. Carr<sup>8</sup>, J. M. Scheffler<sup>8</sup>, T. D. Pringle<sup>9</sup>, A. M. Stelzleni<sup>9</sup>, J. Gottlieb<sup>10</sup>, and J. W. Savell<sup>1</sup>

<sup>1</sup>Department of Animal Science, Texas A&M University, College Station, TX, 77843, USA; <sup>2</sup>Animal Science, Texas A&M University, College Station, TX, 77843, USA; <sup>3</sup>Department of Animal Sciences, Colorado State University, Fort Collins, CO 80523, USA; <sup>4</sup>Department of Animal Science, Oklahoma State University, Stillwater, OK, 74078, USA; <sup>5</sup>Beef Carcass Research Center- Department of Agricultural Sciences, West Texas A&M University, Canyon, TX, 79016, USA; <sup>6</sup>Department of Animal Science, University of Nebraska– Lincoln, Lincoln, NE, 68588, USA; <sup>7</sup>Department of Animal Sciences, North Dakota State University, Fargo, ND, 58105, USA; <sup>8</sup>Department of Animal Sciences, University of Florida, Gainesville, FL, 32611, USA; <sup>9</sup>Department of Animal and Dairy Science, University of Georgia, Athens, GA, 30602, USA; <sup>10</sup>Agricultural Marketing Service-USDA, Washington, DC, 20250, USA

\*Corresponding author. Email: a.arnold@tamu.edu (A. N. Arnold)

**Keywords:** beef quality, instrument grading, quality grade, ribeye area  
Meat and Muscle Biology 2(2):27–28

doi:10.221751/rmc2018.024

### Objectives

The National Beef Quality Audit (NBQA)– 2016 instrument-grading assessment evaluated beef carcass traits over the course of a year from selected beef processors. The objective of this study was to determine frequency distributions of ribeye areas within USDA quality grades.

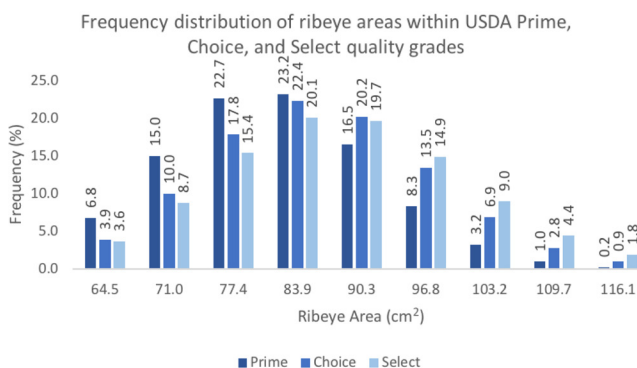
### Materials and Methods

There were 4,544,635 beef carcasses represented in the NBQA–2016 instrument-grading assessment. These data were collected from 18 federally-inspected processing facilities owned by 5 major beef processors over a 12-mo pe-

riod (January 2016 through December 2016). Information was recorded during 1 wk of production each month at each facility. A variety of carcass trait information was collected at each facility including hot carcass weight, ribeye area, and marbling score, from which quality grades were determined. In an effort to create uniform ribeye area categories, ribeye area measurements were rounded down to a whole figure (i.e., 13.0 to 13.9 in<sup>2</sup> rounded down to 13.0 in<sup>2</sup>) and then were converted to metric units after data analysis.

### Results

Analysis of the NBQA–2016 data revealed ribeye area frequency within USDA Prime, Choice, and Select quality grades reached its highest rate in the 83.9 cm<sup>2</sup> category, at 23.2, 22.4, and 20.1%, respectively. Of the 183,856 Prime carcasses evaluated, over two-thirds (67.7%) were recorded in the 4 smallest ribeye area categories, ranging from 64.5 cm<sup>2</sup> to 83.9 cm<sup>2</sup>. For Select, 30.1% of the 960,157 carcasses possessed a ribeye area falling into 1 of the 4 largest categories between 96.8 cm<sup>2</sup> to 116.1 cm<sup>2</sup> compared to 24.1% Choice and 12.7% Prime. Additionally, evaluation of all 4484,420 carcasses from NBQA–2016 found that the majority of each quality grade, 62.4% Prime, 60.4% Choice, and 55.2% Select, yielded a ribeye area between 77.4 cm<sup>2</sup> and 90.3 cm<sup>2</sup>. The mean ribeye area for all carcasses recorded was 88.9 cm<sup>2</sup>, an increase in area from 88.45 cm<sup>2</sup> in the NBQA–2011.



When considering USDA Certified Programs, ribeye area mean was within qualification parameters with 86.2% of carcasses evaluated meeting the ribeye area specification for Certified Angus Beef (not considering additional specification requirements). Notably for Prime, 92.5% of the carcasses met the ribeye area specifications for Certified Angus Beef. Moreover, the NBQA–2016 demonstrated an increase in hot carcass weight when compared to the previous study, at 393.6 kg and 371.28 kg, for NBQA–2016 and NBQA–2011, respectively. The correlation between ri-

beye area and hot carcass weight ( $r = 0.40$ ) is indicative of a moderate, positive relationship, meaning a heavier carcass weight tends to result in a greater ribeye area.

## Conclusion

These results show the relationship between ribeye area and USDA quality grade that can be considered in future industry specification and/or sorting programs.