

Future of USDA Beef Grading



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USDA Beef Carcass Standard

- Designed to provide the basis for uniformity in reporting and marketing of beef carcasses
- Promulgated by the Secretary of Agriculture on June 3, 1926
- Over the years, changes were made to:
 - Meet the needs of producers and buyers
 - Reflect research regarding effects on palatability
 - Ensure the uniformity of grade assessment

Notice Requesting Comments Beef Carcass Standard

- Notice published in Federal Register August 2014
 - Notice also distributed to industry stakeholders and publicized by press release
- Seeks comments on, but not limited to, carcass yield grade and methodology for maturity assessment.
- Requests comments on American Meat Science Association's review of instrument grading
- Comment due by November 13, 2014

Revision Areas

- Administrative revisions
 - Administrative revisions will not impact the current grade standards
 - Reflect current grading practices and technologies
 - Update examples to reflect current carcass weights and factors
- Potential structural revisions
 - Beef yield grade standard
 - Carcass maturity

Comments

21 comments received

Organizations	11
Companies	6
Individuals	3
Foreign Entity	1

8 Comments strongly recommended USDA base any revisions on strong science and abundant data

Technical note: The United States Department of Agriculture beef yield grade equation requires modification to reflect the current longissimus muscle area to hot carcass weight relationship

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USDA beef yield grade requires modification

ABSTRACT: With the adoption of visual grading, the calculated yield grade can be used to estimate the yield of carcasses. The USDA beef carcass grading standard relationship between required LM area and HCW that is an important component of the yield grade. As noted on a USDA yield grade chart, a 272-kg (600-lb) carcass requires a 15.8-in.² LMA and a 454-kg (1,000-lb) carcass requires a 24-in.² LMA. This is a linear relationship that can be expressed as $\text{required LMA} = 0.171(\text{HCW}) + 24$. This relationship has a larger LMA than required for a carcass that is lower yield grade, whereas a small increase in the calculated yield grade increases the required LMA. This investigation was to evaluate the relationship against data on 40 carcasses.

Key word: yield grade

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INTRODUCTION

For the majority of beef carcasses in the United States, carcass yield is estimated by the USDA yield grade equation. The yield grade equation is based on the relationship between the longissimus muscle area (LMA) and the hot carcass weight (HCW). The USDA yield grade equation is based on a linear relationship between LMA and HCW. This relationship has a larger LMA than required for a carcass that is lower yield grade, whereas a small increase in the calculated yield grade increases the required LMA. This investigation was to evaluate the relationship against data on 40 carcasses.

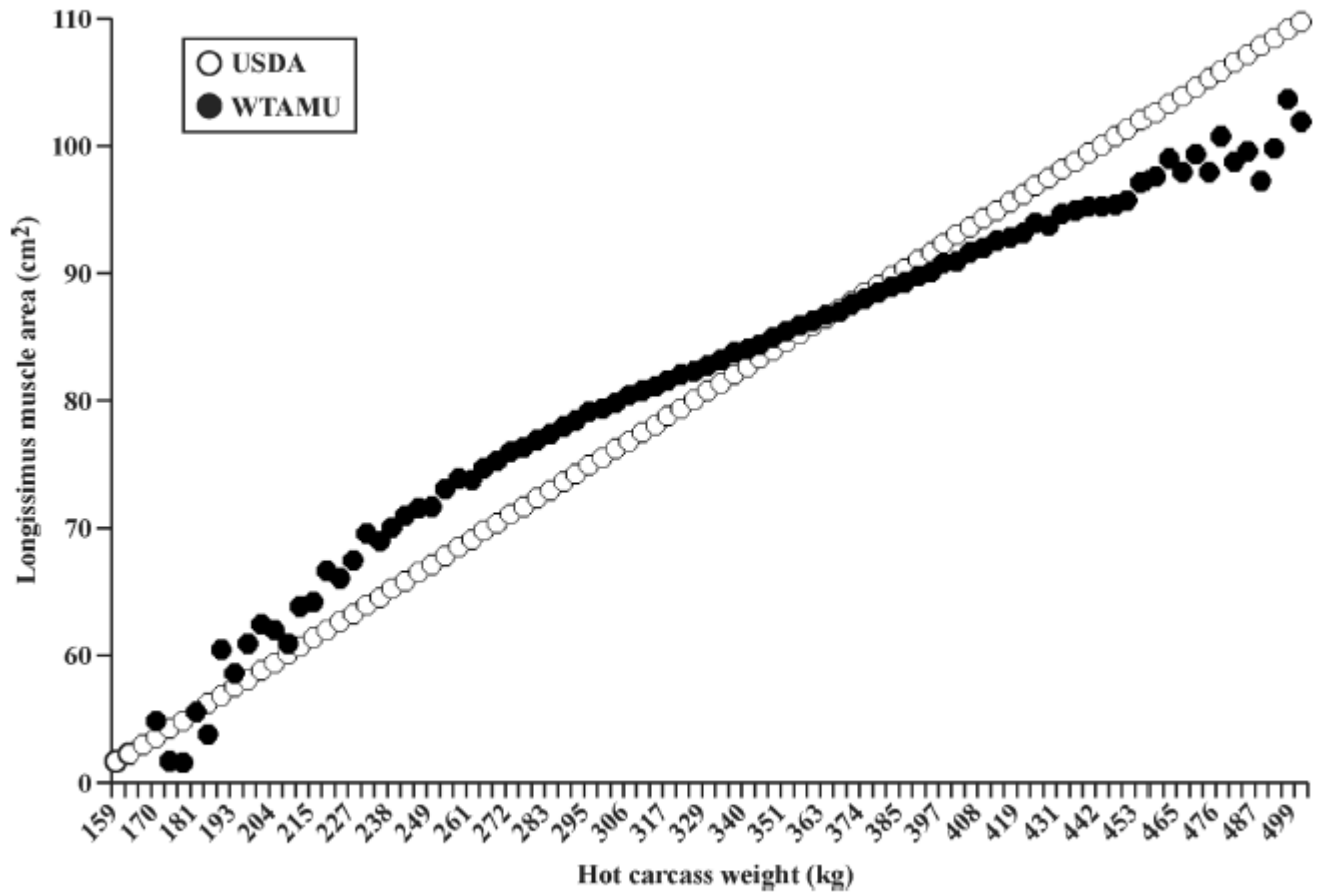


Figure 1. The USDA LM area per HCW relationship and the mean West Texas A&M University (WTAMU) LM area per HCW relationship.



Yield Grade Comments

12 Supportive, 2 Not

Organizations

Producer	4 Y
Processor	1 N
Academic	3 Y
Marketing	1 Y

Companies

Packing	3 Y
Consulting	-
Other	1 Y

Individuals

Producer	1 N
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Yield Grade

- AFT - Adjusted Fat Thickness
- KPH - Kidney, Pelvic and Heart Fat
- HCW - Hot Carcass Weight
- REA - Ribeye Area

$$YG = 2.5 + 2.5 \times AFT + 0.2 \times KPH + 0.0038 \times HCW - 0.32 \times REA$$

Maturity

- USDA Graders Use Physiological Maturity to Reflect Age-Associated Differences in Eating Quality
 - A maturity: 9 to 30 MOA
 - B maturity: 30 to 42 MOA
 - C maturity: 42 to 72 MOA
 - D maturity: 72 to 96 MOA
 - E maturity: > 96 MOA
- USDA-FSIS Classifies Cattle into Two Age Groups Using Dentition
 - Less than 30 MOA – cattle with fewer than 3 PI
 - 30 MOA & older – cattle with 3 or more PI
 - The 2 age groups are graded and fabricated separately

Premature Skeletal Ossification in Cattle Less Than 30 MOA

- Estrogen from a variety of sources promotes skeletal ossification.
 - Naturally occurring estrogen (heifers vs. steers)
 - Estrogenic implants
 - Phytoestrogens (plants) and mycoestrogens (fungi)
- Cattle as young as 14 MOA have been shown to produce B maturity or older carcasses.
- Does advanced physiological carcass maturity (B maturity or older) occurring among fed steers and heifers with fewer than 3 PI (i.e., cattle less than 30 MOA) beef tenderness, flavor and juiciness?

Conclusion of Acheson, Woerner, and Tatum

- A and B-C maturity carcasses from grain-fed cattle have similar longissimus muscle sensory attributes and shear force measurements when classified as less than 30 mo old at the time of slaughter
- Dental age identified some differences in flavor and tenderness
- Findings do not support the current use of physiological maturity characteristics to reflect age-associated tenderness differences in this subpopulation of cattle

2 Studies involving 1,000 carcasses

Conclusion of Lawrence, Whatley, Montgomery and Perino

- Dentition would allow beef producers to determine the age of their cattle prior to slaughter
- Aid USDA meat graders in grouping cattle into less variable age categories

2 Studies involving 12,400 carcasses

Maturity Comments

12 Supportive, 2 Not

Organizations

Producer	4 Y
Processor	1 N
Academic	3 Y, 1 N
Marketing	1 Y

Companies

Packing	3 Y
Consulting	-
Other	-

Individuals

Producer	1 Y
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Other Comments

- **Instrument Grading**
 - 5 Use more or in all Plants
 - 2 Marbling
- **Tenderness**
 - 2 Supportive
- **Meat Yield rather than Yield Grade**
 - 3 Supportive
- **Grass Fed**
 - 4 Supportive
 - 2 Not
 - 2 Separate

***8 Comments strongly recommended USDA
base any revisions on strong science and
abundant data***

Changes Being Considered

- Administrative
 - The Department uses photographs, and other objective aids or devices designated by the USDA, AMS in the correct interpretation and application of the standards.
 - Revise YG examples to reflect today's carcass weights
- Carcass Standard
 - Carcasses determined to be less than 30 months old either by dentition (USDA-FSIS) or by documentation of actual age (USDA Process Verified Program or USDA Quality System Assessment) would be included in the youngest maturity group for carcasses (A maturity) regardless of physiological maturity

Procedure for Revising Standards

- Code of Federal Regulations, Title 7 Part 36
- Any revision should reflect the broad interest of individuals and the industry
- Based on sound technical and marketing information
- In cooperation with interested parties:
 - Determine the need for revised standards;
 - Collect technical, marketing, or other appropriate data;
 - Conduct research regarding possible revisions as appropriate; and,
 - Review all collected information, research and analyses

Procedure for Revising Standards

If it is determined that revisions are warranted, then:

- A Notice will be published in the *Federal Register*
- News release issued
- At least a 60 day comment period
- All comments will become part of the public record
- Based on the comments received, on grading, marketing, and other technical factors, and any other relevant information, AMS will decide whether the proposed revisions should be implemented

Instrument Grading



Beef Instrument Grading

- Instrument use continues to expand
- Approved for use in 19 plants
 - 68,900 daily carcass capacity
 - 77% of carcasses graded
- Officially used in 11 plants
 - 36,900 daily carcass capacity
 - 41% of carcasses graded

Beef Tenderness Marketing Program



ASTM Beef Tenderness Marketing Claim Standard

- Worked with academia and industry to develop an accurate system based on an objective scale, system ensures that specific beef cuts consistently meet these established thresholds
- ASTM F2925-11 was approved 9/2011
- In 2012 AMS began working with segments of the industry to have the Tenderness Marketing Claim applied to the retail level

Tenderness Activities

- Approved beef processors can now market products as USDA-Certified Tender or Very Tender through product labeling, advertisements, and promotions
- Three companies have been approved and are selling product under the new label
- AMS is working other companies who have requested approval to use the USDA Certified Tender claim
- The use of plain language quality descriptors in common everyday words focuses communication effectively on the quality of beef

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HOMELAND.




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TENDER

Exceptionally tender. Now it's Certified.

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On-line Beef Instrument Tenderness Assessment

- In collaboration with ASTM, AMS is working to develop performance standards for assessment of classes of tenderness
- Performance standards are based on the tenderness classes of ASTM Beef Tenderness Marketing Claim Standard
- Instruments to assess tenderness classes at current line speeds

Mexico Beef Grading

Working with California cattlemen, Mexican government and industry officials on issues surrounding the loss of packing capacity in Southern California

- Technical visit last September
 - Discussions ongoing
- Assisting Mexico in developing a beef grading program
 - USDA grading overview session in Amarillo last March
 - USDA technical discussion with Mexican government and industry officials in Mexico last week
- Helping California producers find processors to USDA grade the cuts after return from Mexico

