Project Summary

Beef Carcass Fabrication Strategies in Mexico and South/Central America

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Study Completed
May 2008

Funded by The Beef Checkoff

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Background

Muscle profiling has had a significant effect on beef carcass fabrication procedures in the U.S. However, U.S. tradition still dictates the most common strategies to cut beef into primal and subprimal cuts. Studying international beef fabrication strategies in Mexico and South/Central America may help identify innovative fabrication strategies for implementation in the U.S.

The objectives for this project were to:

1. Develop an advisory group to guide research on innovative carcass fabrication strategies;
2. Conduct a literature review of beef carcass fabrication procedures in Mexico and South/Central America.

Methodology

Key industry personnel with an interest in innovative fabrication strategies were identified by networking and personal contacts. A number of people were suggested and invited to participate in a brainstorming session at the University of Nebraska.

The objectives of the meeting were to:

1. Define the scope of the project.
2. Identify the merits and potential benefits.
3. Uncover challenges and difficulties - identify impediments to implementation.
4. Identify countries to study.
5. Gauge interest in considering alternative fabrication strategies.
6. Build partnerships and identify resources (including internet sites).
7. Plan how to best communicate the results of the project.

A web search was conducted to identify cutting strategies in Central and South American countries. Individuals with personal experience were contacted, as were international contacts.

Findings

Group discussion identified a number of potential strategies and applications that could be considered.

1. Muscles are arranged in layers and consideration should be given to removing them in layers.
2. Where possible, muscles should be removed intact rather than in pieces.
3. Muscles vary in tenderness from end to end and tenderness maps should be used to determine the best place to cut muscles when necessary or desirable.
4. Technologies exist to improve efficiency, including high-voltage electrical stimulation.
5. In several cases, pre-boning and cutting seams between muscles prior to chilling can be beneficial.

Several potential impediments were identified and included:

1. Grading requires cutting the *longissimus* between the 12th/13th rib.
2. Removing muscles hot removes the ability to use a grade designation.
3. Some muscles removed on the harvest floor may be considered offal items by USDA.

4. Must be careful not to interfere with food safety interventions; likely any hot cutting will have to occur after the interventions are applied.
5. Nomenclature can be a problem; muscles considered part of a particular subprimal might lose that primal designation if removed hot or all in one piece.
6. New cuts and pre-rigor cuts may present packaging challenges.
7. Labor costs and ergonomics will have to be considered.
8. Changes in palatability and shape should be monitored.
9. Renovation of facilities can be cost prohibitive.

Potential advantages to this new approach to fabrication include:

1. Ergonomic improvement;
2. More efficient chilling;
3. Increased efficiency in handling fat;
4. Better energy efficiency;
5. Increased opportunities to end users;
6. Potential for increased yield;
7. Greater value for certain muscles;
8. More options during fabrication; and
9. Greater accuracy with break points with a knife versus a clipper.

Cutting strategies in Brazil, Argentina, Uruguay and Costa Rica were discussed. Although there are some similarities, each country has unique aspects of potential merit to the U.S. industry. There was a consensus that these were the primary countries to study during the early stages of this project. Countries in the European Union (E.U.) also do some innovative cutting.

The USDA has been involved with the E.U. Committee on Economics to prepare voluntary standards that are often used as purchasing specifications in contracts for international meat trade. They were designed with the intent that those trading with E.U. countries would be required to use them. Many countries have used the standards as a guide when preparing their own system of specifications.

The general scope of the project was discussed and contained these features:

1. Evaluate fabrication methods of Central and South American countries.
2. Explore pre-fabrication of muscles on carcasses coming from the harvest floor.
3. Follow the fabrication strategies described earlier.
4. Identify and communicate easy strategies to implement here in the U.S. (define best practices).
5. Incorporate muscle tenderness mapping where appropriate.
6. Record and report yields and dimensions.
7. Investigate rules of nomenclature that may need to be addressed.
8. Evaluate the appropriate place to make muscle breaks.
9. Compare current and future potential uses of muscles and trim.
10. Identify and test strategies to counteract potential negative consequences of pre-rigor carcass cutting and pre-fabrication.
11. Estimate the economic benefits of innovative fabrication strategies.
12. Consider fabrication processes for kosher beef.

The consensus communication plan involved:

1. Collecting internet sources;
2. Holding a rollout conference;
3. Quickly reporting changes that can be made easily;
4. An addendum to the checkoff-funded Muscle Profiling web site;
5. A web site list of internet links; and
6. An executive summary/industry guide.

Key web addresses:

http://www.unece.org/trade/agr/standard/meat/meat_e.htm
http://www.finexcor.com.ar/newxp/senasa.zip
http://www.pasqualinonet.com/ar/cortes_exportacion.htm
http://www.inspection.gc.ca/english/fssa/labeti/mcmancv/bbtoce.shtml
http://www.ipcva.com.ar/eng/index1.php
http://www.abiec.com.br/eng%5fversion/cortes.asp
http://www.inac.gub.uy
http://www.cbef.com

Implications

There was great enthusiasm for the initiative and many ideas were offered. Key concepts included a methodic evaluation of cutting methods in Central and South American countries, pre-fabrication of muscles from the harvest floor, identification of some basic fabrication strategies (like not cutting muscles into pieces), construction of tenderness maps by muscle, addressing nomenclature issues and an economic estimate of the benefits of altered fabrication methods.

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