

Research • Education • Innovation



**Annual Update
January 2012**





Wild Mushroom Beef Stew

Total Recipe Time: High Setting: 6-1/2 hours; Low Setting: 9-1/2 hours

2 pounds beef for stew, cut into 1-inch pieces
1/4 cup all-purpose flour
1 teaspoon salt
1/2 teaspoon pepper
1/2 teaspoon dried thyme leaves, crushed
3/4 cup ready-to-serve beef broth
1/4 cup tomato paste
1/4 cup dry red wine
2 cloves garlic, minced
1 pound red-skinned potatoes (1-1/2-inch diameter), cut into quarters
8 ounces assorted mushrooms, such as shiitake, cremini and oyster, cut into quarters
1 cup baby carrots
Fresh parsley (optional)

1. Combine flour, salt, pepper and thyme in small bowl. Place beef in 4-1/2 to 5-1/2-quart slow cooker. Sprinkle with flour mixture; toss to coat.
2. Combine broth, tomato paste, wine and garlic in small bowl; mix well. Add to beef. Add potatoes, mushrooms and carrots; mix well.
3. Cover and cook on HIGH 5 to 6 hours, or on LOW 8 to 9 hours, or until beef and vegetables are tender. (No stirring is necessary during cooking.) Stir well before serving. Garnish with parsley, if desired.

Makes 6 servings

Nutrition information per serving: 306 calories; 9 g fat (3 g saturated fat; 4 g monounsaturated fat); 73 mg cholesterol; 644 mg sodium; 25 g carbohydrate; 3.1 g fiber; 29 g protein; 7.3 mg niacin; 0.7 mg vitamin B6; 2.3 mcg vitamin B12; 4.3 mg iron; 6.6 mg zinc.

This recipe is an excellent source of protein, niacin, vitamin B6, vitamin B12, iron and zinc; and a good source of fiber.

To find this and other delicious beef recipes, go to www.BeefItsWhatsForDinner.com.

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Remarks from Industry Leaders

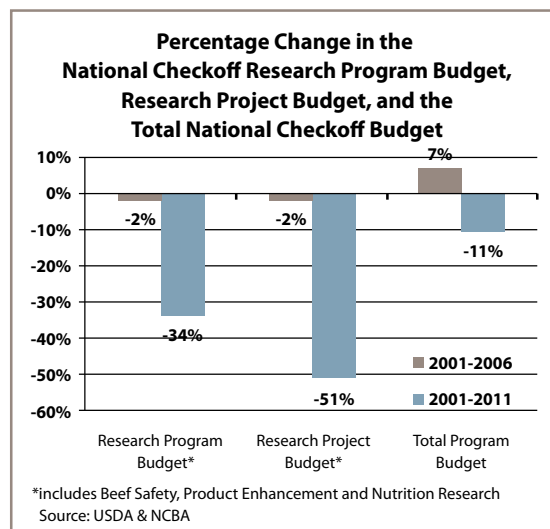
The beef industry has successfully met the challenges of recent decades due in part to the industry's investment in research, education and innovation. To a great extent, the foresight of previous cattle industry generations who improved know-how and proficiency sustains the current generation of cattle producers. Two separate but equally important societal challenges now threaten the beef industry and must be met in order to offer sustainable opportunities to the next generation. In today's food and nutrition environment, the ability of the industry to successfully tell the beef story to the media, consumer influencers, and an increasingly disparate public is critical. Too many groups characterize beef as a chemically embellished, inefficiently produced protein that damages the environment and leads to chronic health issues. It is essential that the industry tell the real story in a united and meaningful way to successfully counter these false accusations. The industry, through the beef checkoff, supports research and communication programs to address this challenge.

However, this beef story cannot be told unless the industry continues to offer the diverse global consumer beef products that meet the needs of today's lifestyle. The challenge remains, as it was for previous generations, to continue to improve the wholesome, nutritious, convenient, and great-tasting product that makes beef America's favorite protein. Making BEEF its BEST allows the industry to maintain its integrity and stand tall when telling the beef story. This is the fundamental mission of the Research, Education and Innovation (REI) department at NCBA.

As a contractor to the beef checkoff, REI programs manage the safety, human nutrition, and product enhancement research that provides the tools, technologies and knowledge to all sectors of the supply chain, thereby facilitating improvements and increased understanding of beef products offered to the public. Also funded by the beef checkoff, the beef innovations and culinary teams develop practical applications for the carcass that expand opportunities for new beef products and new consumer uses for beef. The checkoff-funded Beef Quality Assurance program provides cattle producers with the pre-harvest knowledge to help supply the best possible beef animal to production sectors further down the beef chain. And, NCBA's producer education program works through partnerships to support educational initiatives and provide tools to enhance producer productivity and profitability. All of these programs work to make BEEF its BEST and are essential to make the beef industry viable for the next generation.

In the end, all development, education and communications programs are founded on research, which is vital if the industry is to have the science-based knowledge to fuel production innovation in all sectors of the beef chain. Marketing and communication programs must have a story worth telling. In today's social climate, to answer challenges from the health community and the consumer's need for convenience, marketing and communications messages must be data-driven, based on irrefutable research.

Over the years, checkoff funding has supported the research programs that provide the knowledge and technologies to enable the innovation and communications programs to help maintain beef's position in the diet. However, the current funding environment limits the capacity of REI-managed research programs, which in turn, threatens to impede the industry's ability to meet current societal challenges. Since 2001, the funding for research projects has decreased by 51%.



During 2011, REI produced a checkoff-funded report summarizing the last ten years of checkoff-funded research. The summary describes how targeted research has led to the industry's unprecedented advances in beef safety, product enhancement and our understanding of beef nutrition. Please see page 5 for more information on the *Summary of Beef Checkoff-Funded Research: 2001-2011*.

This year's REI Annual Update demonstrates how checkoff and non-checkoff programs managed by REI work to make BEEF its BEST, thereby providing checkoff-funded marketing and communications programs a credible beef story to tell. We thank producer-volunteer leadership, state beef councils, researchers, industry partners and staff for their continued commitment to our programs.

Yours truly,


J.O. Reagan, Ph.D.
Senior Vice President, Research, Education & Innovation
National Cattlemen's Beef Association


Craig Uden
Chairman, Joint Research, Education & Innovation Group

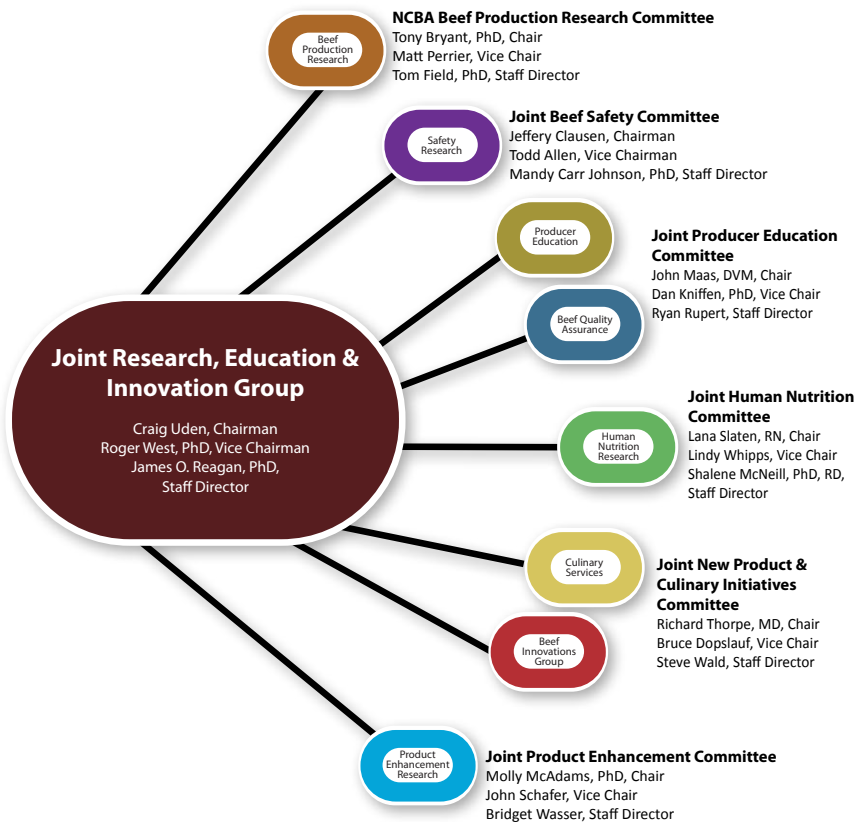
Committee Structure

The Research, Education and Innovation department (REI) is organized to align with the joint committees that make funding recommendations to the Beef Promotion and Operating Committee (BPOC) each year. The REI committees implement projects on differing funding cycles. For example, because human clinical trials may take up to three years, Human Nutrition Research is funded on a 36-month cycle. In contrast, New Product and Culinary Initiatives and Beef Quality Assurance (BQA) are funded on 12-month cycles.

Research projects undergo a rigorous screening process involving a nine-step planning and implementation program beginning October 1. The Beef Industry Long Range Plan provides direction while expert panels in all research areas meet to assess research priorities and plans. Producer committees assess recommendations and state beef councils review plans and provide input. At the end of this process, Authorization Requests are presented to the joint committees at Summer Conference. The final Authorization Requests are approved by the BPOC at its September meeting.

Once Authorization Requests are approved, Requests for Proposals (RFPs) may be sent to a broad range of research scientists to solicit proposals which then go through another round of reviews in regard to potential impact. On average, less than twenty percent of the dollars requested in funding proposals is awarded each year. If specific research has been recommended by committees, targeted research may be solicited in lieu of RFPs.

Results from some recently completed projects initiated by the different joint committees are discussed in the Program Updates section of this report. All of the work was completed during FY2011 though the projects may have spanned up to a three-year period.



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10-Year Summary of Beef Checkoff Research

In 2011, The Beef Checkoff commissioned a report titled *Summary of Beef Checkoff-Funded Research: 2001 – 2011*, authored by third-party experts, Exponent, Inc., a multidisciplinary team of scientists who perform in-depth analysis that supports day-to-day and strategic decision-making. Research plays a foundational role in the beef checkoff mission to expand the domestic and international markets for beef. The purpose of this report is to guide ongoing research decisions that will increase the evidence needed to maintain beef’s position as a safe, nutritious and delicious centerpiece in the diet.

The *Summary* serves as a reference by providing the results of recent research initiatives in the areas of beef safety, product enhancement, and human nutrition. The report succinctly describes how research projects in each area are identified based on their potential to improve the quality, safety, or our understanding of the healthfulness of beef. Project results are disseminated to relevant audiences to ensure resulting knowledge and technologies are used to add value to the industry.

In his conclusion, the author states “...checkoff-funded research programs have a proven track record of anticipating the most pressing challenges facing the industry, creating strategies to counter potential setbacks, executing the research to provide scientifically defensible results, and sharing those results across the country.”

The report is available online at www.beefresearch.org. For a hard copy of the report, contact Wendy Maddock at wmaddock@beef.org or 303-850-3358.



Consumer Beef Index Update

The checkoff-funded Consumer Beef Index is a study that assesses consumer attitudes and behaviors about beef relative to other meat proteins. This study has been conducted biannually since 2007. Overall, impressions of beef are improving steadily, with important improvements in attitudes about beef nutrition, taste and safety. The chart below shows the ranking of what matters to

consumers and how beef is performing on those metrics (averaged across two phases each year). The elements that matter to consumers about beef have not changed for several years with ‘great tasting’, ‘a good value for the money’ and ‘extremely safe to eat’ being the most important to consumers. The good news is that beef performance against these key elements continues to improve over time. The slight dip in the performance of beef being a good value for money could be a reflection of current economic conditions.

CBI Beef Performance Wave over Wave			Top 2 Box			
			Performance			
Ranked by 2011 Importance to Consumers	Importance	Average	Average	Average	Average	Average
	2011	2007	2008	2009	2010	2011
Is great tasting	87%	84%	85%	86%	88%	88%
Is a good value for the money	83%	57%	62%	65%	68%	66%
Is extremely safe to eat	79%	54%	54%	59%	59%	65%
Has an ideal balance of good taste and good nutrition	76%	61%	68%	71%	72%	74%
Is a food you feel good about	75%	63%	68%	68%	70%	72%
Is a food that delivers good results consistently	73%	NA	73%	72%	73%	76%

The following summaries from each REI program area outline the role each plays in *Uncovering the Knowledge and Creating the Tools to Make Beef Its Best*

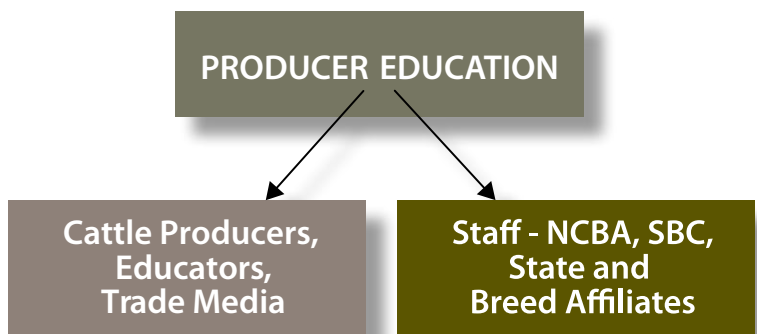
PRODUCER EDUCATION

Enhancing Productivity and Profitability for Producers

The U.S. beef industry accounted for \$44 billion in farm gate receipts in 2010, exported \$2.5 billion worth of beef, and has for the past three decades been able to increase total beef production despite declining cow inventory numbers. These achievements were attained in large part because of the investment of previous generations in research and education. Creating profitable and sustainable beef businesses across the production chain continue to be challenging as producers deal with historic highs in both cattle prices and input costs.

The overall business environment for the beef industry is complicated by international and domestic economic trends, a rising tide of regulation, and a shrinking national cattle inventory. Demand enhancement rests on the ability of the industry to effectively communicate its story with media, consumer influencers, and a very diverse consumer audience. In light of these pressures, access to cutting-edge information, cost effective tools to enhance profitability, and unbiased data coupled with accurate interpretation and analysis has never been more critical for industry participants.

The Producer Education staff at NCBA serves two audiences:



- Cattle producers are served directly by NCBA programming via the delivery of Cattlemen's College - the premier annual beef cattle educational event offered at the national level, *Cattlemen to Cattlemen* television on RFD-TV, the Stockmanship and Stewardship program, Redbooks, the Cow-calf Desk Record and the Natural Resources Desk Record.

- Staff at NCBA, state and breed affiliates, and state beef councils are served by the Producer Education team through the provision of technical information, industry demographics and management system knowledge, document review, delivery of seminars, workshops, and presentations to a variety of audiences, and providing input into communications designed to impact consumers and consumer influencers.

The Producer Education staff mission includes the following initiatives:



Internal Technical Support

Producer Education staff has provided technical support to checkoff-funded projects including Cattlemen's Stewardship Review, Cow Chow, Beef University, Masters of Beef Advocacy, webinars with Sodexo chefs, as well as research and issues management related to food safety, human nutrition, antibiotics, and cattle care and handling. Producer Education staff has worked cooperatively in support of the Chief Veterinarian at NCBA, *Cattlemen to Cattlemen* programming, educational coordination for the NCBA Trade Show demonstration arena, writing for the *National Cattlemen*, and

educational programming for the annual convention and trade show. Staff has also delivered Beef 101 presentations to congressional and agency staff, and facilitated the efforts of the Beef Production Research committee to develop efforts to assure a healthy research and development infrastructure for the beef industry.

Partnerships

Pfizer Animal Health and NCBA have a long-standing partnership in place to deliver Cattlemen's College educational events at the state and national level. Cattlemen's College delivers cutting-edge knowledge and interaction with world-renowned scientists, educators and innovators to enhance the productivity and profitability of U.S. beef producers. The Pfizer Animal Health investment is leveraged to empower state affiliates to provide valuable educational services at the state level. A new state Cattlemen's College support manual was developed and distributed to assist state event coordinators. A supporting partner in Cattlemen's College is Certified Angus Beef. Through a partnership with the Beef Reproduction Task Force, the Cattlemen's College curriculum in applied reproductive strategies has been developed and implemented.

Producer Education staff serves on the Board of Directors of the Beef Improvement Federation, has an advisory role with a number of beef production-related research projects, and is engaged in communicating with leading beef cattle academic programs across the United States.

The Stockmanship and Stewardship tour has delivered high-quality cattle handling workshops across the nation with the partnership of the Beef Checkoff, Livestock Marketing Association and the following sponsors:

- Land O' Lakes Purina Feed
- Merial
- Midcontinent Supplements
- Miraco Livestock Water Systems
- Priefert Ranch Equipment
- Tru-Test

Educational Tools

The Redbook is a leading calving and herd record distributed to nearly 80,000 cattle producers each year. The Redbook has become the "can't live without it" offering from NCBA. The Cow-calf Desk Record and the Natural Resources Desk Record are two other primary products offered by the Producer Education program to support cattle producers as they seek cost-effective recordkeeping systems to enhance the overall management of both cattle and the natural resources under their care. A third party review and evaluation is currently underway to provide meaningful feedback that can be incorporated to enhance the relevance and usefulness of these products.

Future Challenges

The land-grant university, experiment station, extension service, and federal agricultural research program have well served America (and the world). However, the system is under duress. Research (basic, applied and translational) investment is slipping, commitment to the extension of knowledge to independent agricultural producers is waning, and in light of the current economic conditions, it is unrealistic to expect that the public sector will invest more dollars into the beef industry's research and development capacity. Left unchecked, these trends will coalesce to create instability in the foundation of the beef industry's long-term success.

BEEF QUALITY ASSURANCE

Providing producers the tools to make beef its best

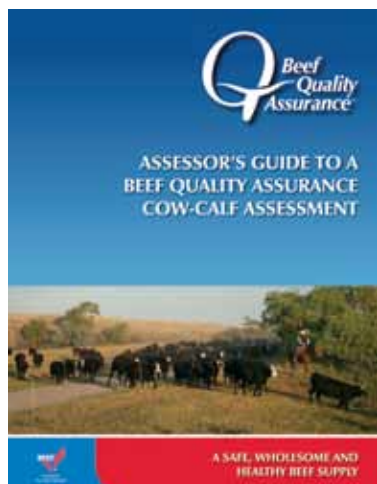
The Beef Quality Assurance (BQA) program is a national effort underpinned by state coordination to provide effective production protocols that contribute to consumer confidence and increased beef demand. A national set of BQA standards and a standardized approach to training both BQA trainers and producers provide the foundation for program success. Driven by the spirit of continuous improvement, BQA is designed to provide guidance to beef producers across all sectors of the pre-harvest chain.

BQA was developed from innovative industry efforts in the late 1970's and early 1980's to assure that beef

was free of violative chemical residues. Measures were successfully implemented, including educating stakeholders about proper use of pharmaceutical products and the honoring of withdrawal times. Program architects quickly adopted the same principles developed by Pillsbury for quality control in supplying food to the NASA space program. By 1985, a group of feedlots had been certified by USDA as Verified Production Control feedlots using Pillsbury's novel Hazard Analysis Critical Control Point program (HACCP) as their template. The level of residues in fed cattle has been reduced to virtually zero providing evidence of the value of industry-driven quality programs.

Certification and Assessments

Today, 35 states are utilizing the online BQA training program launched this past year and, by the end of FY2011, nearly 6,300 producers were online-certified. Development of training materials is a key function of the national BQA program and recent innovations include the *BQA Facilities Design Video*, the *Cow-Calf Assessment*, and an increased emphasis to upgrade the BQA website (www.bqa.org) to enhance producer and trainer access to BQA materials.



The completion of the *Assessor's Guide to a BQA Cow-Calf Assessment* brings to fruition a full production chain approach to enhancing the ability of cow-calf, stocker, and feeder operators to effectively benchmark their individual performance in implementing BQA and animal-handling protocols. These tools empower producers to record progress, motivate employees, and simultaneously improve enterprise profitability and industry image.

Expanded Outreach Program

Outreach to enhance producer awareness and adoption of BQA standards is a critical ongoing effort. BQA ads in FY2011 created 6,225,000 impressions, and a new cooperative advertising initiative with beef breed associations has provided additional penetration to key

audiences. In FY2011, based on feedback from industry leaders, the BQA program launched its initial efforts in the realm of social media. In less than 6 months, YouTube channel downloads of BQA videos reached 11,000 while BQA Facebook likes and Twitter followers both totaled more than 650. Demographics indicate that these media are very effective in reaching youth audiences and data show significant spikes in activity when students are targeted with messaging.

Leveraging producer success through the BQA Awards Program provides opportunities not only to share positive stories with producers but also to enhance the image of beef production with consumer and consumer influencer audiences as well. The awards program has been expanded to recognize excellence of beef and dairy producers, BQA educators, and marketers.

National Beef Quality Audit

Perhaps the most significant contribution of the BQA program to the beef industry is the National Beef Quality Audit which provides essential data on the beef carcass. First conducted in 1991, this comprehensive audit determined that the industry lost a total of nearly \$70.20 per head due to quality defects for the average fed animal marketed. The majority of the loss was due to excess fat, lack of marbling, and other carcass defects – including injection site blemishes. Since then, the reduction of injection site lesions has been among the major success stories of BQA. An extensive version of the Audit was conducted in 2011 with results due to be released in 2012. The findings will be used by the entire beef industry to measure progress and identify new areas of focus marked for improvement.

SAFETY RESEARCH

Uncovering the knowledge to make beef its safest

The safety research program was founded in the early 1990s when *E. coli* O157 first challenged the beef industry. The program's founding principals were based on facilitating research to fill knowledge gaps and conducting dissemination/outreach programs to share results with the industry and scientific community. In the last 20-plus years, the research tactic has contributed key knowledge to the beef safety community on pathogens, BSE, cattle management strategies impacting beef safety, interventions (both pre- and post-harvest), sanitary processing procedures, and the production of safe processed meats and non-intact beef products.

Leveraging Research Through Outreach Programs

Beyond the essential contributions the program makes with strategic research projects, the dissemination and outreach programs play a key role in advancing the safety of today's beef. One of the cornerstone initiatives in this area is the Beef Industry Food Safety Council. Formed in 1997, this council continues today as a





State Beef Council staff pictured with Jeff Clausen, chair of the Joint Beef Safety Research Committee at the 2011 Summit.

cross-sectional representation of the industry, focused on producing safe beef and committed to sharing information that will improve beef safety throughout the beef supply chain. In 2003, the first-ever Beef Industry Safety Summit was held in San Antonio, Texas, and has since become the premier annual event to address current safety challenges facing the industry. The Summit provides the opportunity for checkoff and industry-conducted research results to be shared with those colleagues around the country making beef safety decisions every day.

A number of state beef councils participate every year, taking this opportunity to increase awareness of safety challenges among producer leaders, industry partners and state staff. South Carolina Beef Council Executive Director, Roy Copelan sums up the important role played by beef councils, "As for myself and the other beef council staff members here – we can be the story tellers for beef safety research when we go home. We can drive this story downstream, back to the grassroots cattleman."



Elisabeth Hagen, MD, USDA-FSIS Under Secretary for Food Safety

In 2011, the beef safety program expanded these opportunities to smaller regional meeting settings to allow industry safety representatives unable to attend the Summit to receive updates on available resources, interact with industry experts, and troubleshoot their individual safety challenges with both colleagues and experts. With the success of the six meetings to date, additional sessions in different locations have been scheduled for 2012.

Safety Research Program as a Knowledge Source for Industry

Online resources continue to be an important avenue for sharing program results and reports. In response to a request by state beef councils, one-page topic summaries were made available this year for *E. coli*, *Salmonella*, Pre-harvest Interventions, and Meat Inspection. Each resource provides key information for media interviews or consumer questions. Additionally, a meeting summary on non-O157 Shiga toxin-producing *E. coli* (STEC) was posted along with the most complete literature review to date on pre-harvest interventions. To provide a more interactive account of the value of the checkoff's investment in the beef safety research program, three videos were also produced. Posted either on www.beefresearch.org or www.bifsc.org, the segments discuss how the industry benefits from the annual Safety Summit, the targeted checkoff-funded research projects, and other program-related activities.

Each project noted above, facilitated by the safety research program, was executed in accordance with the strategic direction provided by an industry advisory panel. Meeting on an annual basis, members of this advisory panel, which represents each sector of the supply chain, gather to provide guidance on future projects to ensure results can be utilized by the industry. With this guidance, the safety research program continues to provide significant contributions to the industry and the scientific communities which play a pivotal role in protecting the demand for beef.

A comment by 2011 keynote speaker Elisabeth Hagen, MD, USDA-FSIS Under Secretary for Food Safety, highlights the critical role of the Summit in mobilizing industry leaders throughout the beef chain.

When O157 was declared an adulterant in 1993, that was really important...but it was not until some years later, when the industry itself came together and came up with a plan, an aggressive plan, for managing the risk of E. coli O157 in beef that the contamination numbers and the illness numbers came down. The industry plays an absolutely critical role here. It's not just about the regulatory community.

DRIVING BE

Strategic Inputs

Producer-Led Committees

Checkoff Market Research

Nutrition Symposium

Beef Industry Food Safety Council

Beef Industry Long-Range Plan & Annual Planning Process

Industry Expert Panels

Priority Setting

REI Objectives Collaboratively Set for Each Program Area

REI Goals & Programs

RESEARCH, EDUCATION & INNOVATION

Producer Education

Beef Quality Assurance

Safety Research

Human Nutrition Research

Product Enhancement Research

Beef Innovations Group

Culinary Innovations

MAKING BEEF ITS BEST



EF DEMAND

**Significant
Recent
Deliverables**

**Marketing &
Communications
Goals & Programs**

**Increased
Beef
Demand**

**Cattlemen's
College**

**BQA
Online
Certification**

**Pathogen
Reduction
Technologies**

**BOLD
(Beef in
an Optimal
Lean Diet)**

**National
Beef
Tenderness
Survey**

**Applied
Beef
Cookery**

MARKETING & COMMUNICATIONS



Discovering the nutritional advantages of beef

For more than three decades now, beginning with the 1977 *Dietary Goals for the United States*, government-issued dietary guidance has emphasized the need for Americans to decrease their intake of total fat, saturated fat, and cholesterol. Because beef has historically been one of the top sources of total and saturated fat in the American diet, this guidance has often been translated to a recommendation to limit beef consumption. Despite emerging evidence supporting the healthful benefits and reduced fat content of today's beef, consumers consistently cite nutrition as their primary attitudinal barrier to eating more beef.

The beef checkoff Nutrition Research program is the only research initiative focused solely on establishing and communicating the beneficial role of beef in the diet and addressing nutrition misperceptions. Credible, science-based evidence plays an essential, fundamental role in the long-term protection of beef demand. Unlike the research conducted by many private industries, the ultimate goal of checkoff research is to publish results in peer-reviewed scientific journals, thus creating a public record of the results, accessible to those entities that issue nationwide dietary guidelines. This availability of positive research results regarding beef's nutritive value is essential in maintaining beef's position in the diet.

Nutrient Database Improvement

The USDA National Nutrient Database for Standard Reference (SR) is the authoritative source for nutrient data for nutrition labels, research, and diet assessment. The SR provides the nutrient profile for thousands of foods including over 500 beef cuts. Results from previous beef checkoff-funded research led to the deletion of nutrient data on obsolete beef cuts no longer available at retail and the initiation of a multi-year project to update the database making it representative of today's meat case. The Nutrient Database Initiative (NDI) was established to generate the most accurate beef nutrient composition data for publication in the SR.

Most recently, three universities (Texas Tech, Colorado State, and Texas A&M) have completed the nutrient analysis of Beef Rib and Plate Cuts. Colorado State University also completed the collection and nutrient analysis of the Beef Alternative Merchandising (BAM) cuts, a project co-funded by the beef checkoff and the South Dakota Beef Industry Council. All results were published in the annually updated release of the SR (SR 24) in September 2011.

As of March 1, 2012, depending on the fresh meat cut or processed product, either on-pack meat labels or point-of-purchase materials displaying nutrition information will be mandatory on products sold to consumers, proving the Nutrient Database Initiative to be a timely checkoff investment.

Protein and Muscle

The protein research pipeline continues to generate good news. A paper titled "The anabolic response to resistance exercise and a protein-rich meal is not diminished by age" was recently published in the *Journal of Nutrition, Health & Aging*. In this checkoff-funded project, researchers sought to determine whether older adults at greater risk of sarcopenia muscle loss were able to gain muscle mass from the combination of resistance exercise and a high-quality protein diet. The study concluded that aging does not diminish the building of muscle mass following a high-quality protein-rich meal and resistance exercise. (Source: Symons TB, et al. The anabolic response to resistance exercise and a protein-rich meal is not diminished by age. *Journal of Nutrition, Health & Aging*. 2011;15(5):376-81.)

Correcting Misperceptions of Lean Beef

"The evolution of lean beef: Identifying lean beef in today's U.S. marketplace" authored by NCBA staff, goes a long way to counter many of the misperceptions surrounding the role of lean beef in the diet and credits beef producers for their efforts to reduce the fat content in their product. Published in *Meat Science* in May of 2011, the authors explain how changes in cattle breeding and management coupled with extensive trimming of visible fat from retail cuts have resulted in the widespread availability of lean beef to U.S. consumers. Relative to the calories it contributes, the impact of beef on the nutritional quality of the American diet via its contribution of protein and certain key micronutrients is often under appreciated. This article documents the progressive reduction in the fat content of U.S. beef during the past 30 years, highlights ongoing efforts to update USDA's nutrient data for beef, and summarizes findings from randomized controlled trials of beef and plasma lipid outcomes. (Source: McNeill SH, et al. The evolution of lean beef: Identifying lean beef in today's U.S. marketplace. *Meat Science*. 2011. <http://dx.doi.org/10.1016/j.meatsci.2011.05.023>.)





Beef's Role in USDA's MyPlate

On June 2, 2011, the United States Department of Agriculture unveiled the new MyPlate icon to help consumers build a healthy diet in accordance with the *2010 Dietary Guidelines for Americans*. MyPlate offers a visual reminder to make healthy food choices

for a well-balanced meal. Lean beef fits well in the protein slice of the plate. A 3-ounce serving of lean beef provides half of the Daily Value for protein, as well as nine other

essential nutrients for approximately 150 calories. The MyPlate icon makes it easy for consumers to enjoy lean beef, while meeting the recommendation to fill half of their plate with fruits and vegetables.

The MyPlate recommendations offer tremendous opportunities for lean beef, which is hailed as America's favorite protein with more than 90 percent of Americans already enjoying the taste of beef. Recognized by both the *2010 Dietary Guidelines for Americans* report and the new MyPlate as a nutrient-dense food, lean beef can help Americans meet dietary recommendations. Since 65 percent of all beef muscle cuts sold at retail are lean, many consumers are already choosing lean cuts for themselves and their families.

PRODUCT ENHANCEMENT RESEARCH

Discovering the technology that makes beef its best

The overall goal of Product Enhancement research is to improve beef quality, consistency, value and demand. When asked what matters most when choosing a main dish for consumption, consumers most often cite "great tasting." Like no other program, Product Enhancement directly responds to this number-one factor influencing consumer food choices.

National Beef Tenderness Survey

An important component of the effort to improve beef quality is benchmarking and tracking those attributes of beef that contribute to overall quality. Beef palatability is determined by tenderness, juiciness, and flavor, with tenderness being a critically important economic and quality factor, since consumers may be willing to pay a premium for guaranteed-tender meat products.

With funding from the beef checkoff, the industry has been tracking beef tenderness for 20 years with the first benchmarking survey conducted in 1990 by Texas A&M University using Warner-Bratzler shear (WBS) force and sensory panels. Results of Surveys in 1999 and 2005/2006 showed a 20 percent and 18 percent improvement in beef tenderness, respectively.

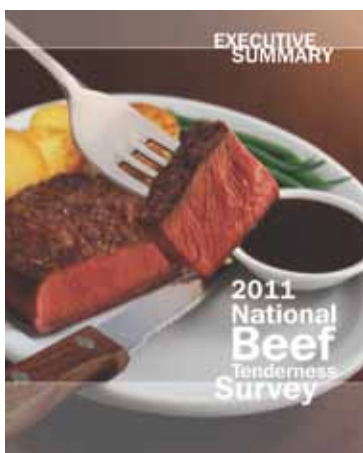
In 2010, the beef checkoff commissioned the fourth in the series of National Beef Tenderness Surveys to quantify the current status of tenderness compared to previous surveys. Researchers at eight universities collaborated to

complete the survey. Overall, steaks evaluated in the 2010/2011 Survey were considered tender, confirming that tenderness improvements made over the last 20 years are still evident today. The WBS tenderness values in this survey are similar to those of the 2005/2006 Survey. However, aging was found to be less consistent in the 2010/2011 Survey. Average aging times were down and the aging-day range was significantly wider in 2010/2011. Additionally, the percentage of retail steaks aged less than 14 days, the industry-recommended minimum, was considerably higher in 2010/2011 versus 2005/2006. This highlights the need for more education on the benefits of beef aging. The least tender cuts continue to be from the round, suggesting the need for improved aging practices and increased consumer education focused on proper preparation and cooking of round cuts to enhance consumer satisfaction.

The Executive Summary of the 2010/2011 National Beef Tenderness Survey, available on the checkoff's research website, www.beefresearch.com, lists the Survey's significant findings and provides charts ranking both retail and foodservice cuts.

Research Project Focus

A major Product Enhancement program goal is to reduce beef quality variation so that consumers can enjoy a more consistent beef eating experience each time they choose beef. The program has focused its most recent research efforts in the three areas listed on page 14 as they have been identified as the highest priorities for funding support by the Joint Product Enhancement Committee as well as industry expert advisors to the program.



1. **Flavor** - Optimizing consumer preference for beef by achieving flavor consistency or repeatability.
2. **Aging** – Evaluating the impact of extended aging on beef quality characteristics like flavor, color and shelf-life.
3. **Premium Grinds** – Evaluating the impact of premium, non-traditional, or location-specific carcass grinding materials on grind flavor profile and other beef quality characteristics.

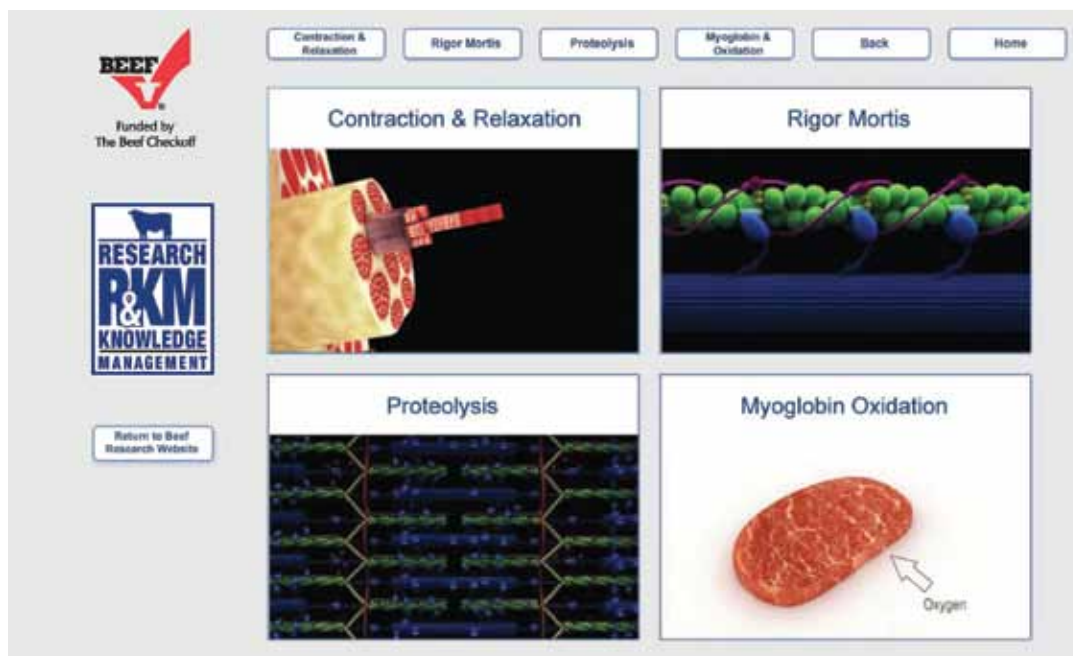
Research Dissemination

For all checkoff research programs, dissemination of the knowledge gained is essential in ensuring that beef maintains its status as the premier protein. The Muscle Profiling project, an initiative to profile the physical and chemical characteristics of beef muscles from the chuck and round, was first funded by the checkoff in the late 1990s and set in motion a series of interrelated projects, extending into the present, for the purpose of maximizing carcass value for America's cattle farmers and ranchers. At the same time ongoing technical work on the carcass continues, the Product Enhancement program is committing resources to extend the Muscle Profiling learnings to all relevant industry sectors, including packers, processors, retailers and foodservice operators.

Staff conducted numerous cutting demonstrations and presentations around the country throughout the year to share with industry participants the opportunities afforded by the Muscle Profiling project results. At the 2011 NAMP Meat Industry Management Conference,

staff highlighted new checkoff-funded cuts from the beef round. On behalf of the Ohio Beef Council, staff conducted a beef chuck cutting demonstration for SuperValu and their Ohio-area retail meat managers, who were able to take part in a training session demonstrating innovative fabrication methods for the beef shoulder clod and chuck roll and view new checkoff-funded beef cuts. The Ohio Beef Council supported the effort by manning a beef booth during the session and highlighting checkoff-funded materials available to support retail beef sales. Moreover, staff conducted a cutting demonstration at the American Culinary Federation's National Convention and shared new beef cuts with chefs on behalf of the Texas Beef Council. These are just a few examples of the Product Enhancement program's dissemination efforts, often in collaboration with state beef councils, to extend the value of the Muscle Profiling project.

The Product Enhancement program has created a new, web-based educational tool that animates the processes of muscle contraction and relaxation, rigor mortis, and proteolysis (aging) which are critical, natural processes in postmortem beef muscle that ultimately impact beef quality, specifically beef tenderness. A fourth animation on myoglobin oxidation demonstrates this natural process in beef muscle that impacts beef color and shelf life. These animations will help educate industry participants by illustrating the technical processes involved in beef quality development. The educational tool can be viewed online at www.beefresearch.org.



Creating innovative approaches to make beef its best

As demonstrated by the Muscle Profiling project initiated in the 1990s, ongoing product innovation is essential to make beef its best. The goal of the Beef Innovations Group is to help the industry develop new beef products and innovative processes that increase the value of beef and beef demand.



New Product Development

As the checkoff's innovation arm, the Beef Innovations Group fuels beef industry product-development activity, focused specifically on solving technical challenges to beef fabrication, carcass utilization, and new product development. The primary focus of the Beef Innovations Group is to inspire beef product innovation and facilitate success by providing information, insight, ideas, science and tools to industry influencers and stakeholders. One example of an important technical project completed this year is the Full Sirloin Tip project which explored the value-added potential of the intact Full Sirloin Tip subprimal. Results indicate that incremental value opportunities exist for creating a Full Sirloin Tip versus traditional Ball Tips and Knuckles. These include: (a) new steak applications for the Full Sirloin Tip Center and Full Sirloin Tip Side (b) sirloin nomenclature possible for all components (c) improved weight, shape and consistency in Ball Tips, and (d) less-slanted cut face on Knuckles to improve steak-cutting potential. To capitalize on these opportunities, processors would change traditional

fabrication procedures to harvest the Full Sirloin Tip in its entirety. The potential payback on this fabrication change could be significant.

Assessing Potential Value in Re-aligning Carcass Breaks

Traditional carcass breaks utilized by the industry at present are based on just that – tradition. Historically, breaks have delivered convenience versus quality and have not necessarily been based on sound science. Given the recent attention on Muscle Profiling and muscle mapping, an opportunity exists to reexamine the appropriate places to portion key muscles during carcass breaking. Compelling scientific evidence suggests that quality-based cutting points would group muscles into more uniform palatability groups, thereby increasing overall performance and value to producers, processors and consumers. The Beef Innovations Group is focused on this opportunity and will continue this work in the coming years.

Adding Convenience to Fresh Beef

An additional focus of the Beef Innovations Group is the Convenient Fresh Beef (CFB) initiative. Research shows consumers are challenged with the need to place food on the dinner table quickly, especially during weeknights. One hour before dinner, 70 percent of consumers have not decided what they will prepare. As a result, it's likely that the majority of grocery shoppers are looking for a quick and easy meal to prepare for their family. The CFB program is designed to meet the needs of these hurried consumers by providing meal solutions of 30 minutes or less utilizing fresh beef cuts already found in the meat case. The CFB products are unique in that they include one or more quick-prep solutions using a variety of innovative approaches including cook-in-the-microwave technology, seasoning packets, and quick-prep instructions for skillet steaks and small oven roasts. Also in development are "starter kits" with seasonings and simple preparation instructions for one of three different recipes using beef cubes or beef strips and staple ingredients that many consumers will have on hand. The Beef Innovations Group, supported by the Channel Marketing team and the Market Research team, is currently working with a retailer and manufacturer to produce an initial line of CFB products tentatively scheduled to be tested during the second quarter of 2012. For more information on this program, see the Market Research section of this Update.

CULINARY INNOVATIONS

Providing the culinary knowledge to make beef its best

More than any other REI program area, the work of the Culinary Innovations Team directly connects with the consumer. While working to showcase beef at its best, culinary innovations programs support all checkoff-funded marketing and communications efforts, either nationally or at the state beef council level.

During FY2011, the beef checkoff's Culinary Innovations Team completed several projects including applied beef cookery, recipe development and testing, recipe photography, product evaluations, off-site educational opportunities, meal function planning and assistance, fulfillment of photo and recipe requests by state beef councils, and the development of a new Culinary Innovation Center website. The broad scope of services offered by the Culinary Innovations Team is far-reaching and not only serves checkoff program areas and state beef councils, but also works to assist other entities needing culinary expertise and services.

Applied beef cookery (scientific development of cooking times) for Oven Roasting, and Skillet Steaks/Pan Broiling was a major focus in 2011. The project included testing timings for the cuts consumers typically use for selected preparation methods. Additionally, testing was conducted on the various sizes of cuts and degrees of doneness. For instance, a Top Loin Steak (NY Strip, KC Strip) had tests conducted at $\frac{3}{4}$ " and $1\frac{1}{2}$ ", both to medium rare and medium doneness. For both oven-roasting and skillet steaks, over 80 variations were evaluated which necessitated hundreds of tests to obtain accurate and reliable information. The beef checkoff had not conducted applied beef cookery

in more than 16 years. The results provide valuable information to use as the basis for all new recipes and to update older recipes with revised cooking times, as needed. This data is available on the www.BeefItsWhatsForDinner.com website for consumer access and was utilized by the food communications team in their *Confident Cooking with Beef* and *Great Take on Steak* brochures.

Providing outreach and education to industry partners, stakeholders, and influencers is an ongoing key activity of the Culinary Innovations Team. To educate key audiences about beef, the team participated in over 45 industry events and/or product showcasings. Furthermore, the new Culinary Innovation Center website, www.culinaryinnovationcenter.com was launched during the Summer Conference in Orlando this year. This revamped website contains more videos, recipes, and trend information to provide key audiences with applicable and timely knowledge for use in their business or operation.

The work of the Culinary Innovations Team helps beef maintain its prominent position in the minds of manufacturers, chefs, and other industry influencers and provides useful and relevant information to keep beef contemporary in the minds of consumers.



MARKET RESEARCH*

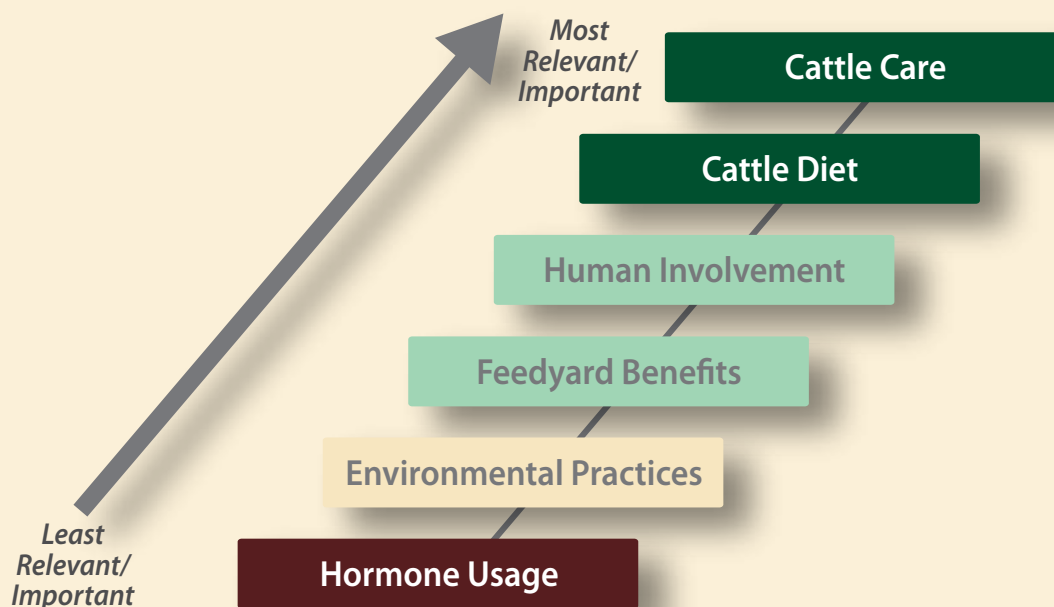
Assessing what consumers perceive as best

A key function of the checkoff's market research program is to optimize marketing and communications messages to position beef at its best. While REI supports industry efforts to make the best possible beef product, increased demand is dependent on communicating beef's health and enjoyment benefits to a diverse consumer population offered a myriad of protein options. Through market research, the beef story is refined and perfected to ensure checkoff marketing and communications messages resonate with consumers.

Beef Production Message Research

In support of the 2011 initiative of reconnecting consumers with beef production and the industry Long Range Plan strategic initiative to enhance consumer trust in our product and production practices, the Market Research team conducted research to develop messages to inform and reassure consumers about cattle feeding. A two-phase qualitative process explored consumer perceptions and developed messages. A final quantitative step tested messages with consumers.

Cattle Treatment, Cattle Diet and Human Involvement, are the Most Compelling Message Areas



A number of messages tested improved both consumer understanding of cattle production and their positive perception of beef. Messages about the care cattle receive in feedyards, what they are fed, and the human involvement in caring for feedyard cattle were the most persuasive. Messages relating to consumer benefits of fed cattle, environmental practices, and hormone usage were the least persuasive.

Convenient Fresh Beef

Research continued in 2011 on a line of Convenient Fresh Beef items, which will be “starter kits” for meals requiring less than 30 minutes for the consumer to prepare. These items will be available in the fresh meat case, which meets the consumer desire to “buy fresh.” In 2010, product development largely focused on steaks, roasts and ground beef as quickly prepared center-of-plate items. In 2011, the focus was expanded to look at beef packs which incorporated fresh dairy and produce items. Products were placed in consumers’ homes, with follow-up focus groups to determine how the products performed. A quick-prep London Broil, a sandwich kit, a beef fajita starter kit and a 3-in-1 skillet-strips kit all performed well with consumers and were often described as a new way to add beef to the family’s repertoire of meals. Currently, the Beef Innovations Group is presenting to grocers and manufacturers more than 20 prototype Convenient Fresh Beef products.

Brand Enhancement 2

A multi-phase market research project was undertaken to refine the brand platform for beef. The methodology included focus groups around the country and a 3,200-consumer online study on preferred beef messaging. The project objectives were:

- to better refine the target audience for all beef communications
- to understand how to reach the consumer with messages that would improve attitudes about beef
- to understand how to motivate consumers to eat beef more frequently

The results of the research demonstrated that moderate beef consumers (those who eat beef 1-2 times a week) with a desire for great-tasting, nutritional foods had the greatest potential as an audience to increase their consumption with an additional serving of beef per week. This research serves as a foundation for the message development, which will be tested and launched during 2012.

**Market Research is not housed in the Research, Education and Innovation Department but supports the REI programs by assessing areas of focus that interest consumers. It’s included in the REI Update because its goal is to unearth the knowledge needed to make beef its best as perceived by America’s beef eaters.*



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WEBSITES

Beef Quality Assurance
www.bqa.org

Beef Industry Food Safety Council
www.bifsc.org

Cattle Learning Center
www.cattlelearningcenter.org

Beef Innovations Group
www.beefinnovationsgroup.com

Beef Research and Knowledge Management
www.beefresearch.org

Culinary Innovation Center
www.culinaryinnovationcenter.com



A downloadable version of this publication is available online at www.beefresearch.org. Click on *Quarterly Updates & Annual Reports*.

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