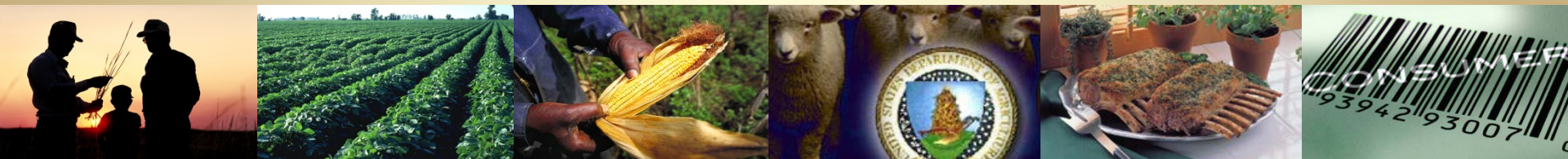
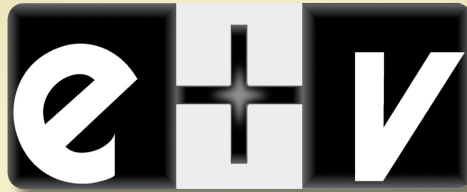


- Lamb Instrument Grading -
- Lamb Tenderness Standard -
- Carcass Grade Standard -



Lawrence Yates
Standardization Branch
Quality Assessment Division
Livestock & Seed Program
United States Department of Agriculture

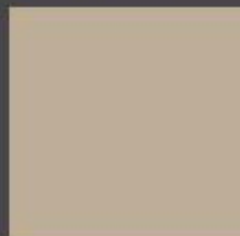
Special Thanks to ...



Technology GmbH

and to





The American Lamb Industry Roadmap Project



Draft Final Report

September-October 2013

The **Hale** Group

Mapping Success in the Global Food System



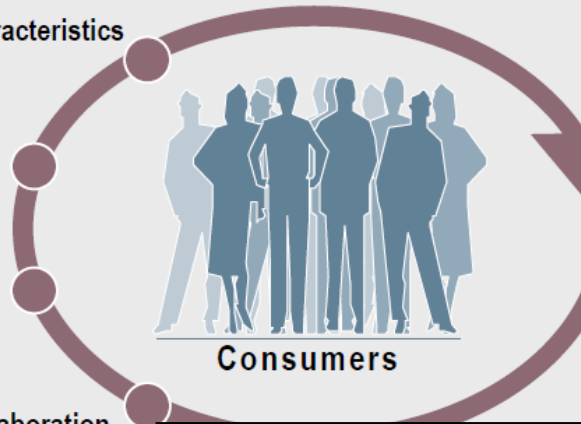
The Four Major Areas Requiring Industry Goals

1. Product Characteristics

2. Demand Creation

3. Productivity Improvement

4. Industry Collaboration



Objectives and Action Steps for Goal 1

Goal 1 – Product Characteristics

Goal – Reduce the fat content and improve the consistency of American lamb products as defined by the Lamb Quality Audit.

Objectives:

1. Adopt consumer-driven, value-based pricing for slaughter lambs
2. Install electronic grading at packing plants
3. Conduct a Lamb Quality Audit every three years

Slide 47

Draft



Slide 59

Draft Final Presentation

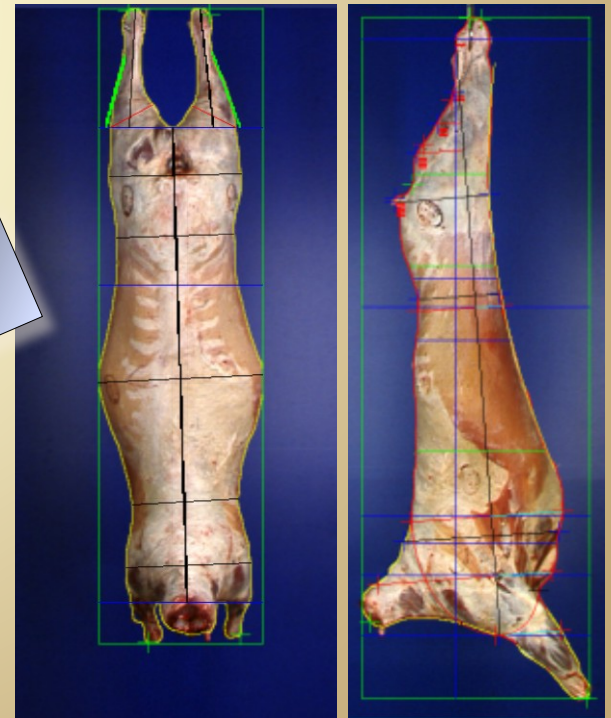
The Hale Group

Goal

Enhance the accuracy and consistency of USDA lamb grading by providing more objective and reliable information on quality and yield attributes



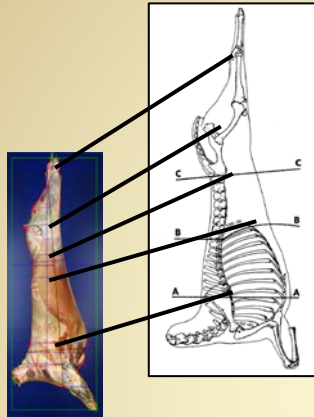
Hot Carcass Image Collection



Instrument Output

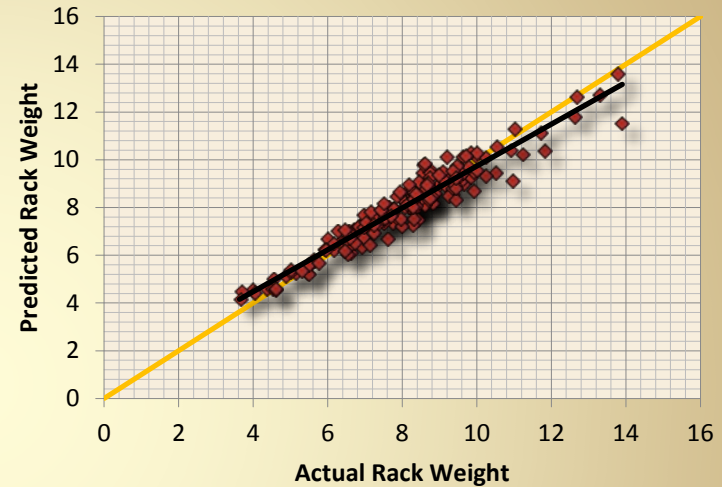
- Quality Grade
- Yield Grade
- Subprimal Weights
- Ovine Carcass Cutability

Predicted Foresaddle Sub-Primal Weight



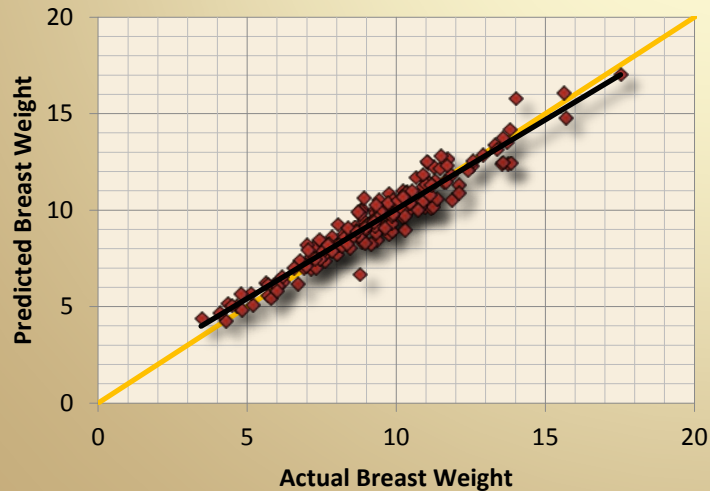
IMPS 204 Rack

$rMSE = 0.466$, $R^2 = 0.921$, $CV=5.74\%$



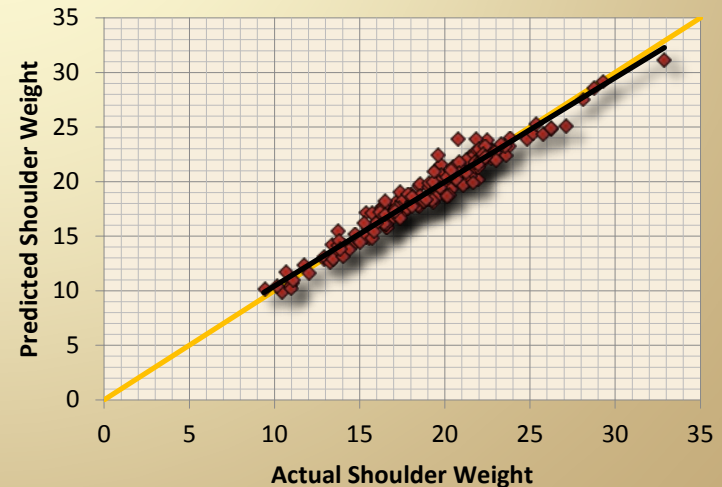
IMPS 209 Breast

$rMSE = 0.613$, $R^2 = 0.926$, $CV=6.47\%$

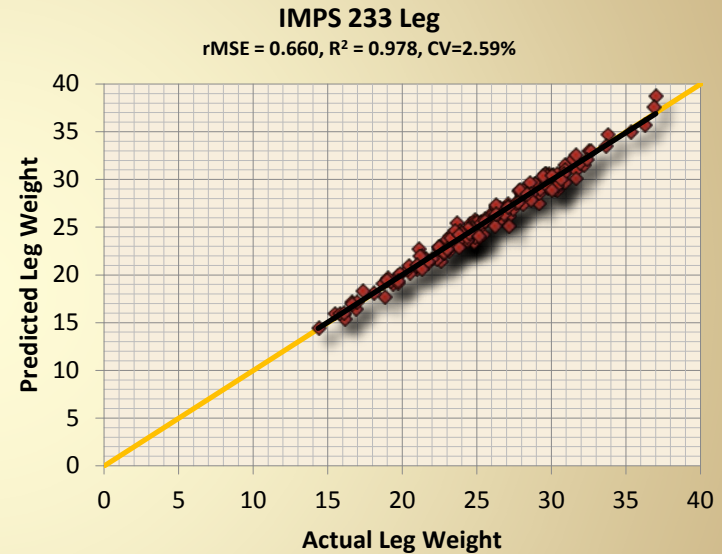
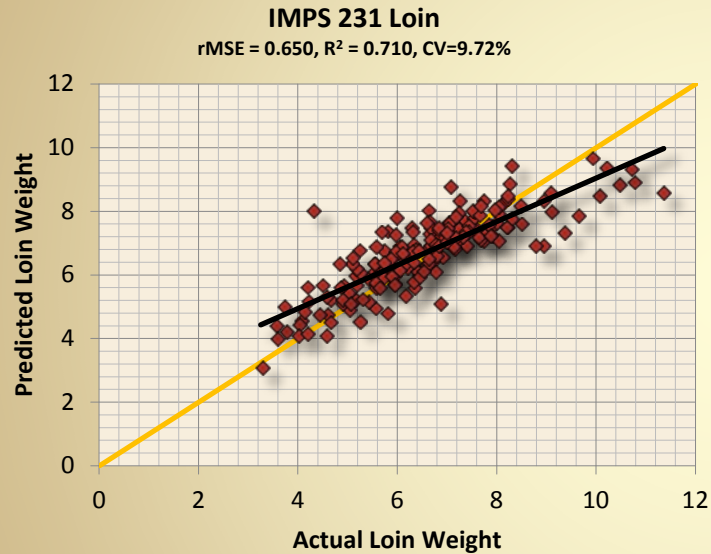


IMPS 207 Shoulder, Square-Cut

$rMSE = 0.823$, $R^2 = 0.951$, $CV=4.37\%$



Predicted Hindsaddle Sub-Primal Weight



Lamb Carcass Cutability

IMPS Item No.	Name
204C	Rack, Roast Ready, Frenched PSO 3x1"
208	Shoulder, Square-Cut, Boneless, Tied
209	Breast
210	Foreshank
-	Neck
232A	Loin, Short-cut, Trimmed PSO 0x0"
232E	Flank, Untrimmed
233F	Leg, Hindshank
234A	Leg, Shank Off, Boneless, Tied

Image Reviews

Lamb Pilot.20131119 : Database (Access 2007 - 2010) - Microsoft Access

File Home Create External Data Database Tools Acrobat

View Paste Cut Copy Filter Ascending Descending Selection Advanced Refresh All Save Delete More Find Replace Go To Select Text Formatting

Image Review Form

Cx ID 84257 HCW 75.5 Final Grade 402 Grade Prime YG 3 OCC Yld 65.01 Pres: Back Null or 0 - OK, 1-Front, 2-Turned

Breast 9.11 Rack 7.85 Sq Cut Shoulder 21.67 Legs 24.89 Loin 6.35 Neck 1.69 Pres: Side Null-OK, 1-Turned, 2-Reversed Pres: Misc

Navigation Pane

Record: 2236 of 33866 No Filter Search

Form View

Num Lock

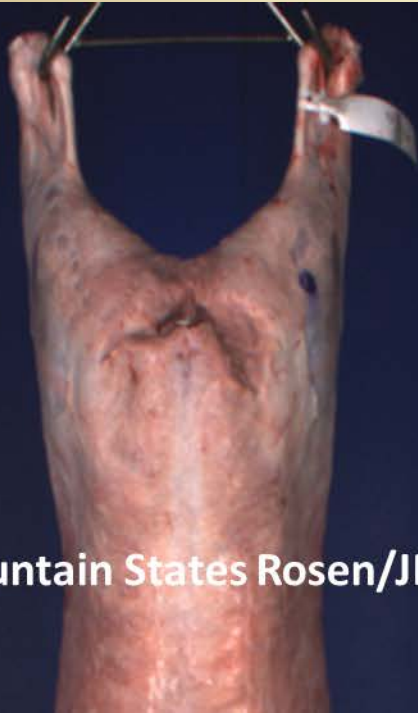
Image Reviews

Carcasses Imaged	33,692
Proper Presentation	88.9%
Carcasses Undefined	6.2%
Back Alignment Error	0.9%
Side Alignment Error	4.0%

Instrument Validation

Type	Lenght1	Lenght2	Lenght3	Lenght4	Red	Green	Blue
<i>Average</i>							
Side	969.72	171.69	126.60	260.40	207.21	206.32	205.11
Back	839.22	214.58	292.59	214.79	203.16	202.95	202.11
<i>Standard Deviation</i>							
Side	1.13	0.94	0.07	0.90	1.36	1.45	1.82
Back	1.57	0.70	1.09	0.30	3.10	3.34	3.43
<i>Coefficient of Variation</i>							
Side	0.12%	0.55%	0.06%	0.35%	0.66%	0.71%	0.89%
Back	0.19%	0.33%	0.37%	0.14%	1.52%	1.65%	1.70%

Presentation Geometry Impacts Quality Grade

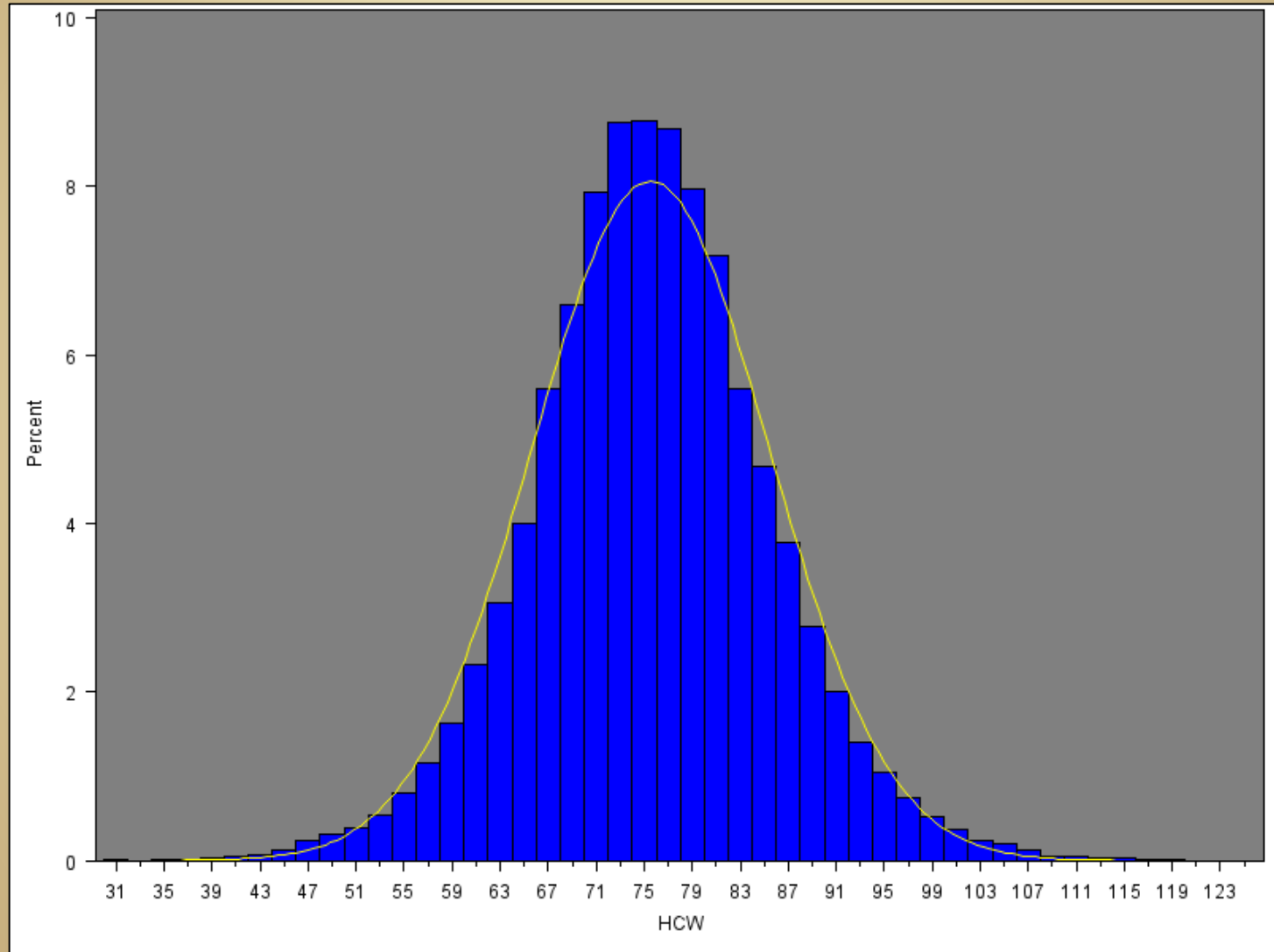


Mountain States Rosen/JBS



Superior-Denver

Hot Carcass Weight



N = 32,198

Yield Grade Agreement

Comparison	Correct	High	Low
USDA Plant Graders agrees with Extra USDA Grader	57.7%	21.1%	21.2%
USDA Plant Graders agrees with Instrument	52.1%	24.4%	23.4%
Extra USDA Grader agrees with Instrument	52.5%	25.9%	22.7%

Objective 1.

Adopt Value-based Pricing for Slaughter Lambs

- Initially, we urge all packers to use at least two characteristics in setting their target for lamb carcasses:
 - Fat cover
 - Conformation / muscling
- We recommend gradual introduction of value-based system
 - First eliminate the most serious problems – the outliers that cause the most trouble – through discounts
 - Gradually adjust and upgrade the quality characteristics – through rewards
 - Adjust the pricing system as results from the Lamb Quality Audit become available
- Plan future changes and give producers time to meet the future requirements.

Slide 64

Draft Final Presentation

Objective 1.

Adopt Value-based Pricing for Slaughter Lambs

- Value-based pricing must:
 - Be directly connected to consumer desires
 - Be expressed in quantitative terms
 - Provide significant economic incentive and disincentive
 - Be explained to producers and feeders so they know how to adjust
 - Be applied to all lambs purchased
- The factual basis for assessing carcasses and producer payment must be provided on a timely basis
- Pricing schemes will vary from packer to packer and from season to season

Slide 65

Draft Final Presentation

The Hale Group



	75 HCW				YG 3			
	Average	High	Low	Difference	Average	High	Low	Difference
		Value	Value			Weight	Weight	
HCW	75.0	75.0	75.0	-	76.5	115.0	38.1	-76.9
Instrument YG_int	2.97	1	3		3.43	3	1	
USDA Plant YG	3.05	3	3		3.00	3	3	
209 Breast	5.99	5.94	6.07	0.13	6.16	10.32	1.95	-8.37
204 Rack, 8-Rib	8.20	7.93	8.23	0.30	8.32	11.25	4.83	-6.41
207 Shoulder, square-cut	17.03	17.67	15.64	-2.03	17.37	27.02	7.19	-19.83
233A Leg, trotter-off	24.78	25.91	24.75	-1.16	25.18	35.43	14.44	-20.99
232 Loins, trimmed 1x1	6.31	6.30	6.32	0.02	6.45	10.04	2.88	-7.16
Total	62.31	63.75	61.00	-2.74	63.48	94.05	31.29	-62.76

USDA Wkly Ntl Lamb Market Sum.-1/17/2014

\$ 209 Breast	\$ 10.36	\$ 10.27	\$ 10.49	\$ 0.22	\$ 10.65	\$ 17.84	\$ 3.37	\$ (14.47)
\$ 204 Rack, 8-Rib	\$ 65.56	\$ 63.42	\$ 65.82	\$ 2.40	\$ 66.56	\$ 89.94	\$ 38.66	\$ (51.28)
\$ 207 Shoulder, square-cut	\$ 49.92	\$ 51.80	\$ 45.84	\$ (5.96)	\$ 50.93	\$ 79.20	\$ 21.09	\$ (58.11)
\$ 233A Leg, trotter-off	\$ 88.91	\$ 92.96	\$ 88.80	\$ (4.15)	\$ 90.33	\$ 127.12	\$ 51.81	\$ (75.31)
\$ 232 Loins, trimmed 1x1	\$ 45.69	\$ 45.63	\$ 45.77	\$ 0.15	\$ 46.72	\$ 72.73	\$ 20.86	\$ (51.88)
\$ Total	\$ 260.45	\$ 264.07	\$ 256.73	\$ (7.34)	\$ 265.19	\$ 386.83	\$ 135.78	\$ (251.05)

<i>Ntl Wkly Comprehensive Lamb Cx</i>	\$ 222.28	\$ 222.28	\$ 222.28	\$ -	\$ 230.32	\$ 332.21	\$ 164.88	\$ (167.33)
Primal Cx - Wkly Comp Cx	\$ 38.18	\$ 41.79	\$ 34.45	\$ (7.34)	\$ 34.87	\$ 54.62	\$ (29.10)	\$ (83.72)

Lamb Carcass Cutability, Wt	50.1	50.6	49.9	-0.7	51.0	75.0	27.2	-47.8
Lamb Carcass Cutability, %	67.5%	67.9%	67.3%	-0.6%	67.4%	65.9%	70.2%	4.3%
\$ Lamb Carcass Cutability	\$ 267.30	\$ 270.01	\$ 266.16	\$ (3.85)	\$ 272.35	\$ 400.42	\$ 145.04	\$ (255.39)

Number of Carcasses	134	17,618
---------------------	-----	--------



Current Status of Electronic Grading

- Electronic grading equipment is being installed at present in the JBS plant in Colorado.
- USDA will need about 6 weeks to conduct their standardization trials.
- Data will need to be evaluated and approval for industry use by USDA should be completed within an estimated 3 or 4 months.
- In the interim, Colorado State and a USDA economist will provide an industry assessment and ROI analysis for industry consideration.

- Lamb Instrument Grading -
- Lamb Tenderness Standard -
- Carcass Grade Standard -



Communicating Eating Satisfaction?

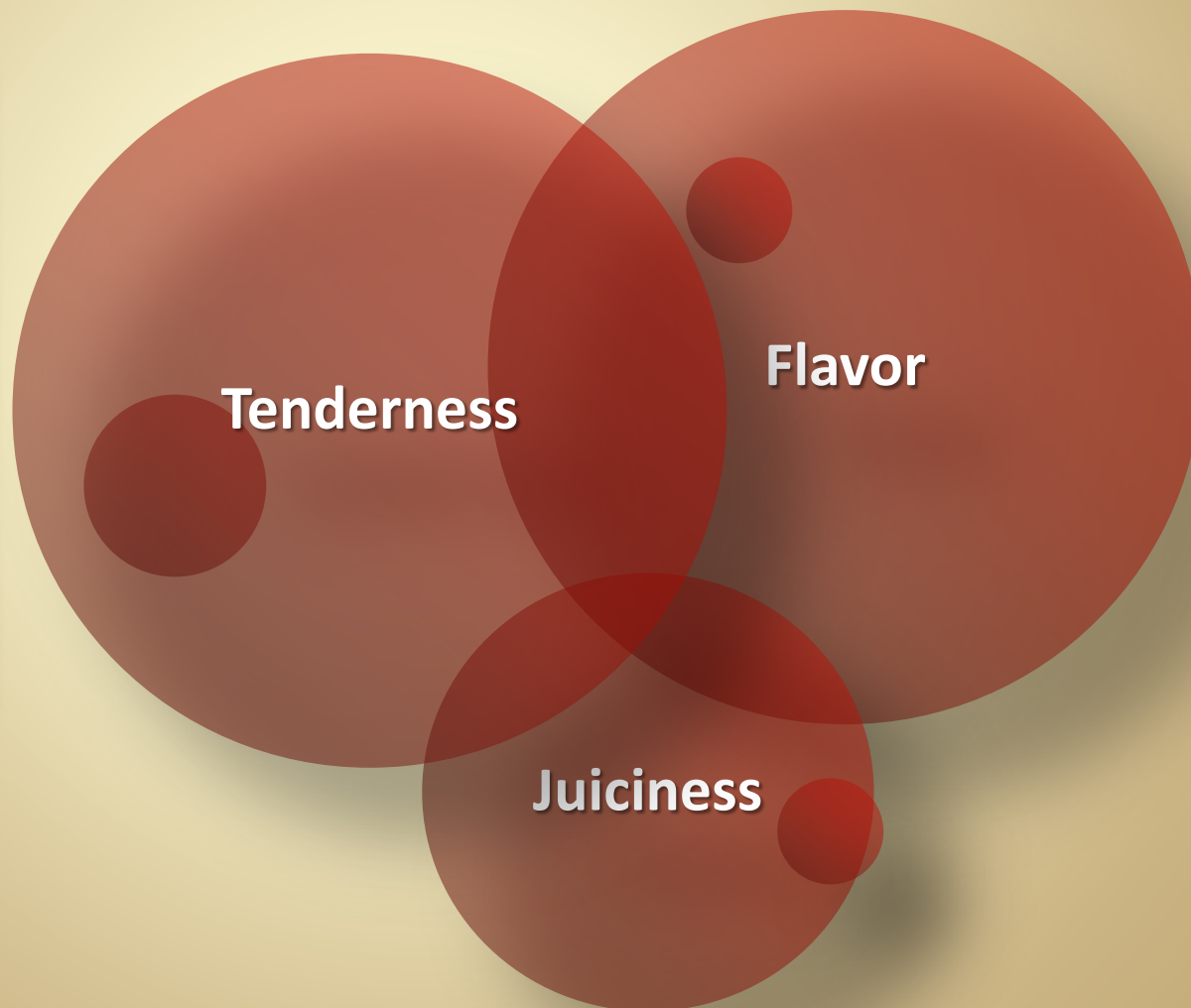
Quality and
Yield Grades



Tenderness
and/or
Flavor



What Defines Eating Satisfaction?



An Example from the Beef Industry

In announcing a new Cargill program to market USDA labeled “USDA tender” or “USDA very tender” beef products.

We know that beef attributes such as tenderness, flavor and juiciness are important to consumers, and the long-term health of the American beef industry hinges on our ability to consistently deliver the best possible beef eating experience.

– John Keating, President, Cargill Beef

Source: “Cargill plant certified for ‘tender’ beef,” Fort Morgan Times news article, July 26, 2013, submitted to me by Benny Cox



Beef Tenderness Standard History

- ASTM International
 - Committee F10
Livestock, Meat, and Poultry Evaluation Systems
 - Subcommittee F10.60
Livestock, Meat and Poultry Marketing Claims
- Standard Approved 2011
 - F 2925-11 Standard Specification for Tenderness Marketing Claims Associated with Meat Cuts Derived from Beef
- Tenderness Claim (two options)
 - Tender: Shear value less than 4.4 kg for WBSF or 20.0 kg for SSF
 - Very Tender: Shear value less than 3.9 kg for WBSF or 15.3 kg for SSF





Designation: F2925 – 11

Standard Specification for Tenderness Marketing Claims Associated with Meat Cuts Derived from Beef¹

This standard is issued under the fixed designation F2925; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers requirements for incorporating a tenderness marketing claim to finished labeling, advertisements, or promotions, or a combination thereof, associated with beef cuts to distinguish product value in the marketplace.

1.2 The marketing claim requirements in this specification

**F2463 Terminology for Livestock, Meat, and Poultry
Evaluation Systems**

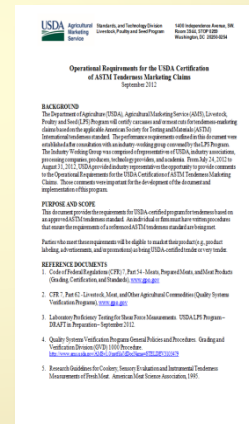
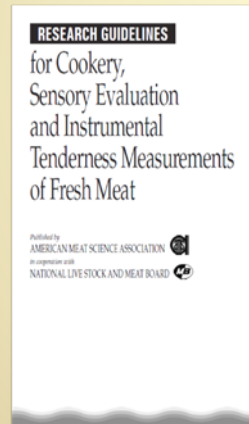
3. Terminology

3.1 For additional definitions related to livestock, meat, and poultry, see Terminology **F2463**.

3.2 *Definitions:*

Implementation

Systematic, Multi-Standard Approach



A close-up photograph of a plate of food, including a large piece of meat, some vegetables, and a fork. A large, red, 3D-style stamp with the word "APPROVED" in bold, capital letters is overlaid diagonally across the top left of the image.

APPROVED

- Case-by-case Basis
- LPS Program Desk Audit
- LPS Program Onsite Capability Assessment
- Audit Frequency: At least 2 per year
- Program changes must be approved prior to Implementing

Marketing and Promotional Materials



- “USDA Tender” or “USDA Very Tender”
- Shields use granted for use with certified products
- Marketing and promotional materials review
- FSIS/OPPD/LPDD Approval

meatingplace

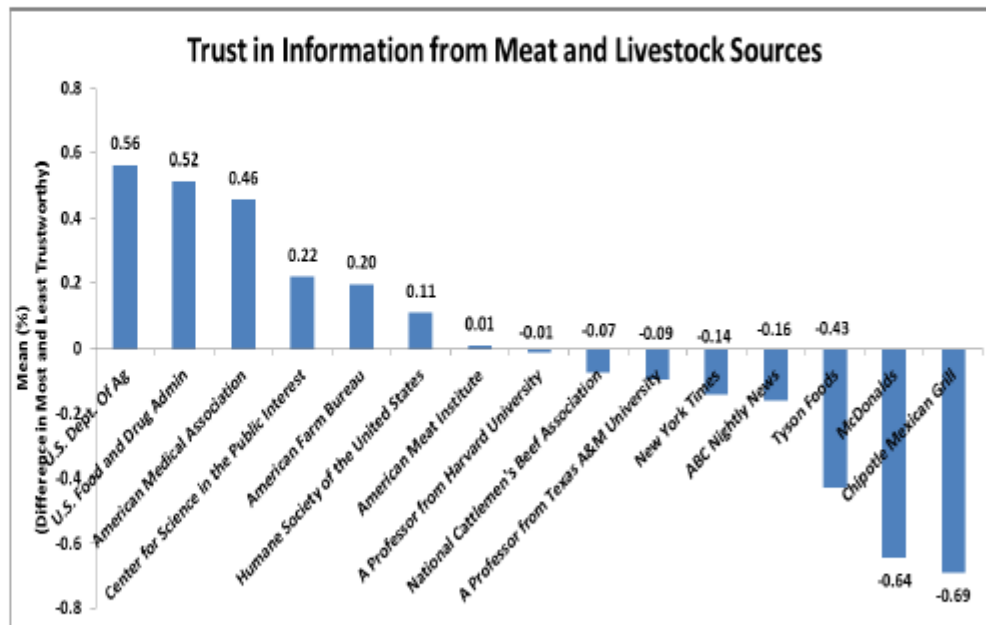
INDUSTRY NEWS - AM

Consumers rate trustworthiness of meat information sources

Three new ad hoc questions were added to the survey in January.

First, participants were asked "How trustworthy is information about meat and livestock from the following sources?" 15 sources were listed (the order randomly varied across respondents), and respondents had to place five sources in the most trustworthy category and five sources in the least trustworthy category.

A scale of importance was created by calculating the proportion of times a meat and livestock information source as ranked most trustworthy minus the proportion of times it was ranked least trustworthy.



Oklahoma State University · Food Demand Survey · info_survey@okstate.edu
Jayson Lusk · Professor and Willard Sparks Endowed Chair · Phone (405) 744-7465
Susan Murray · Research Specialist · Phone (405) 744-4857

- Lamb Instrument Grading -
- Lamb Tenderness Standard -
- **Carcass Grade Standard -**



Carcass Grade Standard

- Be It Directed that ASI works with USDA to propose a more accurate definition of the maturity window for the grade standard that currently exists for yearling mutton, and,
- Be It Finally Directed that ASI works with USDA to propose a more industry agreeable term for yearling mutton.



**United States Standards
for Grades of
Lamb, Yearling Mutton, and
Mutton Carcasses**

Effective date July 6, 1992

History

- 90's
 - National Technology Transfer and Advancement Act of 1995
 - Livestock and carcass standards were removed from the Code of Federal Regulations
 - Livestock and Carcass Grade Standards are considered Voluntary Grade Standards

0143.

[49 FR 23826, June 8, 1984]

PART 36—PROCEDURES BY WHICH THE AGRICULTURAL MARKETING SERVICE DEVELOPS, REVISES, SUSPENDS, OR TERMINATES VOL- UNTARY OFFICIAL GRADE STANDARDS

Sec.

36.1 General information.

36.2 Initiating action on grade standards.

36.3 Public notification of grade standards
action.

AUTHORITY: 7 U.S.C. 1621-1627.

SOURCE: 62 FR 43439, Aug. 13, 1997, unless
otherwise noted.

§ 36.1 General information.

The Agricultural Marketing Service (AMS or agency) of the U.S. Department of Agriculture (USDA) facilitates the fair and efficient marketing of agricultural products by promulgating voluntary official grade standards for dairy, fresh and processed fruits and vegetables, livestock, meats and meat

products. Communications should be addressed to the Administrator, Attention: Functional Committee for Standards. Communications about specific standards (such as a request to develop or revise a standard) should be addressed to the Director of the appropriate Division (Dairy, Fruit and Vegetable, Livestock and Seed, Poultry, or Tobacco). All communications should include in the address: Agricultural Marketing Service, U.S. Department of Agriculture, P.O. Box 96456, Washington, DC 20090-6456.

§ 36.2 Initiating action on grade standards.

The Agency will develop, revise, suspend, or terminate grade standards if it determines that such action is in the public interest. Any standardization action should reflect the broad interest of individuals or an industry involved in manufacturing, producing, packaging, distributing, testing, consuming, or using the product; or the interest of a Federal, State, or local agency. Proposed actions should always be based on sound technical and marketing information and should include careful consideration of the fac-

0143.

[49 FR 23826, June 8, 1984]

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Proposed Rules

Federal Register

Vol. 62, No. 225

Friday, November 21, 1997

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF AGRICULTURE

Food Safety and Inspection Service

9 CFR Part 319

[Docket No. 97-030A]

RIN 0583-AC41

Labeling Standards for Ovine Carcasses, Parts of Carcasses, Meat and Meat Food Products

AGENCY: Food Safety and Inspection Service, USDA.

ACTION: Advance notice of proposed rulemaking; request for comments.

SUMMARY: Pursuant to a requirement in the Farm Bill of 1996, the Department is issuing this advance notice of proposed rulemaking to determine the type of labeling standards it should

Department of Agriculture, Washington, DC 20250; (202) 205-0292.

SUPPLEMENTARY INFORMATION:

Background

Section 279 of H.R. 2854—Federal Agriculture Improvement and Reform Act of 1996 (Farm Bill) (Pub. L. 104-127, 4/4/96) reads as follows:

SEC 279. LABELING OF DOMESTIC AND IMPORTED LAMB AND MUTTON

Section 7 of the Federal Meat Inspection Act (21 U.S.C. 607) is amended by adding at the end the following:

“(f) LAMB AND MUTTON.—The Secretary, consistent with United States international obligations, shall establish standards for the labeling of sheep carcasses, parts of carcasses, sheepmeat and sheepmeat food products.”

According to the legislative history (House Conference Report, No. 104-494), this provision originated in a Senate provision which also stated that the standard to be used was to be based on the break or spool joint method to differentiate lamb from mutton by the

producers to develop their own criteria to meet these performance standards.

Prior Grading Standards

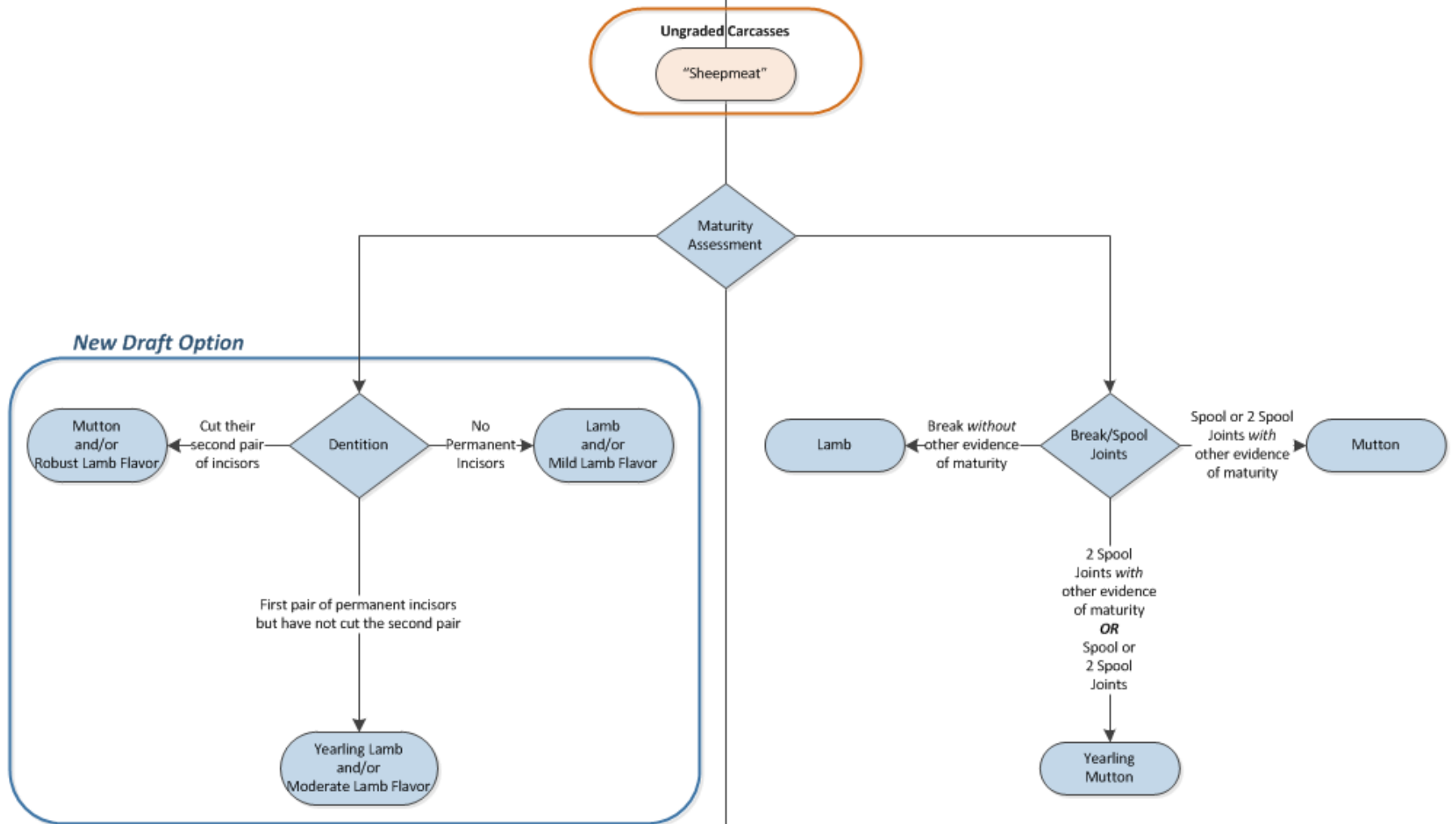
In the past, the Agricultural Marketing Service (AMS) published two standards voluntarily regulating the marketing of sheep, lamb, and yearling carcasses and their meat food products on the basis, among other things, of age and/or maturity. These two publications were titled “Official United States Standards for Grades of Slaughter Lambs, Yearlings and Sheep” and “Official United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses.”

The purpose of these voluntary grading standards was to develop and establish efficient marketing methods and practices for agricultural commodities so that consumers could obtain the quality of product they desire at a reasonable cost. The grade standards were developed to provide uniform language to describe the characteristics of many meat food commodities in the marketplace. However, rapid changes in consumer preferences together with associated changes in commodity characteristics

United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses

Dentition-Maturity Grading Option

Physiological-Maturity Grading Option



Scientific Evaluation of Methods for Evaluating Maturity in Ovine Carcasses

March 1997



United States
Department of
Agriculture

Agricultural
Marketing
Service

Livestock
and Seed
Division

United States Standards for Grades of Slaughter Lambs, Yearlings, and Sheep

Effective date July 6, 1992



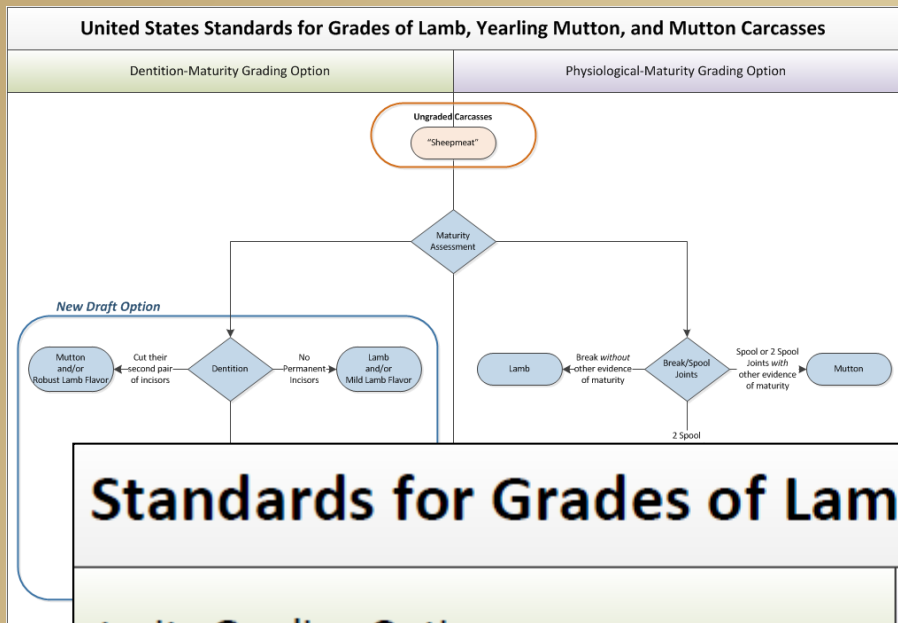
United States
Department of
Agriculture

Agricultural
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Livestock
and Seed
Division

United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses

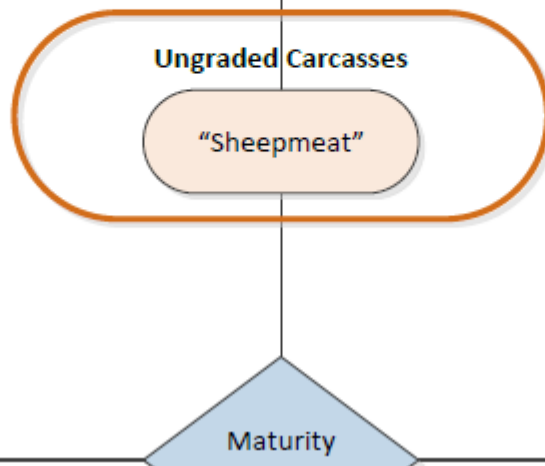
Effective date July 6, 1992



Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses

Dentition-Maturity Grading Option

Physiological-Maturity Grading Option



*LAMB PALATABILITY STUDIES¹*G. C. SMITH, Z. L. CARPENTER, G. T. KING and K. E. HOKE²

TEXAS A&M UNIVERSITY

The relationship between carcass-quality indicators and the palatability attributes of cooked lamb needs to be more accurately delineated. USDA carcass grades utilize a group of quality and maturity indicators and are designed to segment carcasses into groups of differing consumer acceptance. Their effectiveness in segmenting carcasses into groups with similar palatability attributes needs to be ascertained. Estimation of consumer palatability is the ultimate goal of lamb carcass-quality evalua-

United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses

Dentition-Maturity Grading Option

Physiological-Maturity Grading Option

Ungraded Carcasses

"Sheepmeat"

Maturity Assessment

New Draft Option

Mutton and/or Robust Lamb Flavor

Cut their second pair of incisors

Dentition

First pair of permanent incisors but have not cut the second pair

Yearling Lamb and/or Moderate Lamb Flavor

New Draft Option

Mutton and/or Robust Lamb Flavor

Cut their second pair of incisors

Dentition

No Permanent Incisors

Lamb and/or Mild Lamb Flavor

First pair of permanent incisors but have not cut the second pair

Yearling Lamb and/or Moderate Lamb Flavor

Some people like a steak with more flavour, others prefer a more tender steak. To help you choose the steak you would prefer, the enclosed steakometer wheel has been produced.

In the same way as wine or coffee may have an indication of taste or strength, the steakometer offers you a guide to the tenderness and flavour offered by each steak.

Simply turn the wheel to the steak type and the taste profile rating will appear.

TENDERNESS GRID

3 VERY TENDER



2 TENDER



1 MODERATELY TENDER



FLAVOUR GRID

3 RICH BEEF FLAVOUR



2 MODERATE BEEF FLAVOUR



1 MILD BEEF FLAVOUR



Communicating Eating Satisfaction


- The use of plain language quality descriptors in common everyday words focuses communication effectively on the quality of lamb
- Flavor descriptors in concert with “USDA Certified Tender” or “USDA Certified Very Tender” allows the lamb industry to communicate lamb quality attributes to consumers in understandable terms the first time they hear or read it



Objectives and Action Steps for Goal 2

Goal 2 – Demand Creation

Goal – Achieve a significant increase in demand for American lamb meat as measured by the Demand Index.

1. Create a consumer-recognized and valued American Lamb brand limited to American lamb products of a defined quality
 2. Develop innovative value-added products – which can stem from fabrication, packaging, further processing, yearling / mutton, or other mechanisms
 3. Support non-traditional sheep producers across the country through a series of niche market investments and activities
 4. Explore the benefits and costs of alternative paths to market for American Lamb
 5. Build the volume and relative value of the export market for American Lamb
 6. Update the Demand Index for American lamb (most recent version 2007).
- 

United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses

Dentition-Maturity Grading Option

Physiological-Maturity Grading Option

Ungraded Carcasses

"Sheepmeat"

Maturity Assessment

New Draft Option

Mutton and/or Robust Lamb Flavor

Cut their second pair of incisors

Dentition

No Permanent Incisors

Lamb and/or Mild Lamb Flavor

First pair of permanent incisors but have not cut the second pair

Yearling Lamb and/or Moderate Lamb Flavor

Lamb

Break without other evidence of maturity

Break/Spool Joints

Spool or 2 Spool Joints with other evidence of maturity

Mutton

2 Spool Joints with other evidence of maturity
OR
Spool or 2 Spool Joints

Yearling Mutton