



LEAN MATTERS

Chronicling Beef's Change from Gate to Plate
A Distinctive Public Private Collaboration





“The beef industry must begin a comprehensive effort to reduce fatness of retail beef cuts ... The implications of the study challenge the traditional production practices and marketing systems in the beef industry. However, a consumer-driven industry listens and re-directs its approaches from point of sale back through the production chain.”

TAMU Scientists and Beef Checkoff Lead Industry to Action, 1986 Reciprocal Meat Conference Proceedings, Volume 39, 1986. H.R. Cross, J.W. Savell, J.J. Francis



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EXECUTIVE SUMMARY

Accurate nutrient data is the cornerstone of all nutrition research. With an increasingly dynamic food supply and dwindling resources available for research, public-private partnerships and collaborations become critically important as a means to drive research forward. In creating a collaborative team with the United States Department of Agriculture (USDA) Nutrient Data Laboratory and several leading university researchers, the Beef Checkoff Program has been able to update nutrient data for one of America's favorite foods through the Nutrient Database Improvement initiative. Furthermore, in forming this distinctive public-private partnership aimed at providing contemporary nutrient data, cattle farmers and ranchers have helped to empower consumers with the information they need to make appropriate dietary choices to comply with public health recommendations.

Increasing the availability of leaner beef has been accomplished through a coordinated effort of the entire beef supply chain over the last four decades. America's cattle farmers and ranchers are raising leaner animals; packers and processors are closely trimming beef cuts; and supermarkets and restaurants, in turn, are offering lean beef to consumers. Today, beef delivers on every facet of consumers' demands for nutrition, flavor, safety and convenience.

Underlying these efforts is reliable and accurate beef nutrition information. The official source of food composition data is the United States Department of Agriculture's National Nutrient Database for Standard Reference (SR). The SR serves as the foundation for food and nutrition research, policy, and practice. With this broad impact, the task of keeping the data current and correct is of utmost importance.

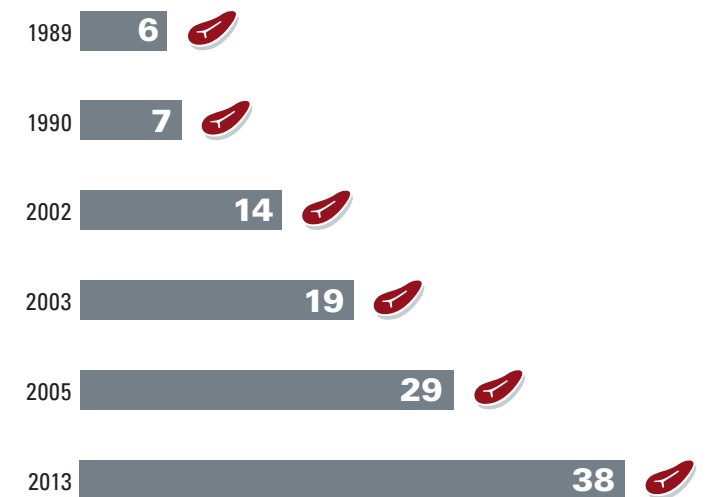
The Beef Checkoff Program and its Nutrient Database Improvement (NDI) initiative supply the SR with accurate and contemporary beef information. Recent updates made reflect the continued improvement in beef's lean profile,

as well as the greater availability of lean cuts. These efforts originated with consumers' demands for leaner beef and offer evidence that America's cattle community is committed to responding to public health guidance and listening to its consumers.

The latest SR released in September 2013 includes updated nutrient data for 10 cuts as well as new nutrient data from the loin and round, which is now combined with previous updates of the chuck, rib and plate, and the inclusion of new, innovative cuts such as the Beef Value Cuts and the Beef Alternative Merchandising Cuts.

Farmers, ranchers, packers, processors, retailers, researchers, nutrition professionals, and even consumers have worked together to help shape the evolution of today's lean beef.

Number of Beef Cuts Meeting USDA Guidelines for Lean



Cutting through the Stats for the Important Facts

- During the past four decades, changes in cattle breeding and management along with trimming practices of processors, retailers and foodservice operators resulted in an estimated 44% reduction in available total fat (from 13% to 7%) and a 29% reduction in saturated fat per capita (from 13% to 9%) contributed by beef, as calculated from food disappearance data.¹
- Today, more than 65% of beef cuts sold at retail meet government standards for lean, and 17 of the top 25 most popular cuts sold at retail are lean. Among those cuts are perennially popular and widely consumed beef products like Sirloin Steak and Tenderloin.²
- Since the 1980 Dietary Guidelines for Americans were issued, external fat on retail beef cuts has decreased by 81%.³
- The total fat content for a completely trimmed Sirloin Steak declined 34% from 1963 to 2010, and the saturated fat content declined 17% between 1990 and 2010.
- Results from gold standard, randomized controlled trials including the Beef in an Optimal Lean Diet (BOLD) study revealed that eating 3-5 ounces (cooked) lean beef per day can be part of a heart-healthy diet. For example, BOLD demonstrated such a diet can lower total and LDL-cholesterol levels by 10% and improve other risk factors for cardiovascular disease.
- Retail data shows that sales of 90%-100% lean ground beef increased by 25% between 2008 and 2013.²

INTRODUCTION

Today's Leaner Beef

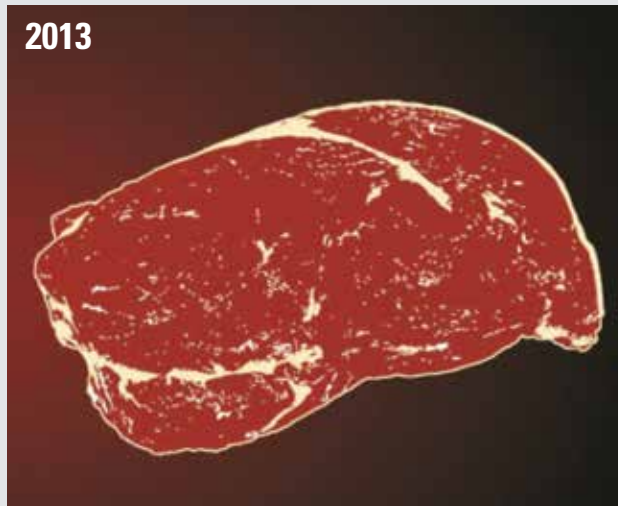
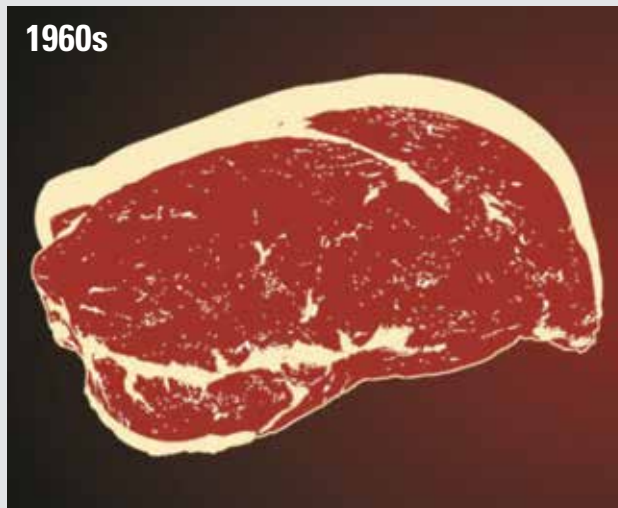
Americans love beef. With heightened interest in healthy, satisfying, and wholesome foods, lean beef options are in high demand. In addition, the Dietary Guidelines for Americans, 2010, and MyPlate encourage people to “go lean with protein” – further promoting the role of lean meat in a healthful diet.^{7,8} Today's leaner beef offers consumers the flavor they crave and the wholesome, nutritious food they seek all in one delicious package.

Supplying consumers with leaner beef that simultaneously delivers on nutrition, flavor, safety and convenience is the result of a successful collaboration spanning at least four decades. This “gate-to-plate” effort involves the entire beef supply chain, beginning with America's cattle farmers and ranchers raising leaner animals. Next, packers and processors closely trim beef cuts, and finally, supermarkets and restaurants offer a growing number of lean beef cuts to consumers. A critical component of this collaboration has been the ongoing effort to provide reliable and accurate nutrient data on the beef cuts available to consumers to help them make informed choices about what they eat.

America's farmers and ranchers recognized the need for accurate, up-to-date nutrient data on beef cuts offered in the marketplace and made a commitment to support efforts by the USDA to continually update nutrient data in its National Nutrient Database for Standard Reference (SR) which is publicly accessible at www.ars.usda.gov/SR. As part of its mission to support beef research, education and outreach, the National Beef Checkoff Program also funds the Nutrient Database Improvement (NDI) initiative, which is responsible for maintaining accurate and contemporary beef nutrient data. Ongoing nutrient composition updates reflect the continued improvement in beef's lean profile, as well as the greater availability of lean cuts. The most recent beef nutrient data released in 2013 included 10 updated, popular cuts from the loin and round and joins previous updates of the chuck, rib and plate as well as new, innovative cuts such as the Beef Value Cuts and the Beef Alternative Merchandising Cuts.

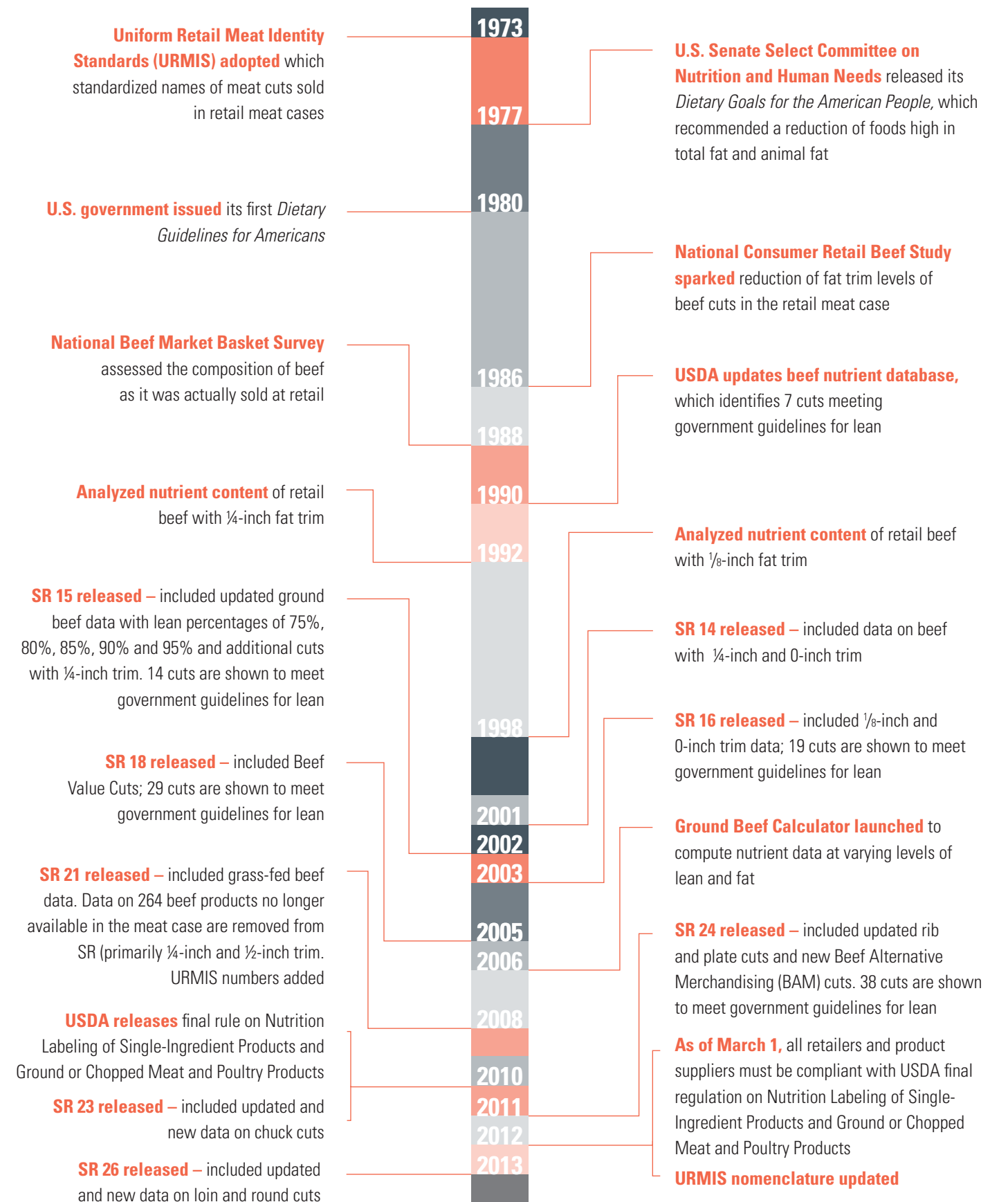
This publication highlights the important milestones in the evolution of beef nutrient data and the impact of the NDI initiative, a comprehensive research endeavor, in partnership with the USDA, to provide gold-standard, up-to-date beef nutrient composition data on popular cuts of beef for the world to access. NDI represents a successful public-private partnership among America's cattle community, nutrition experts, researchers and government nutrition authorities—with benefits directly impacting consumers. Accurate and up-to-date nutrition information on beef cuts provides consumers with the facts they need for making informed decisions about including and enjoying beef in a healthful diet.

Sirloin Then and Now



A photo comparison of current beef cuts to those of the past reveal the significant change in the leanness of beef cuts over the past forty years; in the same way, the updated nutrient data similarly reflect this change.

CHRONICLING CHANGE TIMELINE



THE ROLE OF BEEF NUTRITION DATA

Awareness of the role of nutrition in health has grown exponentially over the last century. A critical factor in nutrition research and discovery is knowledge and understanding of the composition of our food supply. Today, nutrition research, policy, and practice are anchored by accurate and up-to-date nutrient data. For example, the landmark BOLD (Beef in an Optimal Lean Diet) study, which relied on contemporary nutrient data for lean beef cuts, revealed that 3-5 ounces of cooked lean beef can be included each day as part of a heart-healthy diet that is both low in saturated fat and cholesterol and delicious. The results of the BOLD clinical trial are empowering as they suggest that inclusion of favorite foods such as beef can simultaneously help improve adherence to dietary guidance and improve major risk factors for cardiovascular disease.

Interest in examining and compiling food composition data dates back to 1896 with the publication of the first USDA bulletin of nutrient data (water, protein, fat, carbohydrates, ash, and kilocalories) for 178 different food items. Data on various beef products including canned, corned and pickled, dried and fresh cuts of beef were a part of this first bulletin. In 1926, USDA published the Proximate Composition of Beef using an improved method of statistical analysis to update the nutrient data for beef. Fast forward to today, with nutrient data for more than 800 beef cuts currently published in the SR with items that range from beef baby food to beef top loin (strip) steak.

Nutrient Data Support Public Health Recommendations

The demand for food composition data has increased with changes in the American diet, food environment, and public health needs. Nutrient data in the current SR provide the foundation for almost every food composition database used in food policy, research, dietary practice, and nutrition monitoring—in the United States and in other countries. These data serve in the development of national nutrition policy, such as the *Dietary Guidelines for Americans*, and guides food product development, labeling and regulation. National food and nutrition monitoring, such as the National Health Examination and Nutrition Survey (NHANES), as well as scientific research on nutrition and health rely heavily on nutrient data in the SR. Food composition data are essential for the calculation of nutrient values of menus in schools, hospitals, long-term care facilities, and for food items in retail stores and restaurants. Health professionals rely on nutrient data to support nutrition messages and guidance used in diet counseling and communications.



The Rocky Mountain News, Denver Colo.
This 1982 cartoon exemplifies how important nutrition issues became to consumers.

“The partnership between the USDA and America’s beef producers to obtain up-to-date beef data for the Nutrient Database for Standard Reference is a collaborative model which has proven successful. By leveraging resources and scientific expertise, we have secured beef nutrient data that is current and comprehensive.”

— Janet Roseland, MS, RD, Nutritionist/Project Manager and Pamela Pehrsson, PhD, Research Leader (acting), USDA Agricultural Research Service, Nutrient Data Laboratory

Examples of how the beef nutrient data from the SR are used

- To review and update the Dietary Guidelines for Americans
- To provide data for beef nutrition labels and other on-package nutrient claims at the retail meat case
- To provide nutrition information for foodservice menus
- To support public and private nutrition education programs
- To develop menus for the National School Lunch Program
- To provide nutrition information on recipes
- To provide nutrition researchers a reference point for new studies and to compare nutrient composition of various diets and dietary patterns
- To provide the most current nutrient information to health and medical professionals who advise clients with nutrition solutions
- To provide a source of nutrient information for foods and products for use in articles and online reference services

How Data Becomes Part of the USDA SR

The USDA has been the gatekeeper for official nutrient data for more than 115 years. Today, it is managed and maintained by the Nutrient Data Laboratory (NDL) of the USDA Agricultural Research Service. The NDL also oversees annual database updates. The SR contains nutrient data for nearly 8,500 food items and up to 150 food components, such as energy, protein, vitamins, minerals, amino acids, and fatty acids.

Nutrient data must meet the highest level of research standards to be included in the SR. The USDA National Food and Nutrient Analysis Program (NFNAP) establishes study procedures for obtaining, processing, and disseminating data on food composition and nutrient content of foods commonly consumed in the United States. The cornerstones for this program reside with sampling and data quality. Sampling strategies are statistically based and provide for selection of products that represent the product mix present in the marketplace. For example, nationally-representative sampling of beef cuts includes the incorporation of such factors as quality grade, yield grade, marbling scores, gender, and genetics.



1 Ahuja, J.K., Moshfegh, A.J., Holden, J.M., & Harris, E. USDA Food and Nutrient Databases Provide the Infrastructure for Food and Nutrition Research, Policy and Practice. *J. Nutr.* 2013 Feb; 143(2): 241S-9S.

BEEF COMMUNITY TAKES ACTION

In the late 1980s, state and national organizations representing beef-related interests began efforts to fund coordinated research, promotion, and information programs. This resulted in a national beef checkoff, which was passed by a referendum of cattle farmers and ranchers in 1988. The Beef Checkoff Program collects \$1 per head on the sale of live domestic and imported cattle, in addition to a comparable assessment on imported beef and beef products. Among its many multi-faceted objectives, the beef checkoff prioritized the development of a scientific research platform to answer questions about nutrition, including providing accurate data on beef's nutrient composition. The beef checkoff continues to make this work possible today.

“The National Beef Market Basket Survey showed us that the beef in the marketplace was leaner than ever before. The data we acquired provided the impetus to update the USDA's nutrient database to accurately reflect what consumers were buying and what they were eating.”

— Jeff Savell, Ph.D., Principal Investigator and Regents Professor, Meat Science & E.M. Manny Rosenthal Chair in Animal Science, Texas A&M University

Research Forms the Foundation for Change

To assess the changing consumer marketplace, the cattle beef community united to fund and conduct the National Consumer Retail Beef Study (NCRBS) in 1986. Researchers from Texas Agricultural Experiment Station at Texas A&M University, with the cooperation of the USDA, addressed the issues of taste, palatability, fat trim, and internal fat level (marbling) with more than 1,000 consumers in four cities: San Francisco, Houston, Kansas City and Philadelphia.

The overall findings were clear: Dietary recommendations emerging from increased knowledge of the link between diet and health were driving demand for leaner cuts and increased trimming at the retail level. While there was room for quality grade differences in the meat case, consumers did not want excess fat on beef cuts. Marbling was, and still is, an important factor in achieving customer satisfaction. The results of this study helped to reaffirm the beef industry's commitment to listen to consumers and the industry responded by producing leaner beef.

At the time of the NCRBS, most beef cuts in the retail meat case had 1.3 cm (0.5 inches) of external fat. The study proved significant and the industry communicated the findings to retail leaders across the country. During 1986-87, both Kroger and Safeway retail stores implemented new fat trimming programs and other retailers quickly followed.

Then in 1988, a revolutionary research design was used – a “market basket” approach where researchers traveled to supermarkets across the United States to document which beef cuts were being offered to consumers and collected packages for nationally representative nutrition analysis. This National Beef Market Basket Survey, conducted by Texas A&M University for the National Beef Checkoff Program, set the course for future nutrient composition studies.



The cattle community's “War of Fat” has successfully reduced the amount of external trim on retail cuts.

As the Market Basket research continued and the results were disseminated, beef industry leaders contended that “waste” fat shouldn't be produced in the first place, only to be later trimmed at the processing level. The Value-Based Marketing Task Force was established in the late 1980s to target such inefficiency and initiated a new “War on Fat” campaign. Its primary mission was reduction of excess fat at the production level. Farm- and ranch-level improvements that started in the 1960s were enhanced. Practices that included searching out non-traditional breeds of cattle from around the world, advanced genetic selection tools, and better ways of feeding cattle were instrumental in producing a leaner beef carcass.

The 2005 National Beef Market Basket Survey monitored the impact of these improvements. This analysis, which included more than 10,000 samples, found overall fat thickness for the cuts in individual store packages was reduced to 0.24 cm (0.09 inches), marking an 81% decrease in external fat on retail cuts compared to cuts sold 26 years ago.

“This updated beef nutrient dataset showcases the variety of beef products in the marketplace and spotlights the increased availability of lean beef cuts.”

— Shalene McNeill, PhD, RD, Executive Director of Nutrition Research at National Cattlemen's Beef Association, a contractor to the beef checkoff, and director of the Nutrient Data Improvement project



2 Savell, J. W., Cross, H. R., Francis, J. J., Wise, J. W., Hale, D. S., Wilkes, D. L., and Smith, G. C. (1989). National consumer retail beef study: Interaction of trim level, price and grade on consumer acceptance of beef steaks and roasts. *Food Qual.* 12:251–274.
3 Cross, H. R., Savell, J. W., & Francis, J. J. (1986). National Consumer Retail Beef Study. 8–11 (June 1986). Proceedings 39th Annual Reciprocal Meat Conference (pp. 112–116). Champaign, Illinois: University of Illinois.

4 Value Based Marketing Task Force. (1990.) The War on Fat. National Cattlemen's Association, Engelwood, CO.
5 Field, T. G. (2007). Beef production and management decisions (5th ed.). Upper Saddle River, New Jersey, U.S.A: Pearson Prentice Hall.
6 Savell, J. W., Brooks, J. C., Delmore, R. J., Griffin, D. B., Gwartney, B. L., Hale, D. S., et al. (2005). Executive Summary 2005 National Beef Market Basket Survey. Available at: <http://www.beefresearch.org/CMDocs/BeefResearch/2005%20National%20Beef%20Market%20Basket%20Survey.pdf>. Accessed Aug. 1, 2013.

NUTRIENT DATABASE IMPROVEMENT INITIATIVE

As consumers are offered more beef options, such as new cuts and leaner trim levels, the NDI initiative has helped to ensure that the SR reflects these innovations. Beginning in 2007, the initiative has worked closely with USDA Nutrient Data Laboratory and three universities – Texas Tech, Colorado State and Texas A&M – to analyze beef cuts available in the marketplace and update beef nutrient data in the SR.

Rigorous Protocols + Multicenter Research Collaboration = Gold Standard Beef Nutrient Data

Beef cuts were analyzed systematically in three phases—beginning with cuts from the chuck, then rib and plate cuts, and finally loin and round cuts. The goal was to update nutrient data for cuts with 1/8-inch and 0-inch trim, which are now commonly available at retail, and provide data for new value-added and alternative merchandising cuts.

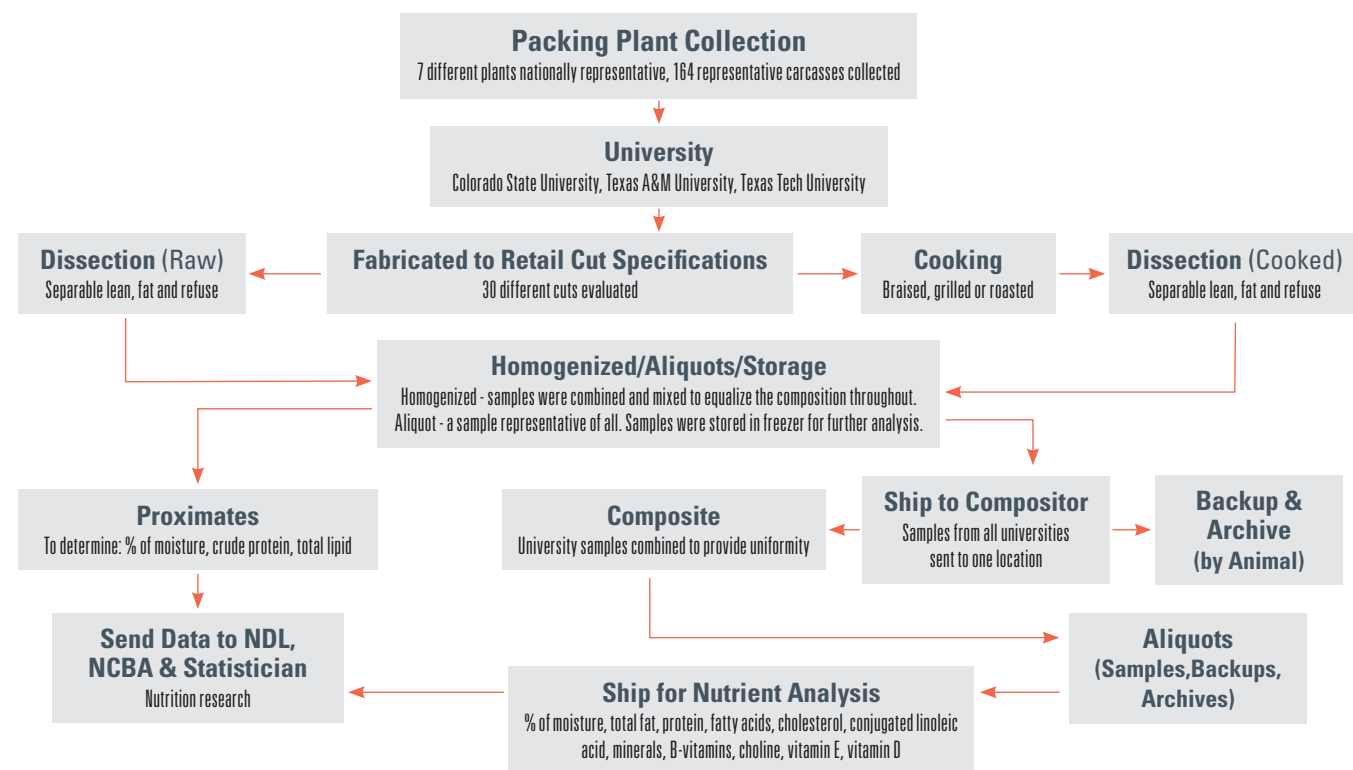
Nutrition scientists carefully designed the process for collecting and analyzing beef samples in collaboration with USDA Nutrient Data Lab statisticians to yield a sample of beef carcasses that were the best possible representation of all

beef cattle in the United States. The statistically appropriate number of beef products were selected to represent the proper proportions of yield grade, quality grade, breed, genetic type, and demographic location at commercial processing plants in the United States. Carcasses were identified and shipped to the collaborating universities for retail fabrication.

The retail cuts were segregated into cooked and raw dissection. The cooked or raw dissected samples were homogenized and subjected to individual proximate analysis by cut; following proximate analysis the cut samples were homogenized into composites. Composite samples for retail cuts were then subjected to complete nutrient analysis, including total protein, fat, energy, and moisture content in addition to long-chain and *trans*-fatty acids, conjugated linoleic acid, total cholesterol, minerals, selenium, B-vitamins, amino acids, retinol, choline, vitamin E, and vitamin D assessment.

Nutrient Database Improvement Research Protocol

Phase 1: Beef Chuck • Phase 2: Beef Rib and Plate Cuts • Phase 3: Beef Loin and Round



7 Martin, J.N., Brooks, J.C., Thompson, L.D., Savell, J.W., Harris, K.B., May, L.L., Haneklaus, A.N., Schutz, J.L., Belk, K.E., Engle, T., Woerner, D.R., Legako, J. F., Luna, A.M., Douglass, L.W., Douglass, S.E., Howe, J., Duvall, M., Patterson, K., & Leheska, J.L. (2011) Final Report to National Cattlemen's Beef Association. Nutrient Database Improvement Research — Phase 2: Nutrient Analysis of Beef Rib and Beef Plate Cuts.

8 Acheson, R.J., Woerner, D.R., Engle, T.E., Belk, K.E., Martin, J.N., Luna, A.M., Brown, T., Brooks, J.C., Thompson, L.D., Grimes, H. L., Savell, J.W., Harris, K.B. Harris, Douglas, L. Douglass, Howe, J.C., Patterson, K. Y., Holden, J.M., Cifelli, A., & Leheska, J.L. (2013). Final Report to National Cattlemen's Beef Association. Nutrient Database Improvement Research — Phase 3: Nutrient Analysis of Beef Loin and Round

RAISING AND TRIMMING LEAN BEEF

Lean Beef Starts with Leaner Animals

1. Breeding Farmers and ranchers use information collected from cattle herds to naturally enhance specific traits, including a leaner final product. Those tools include traditional pedigrees and phenotypes as well as DNA tests and Expected Progeny Differences (EPDs) statistics. In conjunction with visual evaluations, EPDs help producers determine beef cattle most likely to suit their needs, including cattle that produce leaner beef.



3. Exercise Cattle graze in pastures and are also grouped in pens with space for exercise, which helps enhance muscle and encourage leanness.



2. Feed Cattle receive feed that is rationed and balanced by professional nutritionists based upon years of research. Animal feed ingredients are used to help optimize cattle nutrient intake and maintain their natural muscle-building ability, leading to leaner muscle composition instead of fat.



4. Simultaneous Stewardship Quality beef is the result of farmers' and ranchers' commitment to environmental stewardship including their care of resources such as land, grass, crops, water and air. For example, farmers and ranchers arm themselves with techniques such as rotational grazing to allow grass to naturally regrow, protect water sources from overuse and recycle manure into compost to fertilize crops.



RAISING AND TRIMMING LEAN BEEF



Trimming Optimizes Leanness, Flavor, and Versatility

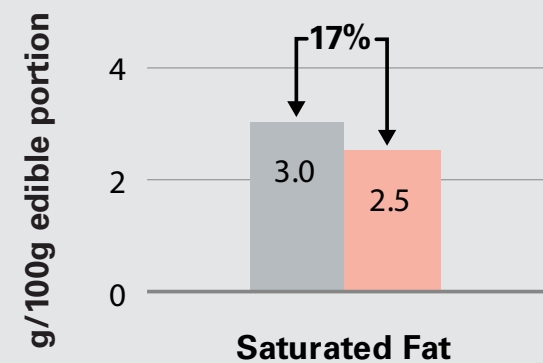
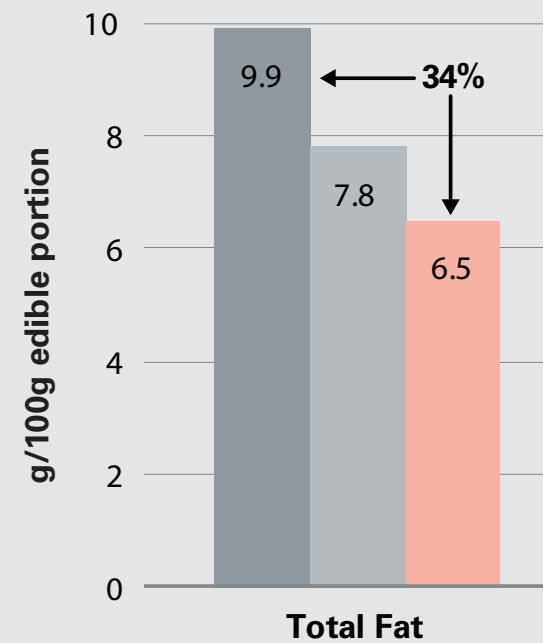
At the supermarket, consumers have more lean beef options than ever before. In 1989, six cuts of beef met the U.S. government's guidelines for lean. Today, there are more than 38 different lean cuts. According to the USDA, a serving of beef qualifies as "lean" if it contains 4.5 grams or less of saturated fat, less than 10 grams of total fat, and less than 95 mg of cholesterol per 100 grams (3.5 ounces).

The Beef Checkoff has supported the introduction of 17 new beef cuts over the past 10 years based on innovative cutting and trimming techniques. These new cuts offer consumers more beef options for their favorite cooking methods, suited to needs for flavor, leanness, and serving options. In 2008, six new cuts from the beef round were unveiled, all of which qualify as "lean" by government guidelines. In addition to the 17 new innovative cuts, eight new alternative boneless cuts were developed in 2011 to create smaller filets and roasts from the Ribeye and Sirloin, offering more versatility and lean options along with smaller portions to help accommodate consumers' objectives to trim their waistlines and their budgets.

The Skinny on Sirloin

34% Less Total Fat and 17% Less Saturated Fat

Total fat and saturated fatty acid (SFA) content of sirloin steak, completely trimmed of external fat, as reported by Watt and Merrill (1963) and the USDA National Nutrient Database (1990; 2013). Data reported for 100g of choice sirloin steak cooked via broiling. SFA data for 1963 is not available.



- Sirloin Steak 1963
- Sirloin Steak 1990
- Sirloin Steak 2010

BEEF NUTRIENT DATA: WHY IT MATTERS

With the availability of accurate and up-to-date nutrient data, public policy officials, epidemiologists, nutrition researchers, culinary professionals, nutritionists/dietitians and consumers can use lean beef nutrition information in variety of ways.

- Epidemiologists and public policy makers can measure beef's true nutrient contribution to a healthful diet and its effects on markers of health.
- Nutrition researchers use the updated beef nutrient data to design menus for research studies. For example, a recent controlled feeding study led by Dr. Heather Leidy demonstrated that the daily consumption of a higher protein breakfast (2 eggs and 1.5 oz of lean beef) is superior to both a normal protein breakfast (milk and cereal) and skipping breakfast altogether in its ability to

improve appetite control, curb food cravings, and reduce unhealthy snacking in overweight or obese teenage girls who routinely skip their breakfast meal.

- Culinary experts rely on the updated beef nutrient data to create flavorful recipes and healthful menu items that meet nutrition goals recommended by the *Dietary Guidelines for Americans*.
- Nutritionists and dietitians develop nutrition education tools based on contemporary nutrient data and provide practical advice and inspiration to consumers on ways to incorporate lean beef, vegetables, fruits, and whole grains into their diets and comply with dietary recommendations.

Nutrition Labeling

In the mid-1980s, the National Live Stock and Meat Board, National Pork Producers Council, Food Marketing Institute and American Meat Institute partnered to develop voluntary nutrition information for use in a supermarket initiative called Nutri-Facts – the first program of its kind and several years before the U.S. government mandated nutrition labeling through the Nutrition Labeling and Education Act (NLEA). In March 2012, the USDA's Food Safety and Inspection Service announced mandatory nutrition labeling of single ingredient raw meat and poultry products and ground or chopped meat and poultry, which required retailers to label most single muscle cuts at point of sale and all ground or chopped meat and poultry products on pack. The NDI Initiative supplied the data that enabled retailers to be in compliance with this important government mandate. Another important result of updated nutrient data and industry efforts is the American Heart Association's certification of seven fresh beef cuts (USDA Select Quality Grade) as heart-healthy, meaning they qualify for on-pack use of the Heart-Check mark by retailers and suppliers. The NDI nutrient data within SR was used to help gain certification under the program's strict criteria for seven items: three steaks and four cut variations from the Top Sirloin including Petite Roast, Filet, Kabobs, Steak, Strips; Bottom Round Steak; and Sirloin Tip Steak.



Strip Filet
Beef, Top Loin, Boneless, Split
Grill for best results

| | | raw, as packaged | | | | raw, as broiled** | | | | |
|-----------------------------|-----------------|----------------------|------|------|----------------|----------------------|------|----------------|------|------|
| Serving Size 4oz (112g) | | Amount/Serving | %DV* | %DV* | Amount/Serving | %DV* | %DV* | Amount/Serving | %DV* | %DV* |
| Servings per package varied | | Amount/Serving | | | | Amount/Serving | | | | |
| | raw as packaged | Total Fat 18g | 27% | 7g | 11% | Sodium 55mg | 2% | 50mg | 2% | |
| | broiled** | Sat. Fat 7g | 36% | 2.5g | 14% | Total Carb 0g | 0% | 0g | 0% | |
| Calories | 260 | Cholest. 90mg | 31% | 70mg | 24% | Protein 23g | 46% | 24g | 48% | |
| Fat Cal. | 160 | Iron | 10% | | 10% | Riboflavin | 6% | | 8% | |
| | | Niacin | 35% | | 35% | Vitamin B6 | 30% | | 25% | |
| | | Vitamin B12 | 20% | | 20% | Phosphorus | 20% | | 20% | |
| | | Zinc | 25% | | 25% | Selenium | 35% | | 40% | |

*Percent Daily Values (DV) are based on a 2,000 calorie diet. ** Cooked data based on lean only, visible fat trimmed.

BEEF AS A GOOD & EXCELLENT SOURCE OF NUTRIENTS

| Cut Name | URMIS number* | URMIS number* | Calories | Protein (g)/ % DV | Total Fat (g)/ % DV | Saturated Fat (g)/ % DV | Cholesterol (mg)/ % DV | Iron % DV | Phosphorus % DV | Potassium % DV | Zinc % DV | Selenium % DV | Riboflavin % DV | Niacin % DV | Vit B ₆ | Choline % adequate intake | Vitamin B ₁₂ |
|----------------------|---------------|---------------|----------|----------------------|------------------------|----------------------------|---------------------------|--------------|--------------------|-------------------|--------------|------------------|--------------------|----------------|--------------------|------------------------------|-------------------------|
| Daily Value | | | | 50 g | 65 g | 20 g | 300 mg | 18 mg | 1000 mg | 3500 mg | 15 mg | 70 mcg | 1.7 mg | 20 mg | 2 mg | 550 mg | 6 mcg |
| Brisket Flat Half | 1623 | 120A | 181 | 28/56% | 6.8/10% | 2.7/13% | 78/26% | 13% | 17% | 6% | 43% | 38% | 10% | 20% | 14% | 19% | 34% |
| Shoulder Roast | 1132 | 114E | 146 | 23/46% | 5.4/8% | 1.7/9% | 57/19% | 15% | 19% | 9% | 36% | 36% | 13% | 15% | 12% | 16% | 43% |
| Shoulder Steak | 1133 | 1114E | 161 | 25/50% | 6.0/9% | 1.9/10% | 80/27% | 18% | 20% | 7% | 45% | 36% | 13% | 13% | 11% | na | 42% |
| Flank Steak | 1581 | 193 | 158 | 24/47% | 6.3/10% | 2.6/13% | 66/22% | 8% | 18% | 9% | 29% | 39% | 7% | 34% | 25% | 16% | 23% |
| Tenderloin Steak | 1388 | 1189 | 168 | 26/52% | 7.1/11% | 2.8/14% | 79/26% | 17% | 24% | 9% | 27% | 34% | 22% | 26% | 33% | 11% | 65% |
| Tenderloin Roast | 1386 | 189 | 150 | 23/47% | 6.4/10% | 2.5/13% | 71/24% | 15% | 22% | 9% | 24% | 30% | 20% | 24% | 29% | 11% | 58% |
| Strip Steak | 1398 | 1180 | 168 | 25/49% | 7.7/12% | 2.9/15% | 68/23% | 12% | 19% | 7% | 27% | 34% | 11% | 31% | 31% | 11% | 28% |
| Top Sirloin Steak | 1346 | 1184 | 156 | 26/52% | 4.9/8% | 1.9/9% | 70/23% | 9% | 21% | 10% | 32% | 43% | 8% | 37% | 28% | 18% | 24% |
| Bottom Round Roast | 1464 | 171B | 150 | 24/47% | 5.5/8% | 1.9/10% | 65/22% | 11% | 15% | 6% | 27% | 38% | 8% | 21% | 16% | 16% | 22% |
| Bottom Round Steak | 1466 | 1171D | 182 | 29/58% | 6.5/10% | 2.3/11% | 79/26% | 13% | 18% | 7% | 33% | 47% | 10% | 26% | 19% | 20% | 27% |
| Tri-Tip Roast | 1429 | 185C | 164 | 25/45% | 8.3/13% | 3.0/15% | 68/23% | 8% | 17% | 8% | 28% | 36% | 7% | 33% | 23% | 16% | 23% |
| Eye of Round Steak | 1481 | N/A | 132 | 25/51% | 3.3/5% | 1.2/6% | 66/22% | 9% | 24% | 10% | 25% | 36% | 12% | 37% | 36% | 13% | 34% |
| Eye of Round Roast | 1480 | 171C | 144 | 25/51% | 4.0/6% | 1.4/7% | 65/22% | 12% | 16% | 6% | 29% | 40% | 8% | 23% | 17% | 17% | 23% |
| Round Steak | 1494 | N/A | 162 | 25/50% | 6.2/10% | 2.2/11% | 66/22% | 13% | 22% | 10% | 26% | 34% | 11% | 18% | 17% | 17% | 45% |
| Sirloin Tip Steak | 1527 | 1167 | 148 | 23/47% | 5.3/8% | 1.9/9% | 63/21% | 11% | 15% | 5% | 27% | 38% | 8% | 21% | 16% | 16% | 22% |
| Top Round Roast | 1551 | 169 | 138 | 26/51% | 3.2/5% | 1.2/6% | 65/22% | 14% | 23% | 9% | 26% | 33% | 15% | 34% | 33% | 12% | 29% |
| Top Round Steak | 1553 | 1169 | 138 | 26/51% | 3.2/5% | 1.3/7% | 73/24% | 15% | 26% | 11% | 29% | 37% | 16% | 38% | 37% | 14% | 32% |
| Ribeye Filet | 1253 | 1112C | 169 | 24/49% | 7.8/12% | 2.7/14% | 70/23% | 13% | 22% | 10% | 41% | 42% | 11% | 25% | 23% | na | 46% |
| Ribeye Petite Roast | 1250 | 112C | 151 | 24/48% | 6.2/10% | 2.2/11% | 72/24% | 13% | 22% | 10% | 40% | 43% | 11% | 24% | 23% | na | 57% |
| Ground Beef 93% Lean | 1677 | 137 | 162 | 22/45% | 7.5/11% | 3.1/16% | 68/23% | 13% | 17% | 8% | 36% | 26% | 9% | 25% | 17% | | 36% |

Percentages highlighted in green indicate the cut is an excellent source of the particular nutrient providing more than 20% of the Daily Value.

Percentages highlighted in blue indicate the cut is a good source of the particular nutrient, providing more than 10% of the Daily Value.

* URMIS (Uniform Retail Meat Identity Standards) provides a universal language at retail for fresh meat cuts and a uniform label format indicating the type of meat, the primal, and the retail cut.

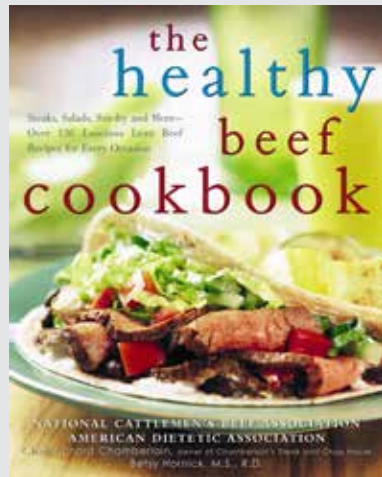
IMPS (Institutional Meat Purchase Specifications) provides a series of meat product specifications at foodservice maintained by USDA's Agricultural Marketing Service.

CONSUMER EDUCATION

Over the past several decades, recommendations for healthful eating have affected consumers' food choices and preferences, including their desire for lean beef. Beef checkoff consumer research indicates that 77% of today's consumers say they prefer to trim excess fat from beef before eating. This suggests that education efforts and dietary guidance have had an important impact on consumer preferences for lean beef.

The Healthy Beef Cookbook

A joint effort between the beef checkoff and the Academy of Nutrition and Dietetics (formerly American Dietetic Association), this cookbook demonstrates how to incorporate lean beef in everything from quick and easy meals to special occasion entrées. More than 130 recipes feature a variety of lean beef cuts in recipes using healthy cooking methods, and show how to pair lean beef with whole grains, vegetables, fruits, and low-fat dairy foods for an overall nutritious meal. Select recipes from *The Healthy Beef Cookbook* are available at www.BeefttsWhatsForDinner.com.



BOLD Toolkit

This hands-on toolkit for nutrition professionals to use in counseling clients features menus and resources from the BOLD (Beef in an Optimal Lean Diet) study. Published in *The American Journal of Clinical Nutrition* in 2011, the BOLD study was a randomized, controlled clinical trial which found that the BOLD diet, consisting of a heart healthy diet with less than 7% of calories from saturated fat and containing 3-5 ounces of lean beef daily, was just as effective as the gold standard DASH (Dietary Approaches to Stop Hypertension) diet in improving LDL cholesterol. BOLD study participants experienced a 10% decrease in LDL cholesterol from baseline when they ate lean beef daily as a part of the BOLD heart healthy diet. The BOLD study provides key insights about beef's role in a healthful diet, demonstrating that lean beef, in addition to being satisfying and great tasting, can fit into diets recommended to improve cardiovascular health. Indeed, inclusion of lean beef in the diet increases the variety and flavor of available food choices which may improve long term adherence with dietary recommendations for lipid management. The toolkit, available at www.BeefNutrition.org provides resources that include details on the research study, fact sheets, sample menus used in the BOLD study at 1800 calories and 2100 calories, recipes featuring lean beef and a turnkey presentation on heart-healthy diets.



GUIDE TO ACRONYMS

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| FDA | Food and Drug Administration |
| NCRBS | National Consumer Retail Beef Study, conducted in 1986 |
| NDI | Nutrient Database Improvement |
| NDL | Nutrient Data Laboratory of the USDA Agricultural Research Service |
| NFNAP | National Food and Nutrient Analysis Program of the USDA |
| SR | National Nutrient Database for Standard Reference |
| USDA | United States Department of Agriculture |
| URMIS | Uniform Retail Meat Identity Standards |

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ADDITIONAL RESOURCES

USDA NDL Website

www.ars.usda.gov

National Nutrient Database for Standard Reference Search

www.ndb.nal.usda.gov

Beef Portal Website

www.beef.org

Beef Research Website

www.beefresearch.org

Beef Nutrition Website

www.BeefNutrition.org



Funded by the Beef Checkoff.

For more information, contact:

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