- Lamb Instrument Grading -

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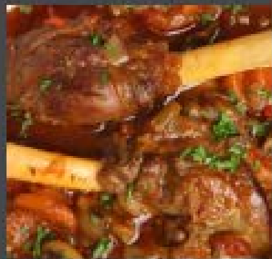
United States Department of Agriculture

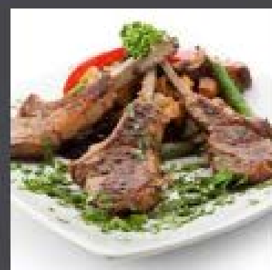
USDA

Special Thanks to …

Technology GmbH

and to



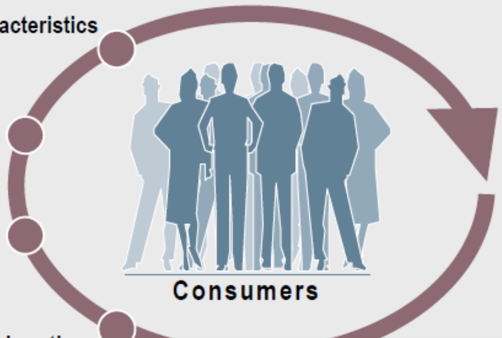

The American Lamb Industry Roadmap Project

Final Presentation

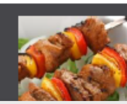
December 10, 2013


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 – Improve the eating characteristics and consistency of American lamb products as defined by the Lamb Quality Audit.

Objectives:

1. Adopt consumer-driven, value-based pricing for slaughter lambs
2. Improve consumers' eating experience of lamb
3. Install electronic grading at packing plants
4. Conduct a Lamb Quality Audit every three years

USDA

Goal

Enhance USDA lamb grading by providing more objective information on quality and yield attributes

Historical Timeline

- 2006
  - ASI requested that USDA develop performance standards for instrument prediction of lamb carcass factors and grades
- 2007
  - Discussions initiated regarding instrument assessment of lamb carcass traits
- 2008
  - Proposed percent meat yield strategy presented to Lamb Council
  - Industry working group establishes fabrication schedule and draft carcass cutability standard
- 2009
  - Trial design and protocols finalized, plant selected, instrument installed
  - Year long study initiated September 2009

Historical Timeline

- 2010
  - Study completed in June
  - Instrument manufacturers submitted cutability prediction equations
- 2011
  - Results presented to Lamb Council
  - Draft instrument cutability and a draft instrument quality grade performance standards published for comment
- 2012
  - Cutability and Quality Grade performance standards approved
  - E+V Technology VSS2000 lamb grading instrument approved
  - Pilot project to assess instrument feasibility published for comment

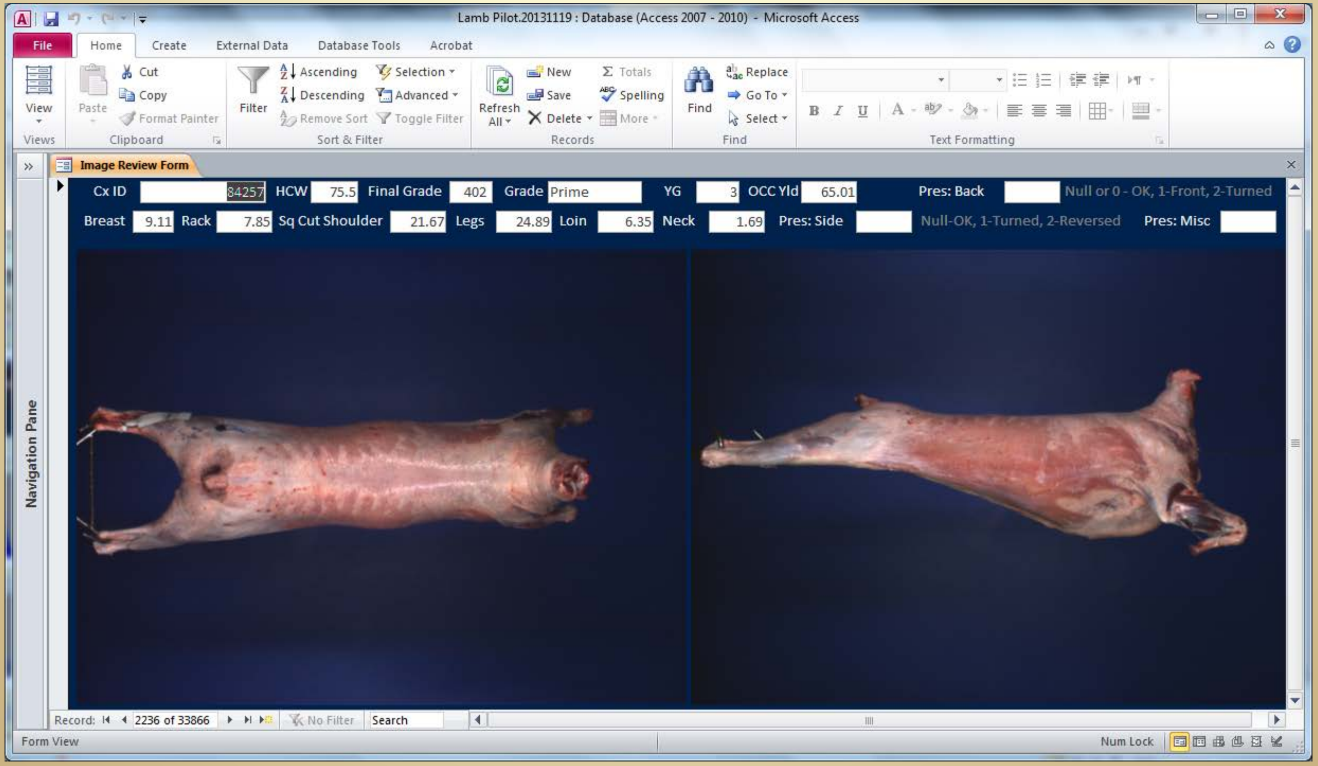
Historical Timeline

- 2013
  - Four week feasibility pilot project conducted
- 2014
  - Feasibility pilot project results presented to Lamb Council
  - Quality and conformation trial conducted to align the final quality grade
  - VSS2000 lamb grading instrument purchased
  - E+V manual and documents reviewed and approved
- 2015
  - USDA oversight procedures drafted
  - USDA sight visit to discuss approach and refine procedures and protocols
  - Anticipate a plant review within a month

Hot Carcass Image Collection

Image Reviews

Approval Trials	562
Pilot	33,692
Quality Grade Alingment	5,344



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Instrument as a Grading Tool

- Size and cost limit this technology to larger plants
  - Currently installed in JBS-Mountain States Rosen
  - Purchase intent for two additional plants
    - Installation in the 2015-2016 timeframe
    - Superior Farms Denver
    - Superior Farms Dixon
- USDA grading is voluntary
  - Instrument use in assigning official USDA grades is voluntary
    - USDA grader on premise
  - Request for grading similar to non-instrument plants

United States Department of Agriculture
Agricultural Marketing Service
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Instrument Assessment Systems for Livestock Carcasses and Carcass Products

Specifications and Requirements for Instrument Implementation and Verification

BACKGROUND

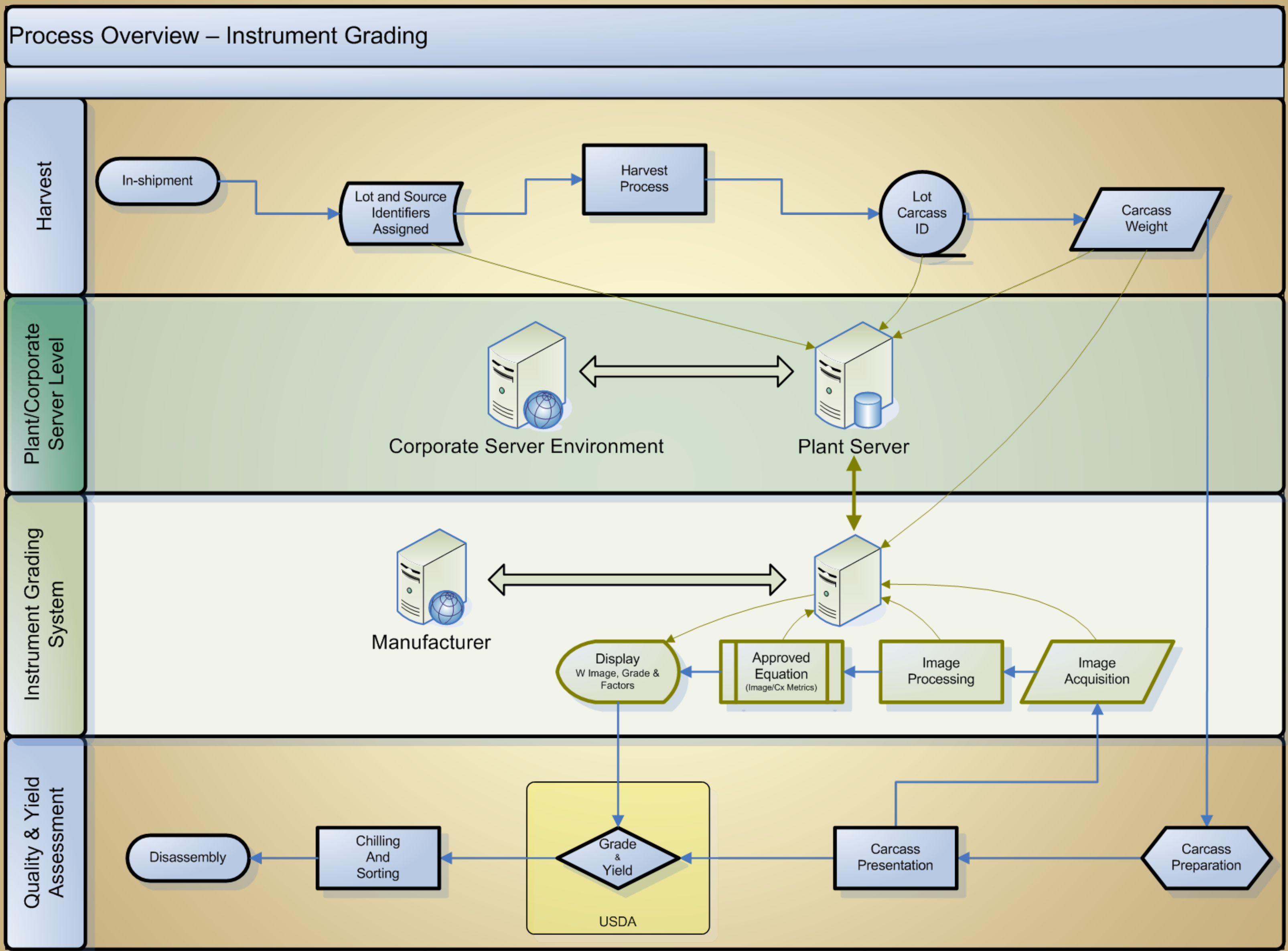
The Department of Agriculture (USDA), Agricultural Marketing Service (AMS), Livestock, and Seed (LS) Program will utilize carcass factors and measurements made by approved instruments. The LS Program will approve instrument assessment systems that meet specific performance requirements for accuracy, precision, and repeatability in the prediction of quality and yield factors and grades. Once an instrument has met the accuracy, precision, and repeatability requirements, the procedures for implementation, verification and operation of an instrument must be approved by the LS Program on a plant-by-plant basis.

The guidance for this document was based on Section 5.59, "Electronic Livestock, Meat, and Poultry Evaluation Systems and/or Devices - Tentative Code," of the National Institute of Standards and Technology Handbook 44 (2008). In turn, Handbook 44 references consensus standards established by ASTM committee F10 on Livestock, Meat, and Poultry Evaluation Systems, a committee made up of members representing industry associations, packing companies, instrument manufacturers, and academia and government agencies.

PURPOSE AND SCOPE

This document provides the specifications and requirements for the design, manufacture, implementation, operation, and verification of instrument systems. The scope of this document encompasses instrument evaluation systems used in assessing quality and yield factors and grades of livestock carcasses and carcass products. An establishment must have written procedures and verifications that ensure accurate and precise determinations are made by properly calibrated and verified instruments that have been approved for carcass factor and grade assessment.

USDA


Process Overview – Instrument Grading
Harvest
In-shipment
Lot and Source Identifiers Assigned
Harvest Process
Lot Carcass ID
Carcass Weight
Plant/Corporate Server Level
Corporate Server Environment
Plant Server
Instrument Grading System
Manufacturer
Display W Image, Grade & Factors
Approved Equation (Image/Cx Metrics)
Image Processing
Image Acquisition
Quality & Yield Assessment
Disassembly
Chilling And Sorting
Grade & Yield
USDA
Carcass Presentation
Carcass Preparation

USDA Lamb Carcass Grading
Instrument and Establishment Employee Augmented Grading (IEEAG) Program

1 Purpose

This document provides the requirements for Establishments that wish to utilize the Instrument and Establishment Employee Augmented Grading (IEEAG) Program for applying the United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses.

2 Scope

This document sets forth the requirements for monitoring plant personnel applying the USDA Grade Standards utilizing an approved instrument. Applicants desiring to participate in this program must submit a documented program to the Quality Assessment Division (QAD) that addresses all aspects and requirements set forth in this document to include documentation and procedures for corrective actions. Grading activities utilizing the grading instrument by the certified plant employee will be in accordance with the USDA Grade Standards. Application of the USDA Grade Standards will be monitored and verified by a QAD agent utilizing this document and the Applicant's approved program.

3 References

USDA QAD Instrument Assessment Systems for Livestock Carcasses and Carcass Products

GVD 501 Lamb, Yearling Mutton, and Mutton Grading Methods And Procedures

4 Applicant Program Procedural Manual

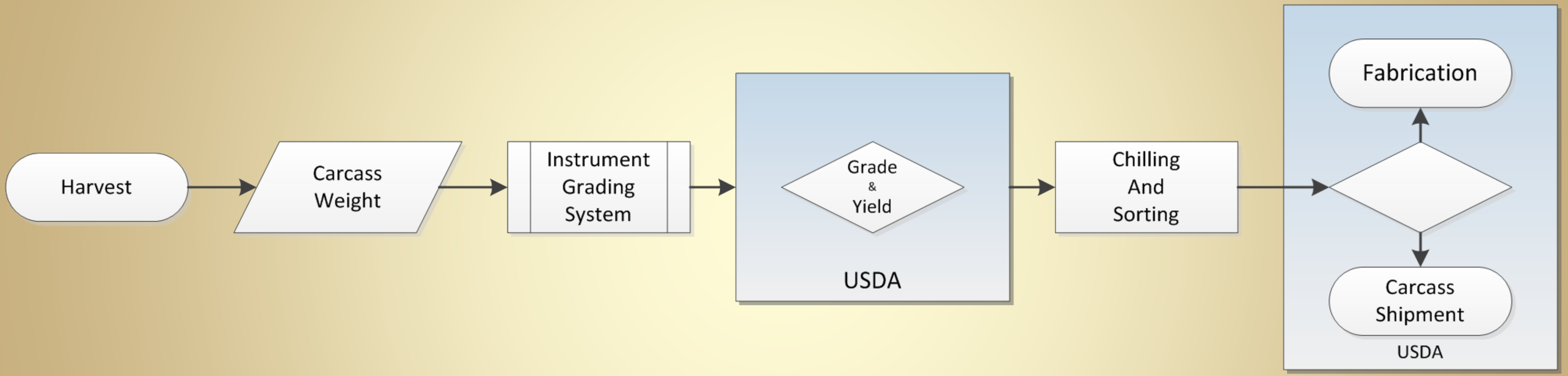
4.1 Procedural Manual

The applicant must establish and maintain a manual of procedures that include at a minimum:

a. A brief description of the establishment, including the names of the persons who

Employee Augmented Grading

- Operational Requirements
  - Performance Based
  - Quality management approach
    - Management structure
    - Documented results
    - Actions traceable
- USDA Graders Assume a Dual Role
  - Grading role
    - Carcasses not imaged or carcasses with mitigating factors are graded conventionally
  - Auditing Role
    - Review instrument operators
    - Ensure grade integrity
    - Statistically verified


Harvest
Carcass Weight
Instrument Grading System
Grade & Yield
USDA
Chilling And Sorting
Fabrication
Carcass Shipment
USDA

Eliminate Carcass Grading Ink

or

Eliminate Carcass Grading Ink

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1010016120162001

3 081.6
37.01 KG
Choice
YG X.XX

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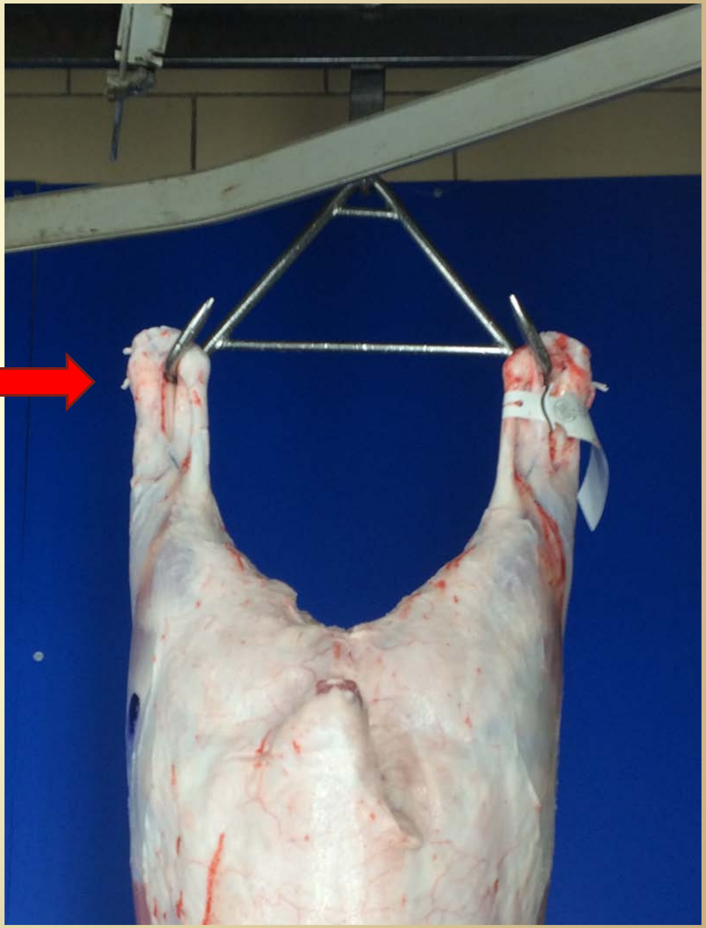

Objective 1.
Adopt Value-based Pricing for Slaughter Lambs

- The lamb industry uses value-based pricing in:
  - Aust
  - New
  - Euro
- Lamb i
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- The mo
  consist
  - Set a
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  - Prov

Objective 1. (Continued)
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 / percent lean
- 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 adapt the genetics to meet the future requirements.

Instrument Output

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

Item	Value	Item	Value
Cx ID	43406	Breast	4.8
HCW	64.8	Rack	7.3
Conf Score	350	Shldr, SqCut	14.8
Final Grade	325	Legs	21.9
Class	Choice	Loins	5.3
YG	2.76	OCC Yield	68.1