National Beef Quality Audit

2011 NBQA

Executive Summary

Pillars of
Beef Chain Success

Executive Summary: The 2011 National Beef Quality Audit

Beef

Funded by The Beef Checkoff

Dear Members of the Cattle Industry,

We are all a part of this dynamic industry that has a long history of producing the safest, highest quality beef in the world. The cattle industry is ever changing with new challenges every day. Results of the National Beef Quality Audits, funded by The Beef Checkoff, provide needed information in order to meet these challenges.

The one statement that stands out in all the National Beef Quality Audits is "If you cannot measure it you cannot manage it." With this in mind the cattle industry has made significant improvement since the first National Beef Quality Audit in 1991. Very simply, we are doing a lot of things right, and as an industry we need to tell this story.

The 2011 National Beef Quality Audit is the most in-depth, specific audit of all segments of the industry ever performed. Data generated from it will be utilized for years to come. The information generated will be downloaded across the globe, illustrating the strong leadership position of the U.S. cattle industry. It will provide the necessary focus to maintain and increase U.S. beef's international competitiveness.

Telling our story and utilizing the wealth of important data generated by the 2011 National Beef Quality Audit is vital as we move forward over the next several years.
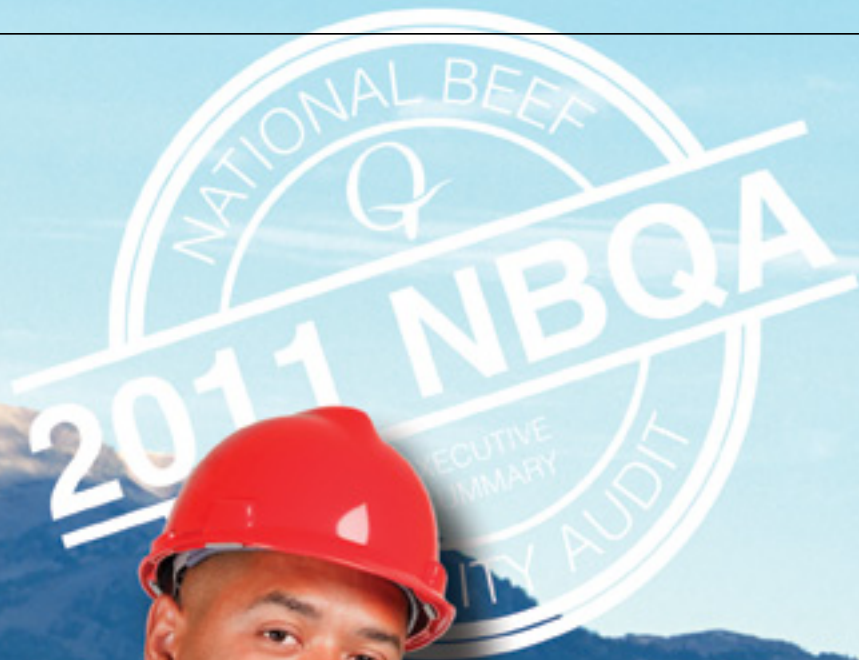
Sincerely,

Ran Smith, DVM, MS, Chairman

Beef Quality Assurance Advisory Board

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Introduction

A Valuable Roadmap

Initiated in 1991, the beef checkoff-funded National Beef Quality Audit (NBQA) since its inception has provided the industry a meaningful set of guideposts and measurements relative to the quality conformance of the U.S. beef supply. It is based on a set of core principles:

- Only that which is measured can be effectively managed;

- An industry-wide scorecard provides direction to individual decision-makers across the beef supply chain to improve the quality and value of the U.S. beef supply; and

- Identifying and correcting quality shortfalls and non-conformance will lead to greater profitability through improved beef demand in both domestic and international markets, the capture of lost opportunities, and commitment to the hard work of continuous improvement.

The early beef quality audits focused almost exclusively on the physical attributes of beef and beef by-products – factors such as marbling, external fat, carcass weight and carcass blemishes. While these are still fundamental to meeting consumer expectations for quality, the industry must now also consider more sweeping issues, such as food safety, sustainability, animal well-being, and the disconnect between agricultural producers and consumers.

In each NBQA over the past 20 years, innovative approaches have been developed to create a more meaningful and robust set of results. The 2011 audit incorporated several strategic initiatives designed to improve the quality of information garnered from the study:

Table 1: Quality Challenges
Ranked according to priority, 1991 to 2011

1991	1995	2000	2005	2011
External Fat	Overall Uniformity	Overall Uniformity	Traceability	Food Safety
Seam Fat	Overall Palatability	Carcass Weights	Overall Uniformity	Eating Satisfaction
Overall Palatability	Marbling	Tenderness	Instrument Grading	How and Where Cattle Were Raised
Tenderness	Tenderness	Marbling	Market Signals	Lean, Fat, and Bone
Overall Cutability	External and Seam Fat	Reduced Quality Due to Use of Implants	Segmentation	Weight and Size
Marbling	Cut Weights	External Fat	Carcass Weights	Cattle Genetics

Source: NBQA

- Results of face-to-face interviews were quantitative for the first time;

- More attention was given to gathering a broader industry perspective, with a national producer survey coupled with the extension of the face-to-face interviews to include the cattle feeding sector, providing depth of producer input that previously had not been available;

- Cooler and plant data, an integral component of each audit, was expanded, with the most recent NBQA incorporating camera-grading data from approximately 2.4 million carcasses in 17 federally inspected plants owned by four beef processing companies. The increased volume of data provided a deeper and more accurate assessment of the total industry; and

- A pilot study to evaluate quality indicators in the feeder cattle supply was initiated to help drive additional data from the pre-harvest segments of the industry.

Results from this research, as well as the challenges beef producers face and how they can help drive change for enterprise, industry and consumer benefit, were at the heart of discussions during the NBQA Strategy Workshop in April, 2012. When they concluded, participants were sobered by the difficult road ahead, but encouraged by the progress made over the past 20 years, and certain even greater advances could be made, thanks to information now in hand.

The NBQA is more than just an exercise to assess where our industry stands on beef quality. It's a roadmap to help drive all sectors of the industry forward and create more opportunities for all of its members. The five audits completed over the past 20 years paint a clear picture: We've come a long way as an industry in terms of improving beef quality. Changes suggested by the audit are significant. But while unobstructed progress may not be easy to achieve, the opportunities for further improvement – and success – are unmistakable. ∎

Phases of the 2011 NBQA

Phase I

Objectives: Determine how each beef production and market sector (feeders, packers, retailers, foodservice operators and allied industry/government employees) defines seven identified quality categories (how and where the cattle were raised; lean, fat and bone; weight and size; cattle genetics; visual characteristics; food safety; and eating satisfaction); within each beef market sector, estimate the willingness to pay for specified quality categories; and establish a best/worst scaling for identified quality attributes.

Research Method: Face-to-face interviews were conducted over an 11-month period.

Rationale: The U.S. beef industry cannot expect increases in prices for its products when "quality" does not warrant such increases. Understanding what quality means to the various industry sectors, as well as determining the value of each quality attribute to the sectors, will help the industry make modifications needed to increase the value of its products.

Phase II

Objective: Assess the current status of quality and consistency of U.S. fed steers and heifers.

Research Methods: Research teams surveyed 1) approximately 18,000 carcasses in the harvest floor area in eight beef processing

plants; 2) quality and yield grade characteristics from approximately 9,000 chilled carcasses in 28 beef processing plants; and 3) instrument grading information from approximately 2.4 million carcasses from 17 plants owned by four processing companies.

Rationale: Information gathered from the research helps the industry measure progress compared to the previous four surveys, and provides a benchmark for future industry educational and research efforts.

Phase III

Objective: To quantify cattle producer BQA-related practices, as well as the adoption level of quality-oriented practices; develop a benchmark against which to measure future BQA adoption; and provide

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a foundation from which to direct future educational initiatives for cattlemen to further enhance beef safety and quality.

Research Methods: An online and written survey was conducted of cattlemen from April 2011 to February 2012, with 3,755 surveys collected from seedstock operators, commercial cow/calf operators, backgrounders, stocker/yearling producers, feedlot producers, dairymen and other producers.

Rationale: The research helps identify the adoption of BQA management principles and marks the first time cattle producers have been surveyed on a national basis for input to strengthen the measurement of safety and quality-based practices that support consumer confidence in beef products and production systems.
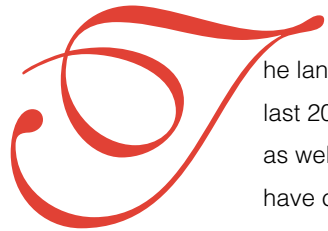
Strategy Workshop

Forty-one representatives representing each sector of the beef industry met in Denver April 10-12, 2012 to review results of the three NBQA research phases and discuss their implications for the U.S. beef industry. A strategy developed at that meeting provides the industry a blueprint for the next five years. ■

The Research Approach

The landscape for the beef industry has changed significantly in the last 20 years. Volatility in markets, input costs, cattle and beef prices, as well as severe drought patterns and shifting societal perspectives, have changed the business environment.

For example, the industry has built, lost, and rebuilt export markets to historic highs since 1991. Simultaneously, over these two decades the industry has demonstrated remarkable resilience in the face of its challenges to experience periods of profitability, especially for cow-calf and stocker producers.

Consolidation due to regulatory pressures, an aging producer base, tax concerns and other issues has had a structural impact on the industry, resulting in fewer but larger players in almost every sector. Perhaps the most ominous trend having the potential to undermine future opportunities for the beef industry is historically low cattle numbers.

Rebuilding production capacity, however, requires healthy beef demand both domestically and internationally. And perhaps even greater than the industry changes over the past 20 years has been the seismic shift in the scope of factors influencing consumer choice and industry progress.

These factors and more were weighed as the phases of the 2011 NBQA were being developed, and as the research was being conducted.

Phase I: Face-to-Face Interviews

Interviews conducted indicated that representatives of different industry sectors speak different languages when defining beef quality. To feeders, quality pertains mostly to live cattle characteristics and factors that influence feeding
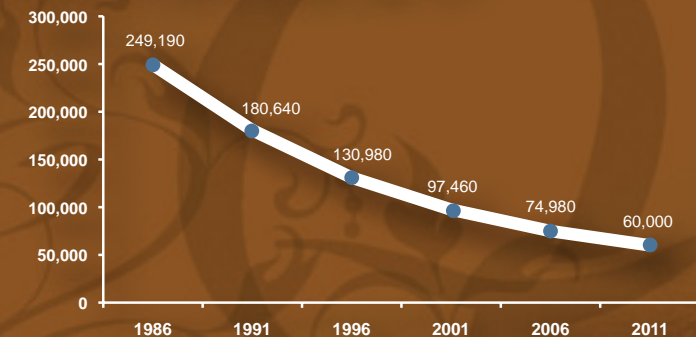
Figure 1: Beef Cow Operations
Decline in number of operations 1986 - 2011

Year	Operations
1986	1,013,570
1991	910,950
1996	885,980
2001	814,520
2006	762,880
2011	734,000
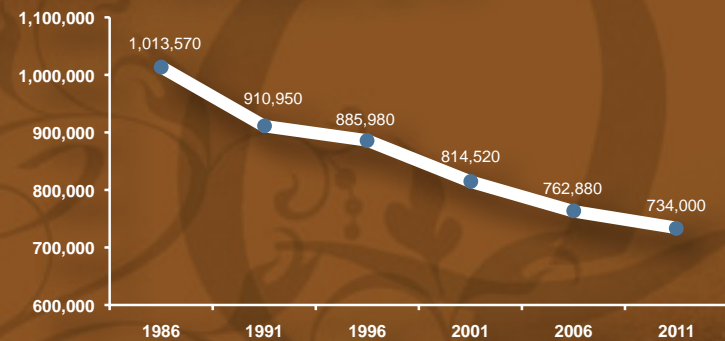
Source: CattleFax

Figure 2: Dairy Cow Operations
Decline in number of operations 1986 - 2011

Year	Operations
1986	249,190
1991	180,640
1996	130,980
2001	97,460
2006	74,980
2011	60,000

Source: CattleFax

profitability. To packers, quality pertains somewhat to characteristics of live cattle, but relates more closely to characteristics of carcasses and sub-primal cuts that influence their value in the wholesale beef trade. To retailers and foodservice operators, quality relates specifically to factors that influence consumer preferences and purchase decisions.

Because quality is perceived so differently by each of the different industry sectors, market signals related to quality and transmitted from the point of purchase (consumers) back through each sector of the beef chain to producers remain unclear.

However, several common quality concerns and viewpoints among the industry sectors were revealed. Food safety and eating satisfaction (defined as product tenderness and flavor) were universally important to all sectors and, as might be expected, both were more important to packers, retailers and foodservice operators than to feeders.

Furthermore, concerns about issues such as animal welfare, how and what animals were fed, origin of the product, hormone and antibiotic use, etc. were very important to sectors that dealt directly with consumers (i.e., retailers and foodservice operators).

When asked to define beef industry strengths and weaknesses, interviewees listed food safety and eating satisfaction in both categories. In addition, these factors ranked as the two most important quality attributes when the data were tabulated across all industry sectors.

Some 2011 results were significant because of what was not said. For example, when responding to "visual characteristics," the fact that certain items were not mentioned – such as injection-site lesions, hide damage due to mud/manure and hot-iron brands, and liver condemnations – signified tremendous progress had been made in these areas over the last two decades.

Finally, a weakness mentioned by many different sectors was that the industry does a poor job of telling its story. Respondents recognized that most of today's consumers are disconnected from agricultural production and have little understanding of actual practices used in livestock and meat production. Much of their information concerning actual practices in livestock and meat production is gathered from uninformed sources – some of which oppose animal agriculture.

Some Key Phase I Conclusions

1) Terminology about quality among segments is not standardized, and this makes communication with consumers about quality more difficult. To reduce consumer confusion, definitions must be consistent, as should language related to quality from sector to sector;

2) Consumers want to know more about the beef they consume, how it's raised and where it comes from. Providing this information would give producers a competitive advantage in the market;

3) The importance of "food safety" is increasing, and it is the single most important quality category to packers, food service and retailers;

4) Because food safety and eating satisfaction (tenderness and flavor) are seen as both strengths and weaknesses, it's recognized that the industry produces a safe, high quality product, but continuous improvement in these areas should be an industry-wide focus for enhancing the quality of beef;

5) Though the entire industry prides itself on humane animal treatment, retailers, foodservice and packers are under additional customer/societal pressures to ensure animals have been raised humanely; and

6) Phase I interviews confirm that the industry needs to do a better job of telling its story.

Phase II: Cooler and Plant Data Collection

Harvest floor data collected in 2011 pointed to significant changes by producers. For instance, the percentages of hide-on carcasses that

Table 2: Hide-on Carcass Identification

Percentages of hide-on carcasses individually identified and by type of identification

	2005	2011
With identification	93.3	97.5
No identification	9.7	2.5
Electronic tags	3.5	20.1
Barcoded tags	0.3	0.0
Individual visual tags	38.7	50.6
Lot visual tags	63.2	85.7
Metal-clip tags	11.8	15.7
Wattles	0.0	0.5
Other means	2.5	5.3

[1] Numbers exceed 100% due to animals having multiple forms of identification.

Source: NBQA

were individually identified were high in the in-plant survey in both 2005 and 2011. But individual animal identifications increased from the 2005 NBQA, according to the research. The research found that the number of cattle individually identified with visual tags jumped from 38.7 percent in 2005 to 50.6 percent in 2011.
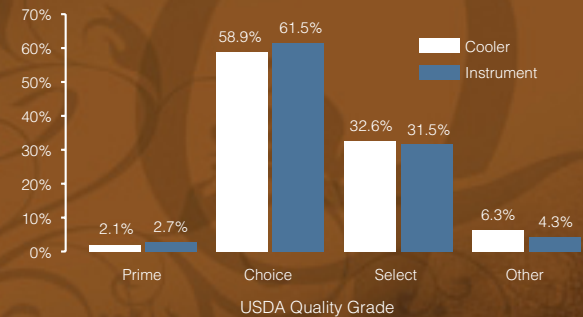
Increased percentages of carcasses grading USDA

Figure 3: USDA Prime and Choice Trend

Comparison of percent USDA Prime and Choice from NBQAs of 1991, 1995, 2000, 2005, and 2011

1991	1995	2000	2005	2011
55%	49%	51%	55%	61%

Source: NBQA

Choice and Prime also suggests continued improvement in product eating quality. (Beef checkoff-funded tenderness research that indicates this attribute has remained consistent over the past five years, after significant improvements the previous 15 years, would also point to an industry strength in this area.)

Instrument grading was not found to be notably different than human cooler grading when it came to most quality scores of the research. Instrument grading is becoming more prevalent in the industry, and these results may accelerate that trend.

Figure 4: USDA Quality Grade by Grader and Instrument

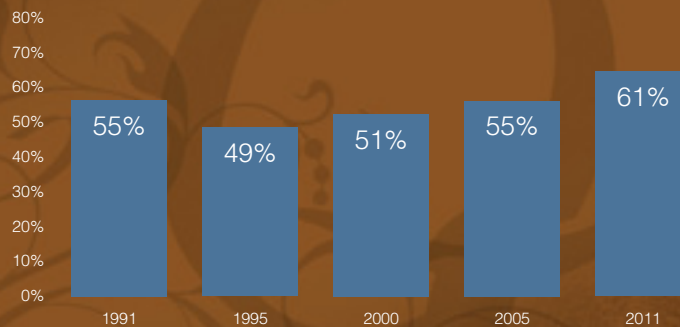Frequency distribution of USDA Quality Grade for cooler[a] and instrument data[b]

Cooler / Instrument

	Prime	Choice	Select	Other
Cooler	2.1%	58.9%	32.6%	6.3%
Instrument	2.7%	61.5%	31.5%	4.3%

USDA Quality Grade

[a] n = 9,000 carcasses, [b] n = 2.4 million carcasses

Source: NBQA 2011

Though carcass sizes have increased significantly, average quality grades have improved, according to the data. The industry has obviously made great strides in selection and management, especially at the feedyard level, to reach carcass targets never before achieved.

Table 3: USDA Quality Grade and Yield Grade

Percentage distribution[1] of carcasses stratified by USDA quality[2] and yield grades

USDA Yield Grade	USDA Quality Grade, %			
	Prime	Choice	Select	Other
1	0.0	3.6	7.3	1.4
2	0.4	22.8	15.3	2.4
3	1.8	25.9	8.0	1.5
4	0.5	6.3	1.4	0.4
5	0.1	1.3	0.1	0.1

[1] Carcasses with missing values for USDA quality or yield grades are not included.
[2] USDA quality grade was affected by maturity and dark-cutting beef, and there were no Canner carcasses observed in the audit.

Source: NBQA 2011

The percentage of cattle with predominantly black hide color increased from 45.1 percent to 61.1 percent since the 2000 NBQA.

The research also found a significant reduction in the amount of mud and manure found on hides. While several factors could be involved in this finding, industry attention to maximizing carcass cleanliness, thereby reducing potential contaminants from coming into the plants, could also be involved.

The trend toward branding beef at the supermarket or in

Table 4: Branded Marketing Programs

Frequency distribution of different certified and marketing programs

Programs	Percentage
Certified Angus Beef (CAB)	9.3%
Top Choice	4.1%
Non-Hormone-Treated Cattle	0.5%
A[40] (20 months of age or younger)	10.0%
Organic	0.0%
Natural	0.0%
Age- and Source-Verified	10.7%

Source: NBQA 2011

the restaurant – and the need for more program cattle – was supported by both Phase I and Phase II research. Eighty percent of retailers interviewed for Phase I participated in branded beef programs. Some of the retailers included in these programs their store brand specifications, while others only included specifications of USDA-certified branded beef programs. In the Phase II – cooler research, 9.3 percent were Certified Angus Beef. More than 10 percent were age-and source-verified, a feature of a significant portion of beef destined for the export trade.

Phase III: Benchmark Research

In Phase III benchmark surveys, more than 78 percent of respondents indicated they used individual tags to keep track of cattle receiving animal health products.

The surveys found that nearly 90 percent of respondents have a working relationship with a veterinarian when it comes to use of animal health products. Disconcerting, however, was the fact that more than one quarter said they would use medications other than as directed on a drug product's label without being directed by a veterinarian (Appendix, Table 9).

Conforming to current BQA principles, use of electric prods is becoming rare in the industry. Overall, 98.4 percent of respondents said they do not use an electric prod as

their primary driving tool. Almost half said they did not use one, while more than 43 percent use them on less than 10 percent of the cattle, a rate aligning with the recommendations of noted animal behavior authority, Temple Grandin.

Eating satisfaction ranked second to food safety in importance to all market sectors except feeders, who ranked "weight and size" as the second most important attribute behind how and where the animal was raised. Obviously, eating satisfaction is a key issue not only for consumers, but for the cattle and beef industry.

Progress continues to be made in beef quality areas identified in the original 1991 NBQA. When it came to administering injections, the preferred route was subcutaneous for 84.2 percent of respondents. And 87 percent said their preferred location for injections was in front of the shoulder (neck).

Furthermore, according to the survey, 87 percent had heard of Beef Quality Assurance, 78 percent had attended a meeting at which best management practices or BQA principles had been addressed, and of those cow-calf producers who had attended these sessions, 99 percent said they followed best management practices consistent with BQA. ∎

Table 5: Recordkeeping Methods

Percentages of Phase III survey respondents keeping track of withdrawal times by method

	Overall	Seedstock	Commercial cow/calf	Backgrounder / preconditioner	Stocker / yearling	Feedlot	Dairy
Individual ID[1]	78.3	88.8	76.9	73.4	61.9	77.9	83.2
Animal in a group[2]	11.0	4.3	10.8	12.8	22.5	15.5	11.7
Tracking groups[3]	9.1	6.6	10.6	9.6	13.8	5.5	3.7
More than one	1.6	0.4	1.7	4.3	1.9	1.0	1.5

[1] By recording the individual ID
[2] By identifying only animals in a group that are treated
[3] By tracking groups of cattle where individuals within the group were treated

Source: NBQA 2011

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Pillars of Beef Chain Success:

*A*s the Strategy Workshop participants debated and discussed the findings in the three phases of the audit, they agreed that quality initiatives focused on meeting or exceeding customer expectations depend on providing value in two major categories - product integrity and eating satisfaction.

Product Integrity results from the combined effects of all processes utilized to produce a product, along with the resulting attributes of the product that influence consumer confidence in the product and its suppliers. These attributes include food safety; where the cattle

Required Industry Tool:

A Transparent System of Information Flow

Assuring clear communication that enhances trust and increases value throughout the chain

Product Integrity and Eating Satisfaction

were raised; animal health, care, handling and well-being; and can be influenced by any number of industry participants and/or practices. Beef Quality Assurance practices are important elements in protecting and improving product integrity.

Eating Satisfaction is the composite experience created for a consumer during each beef meal. The multitude of factors that influence eating satisfaction include flavor profile, tenderness and juiciness. Palatability is influenced by many production factors, including the use of growth-promoting technologies, genetics and handling and health practices.

Strategy Team participants agreed that, regardless of the quality factor, a transparent system of information-sharing regarding animals and products among chain segments is crucial to building trust and providing assurances to every customer along that chain – including the consumer. By developing this kind of system, coordination is improved, the supply chain is strengthened, trust is increased and value is enhanced.

Again, Beef Quality Assurance practices are important elements that underpin the industry's ability to deliver eating satisfaction.

The fundamental efforts of the beef industry must focus on protecting, defending and continuously improving eating satisfaction and product integrity. Finally, to reap rewards from these efforts the industry must enhance its ability to connect consumers to the beef story by assuring product authenticity and demonstrating transparency throughout the supply chain. Meeting these objectives will require more effective information-sharing to improve beef's value while maximizing consumer trust. ■

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Top Priorities for Increasing

As the late management consultant Peter Drucker pointed out to business leaders across the globe, the only sustainable business goal is a satisfied customer. There is no doubt the industry today is more consumer-focused from end-to-end than it has ever been.

The increased level of consumer-driven decision-making by industry participants can be attributed, at least in part, to heightened awareness about quality stemming from the NBQA. In the very first NBQA executive summary, lead scientist Dr. Gary Smith stated, "for years the beef business, and remaining producers, have survived by shrinking total per capita supplies enough to command prices that cover average costs. Survival and profitability in the future will depend on supplying the kinds of products which today's consumers demand and doing it still more efficiently than in the past. The individuals who effectively initiate needed changes will be those who profit the most."

The industry is increasingly aware that it will take more than delivery of a quality product to grow consumer confidence and demand. Quality must be backed by a system of transparency that addresses not only the product but the process.

Today's consumers demand transparency of information – created in part by a growing use of social media. Consumers now give more scrutiny to food providers, and lacking accurate explanations will develop their own stories about what the products are and what they mean to their lives. Lean finely textured beef is a painful example. The

Product Integrity and Eating Satisfaction

consumer wants more than a "factual connection" to the food supply – they want the story behind the products. Vague assurances of safety and quality are no longer acceptable to the consumer.

To accomplish this, each industry segment must be transparent not only with the end consumer, but with the other segments that help raise and feed the animal, process the meat or market the end product. This transparency encourages the use of Best Management Practices that demonstrate the industry's ability to provide the highest level of quality in both product and process.

The 1991 NBQA demonstrated just how valuable shared information can be to producers. Excess fat, revealed as an issue in that study,

has been removed through genetic decisions at the cow-calf level, improved systems of cattle management, and sharp knives applied on the fabrication line. Injection site lesions were drastically reduced, providing an example of a highly effective industry that proactively identifies a problem as well as a course of corrective action.

Progress in reduction of other defects has also been achieved. It's obvious that when producers are confronted with knowledge of challenges that reduce profitability and limit progress, they step up. Nonetheless, there is still work to be done. ∎

Top Strategy Workshop Priorities for Food Safety and Animal Health

As ranked by NBQA Strategy Workshop participants

- Develop and implement an effective animal identification-sharing system;
- Development of effective full supply chain safety interventions;
- Increase focus on pathogenic strains of *E. coli* and *Salmonella*;
- Implement BQA and demonstrate conformance through written records;
- Encourage dairy and veterinarian BQA engagement; and
- Continuously improve health of calves and feedlot cattle.

"We say that we do things more right than wrong, but we don't have a written protocol. Producers want and need the education of BQA."
Cattle feeder

"If we don't have feedback signals or don't use them then we can't be successful."
Cattle feeder

Top Strategy Workshop Priorities to Maximize and Reduce Variation in Eating Quality

As ranked by NBQA Strategy Workshop participants

- Develop an information system to improve supply chain coordination in the industry;
- Develop strategies for management and determination of the impact of beta-agonists;
- Match growth promotant strategy to specific production systems/consumer targets;
- Increase research funding to improve eating satisfaction; and
- Use genetics to optimize cutability and palatability.

"Calves should not be part of a 'witness protection program.' When the rest of the world and our competitors are (identifying their animals), why can't we?"

Cattle feeder

"It doesn't matter what our weights or yield grades are if we don't have a consumer who will buy our products."

Cow-calf producer

"The importance of program cattle needs to be explained (better) to cow/calf producers."

Supply chain representative

"We have to be unified and strategic in order to deal with the next big concern. In order to do that, we have to understand the differences in definition between segments."

Supply chain representative

"Genetics is part of the information flow, but will take care of itself. What else can we have an impact on?"

Cow/calf producer

"Cutability is industry-oriented. Palatability is consumer-oriented. We need to be more focused on palatability."

Cow/calf producer

Top Strategy Workshop Priorities to Optimize Value and Eliminate Waste

As ranked by NBQA Strategy Workshop participants

- Develop and implement an effective animal identification-sharing system;

- Enhance market signals/communications between sectors of the industry;

- Reduce the extremes in ribeye area, fat thickness and carcass weight;

- Define more precisely the product/weight inconsistency problems; and

- Document economic value/market recognition of BQA.

"All of the definitions are correct. We just need to understand the terms. That means all of them, not just what our segment thinks they are."

Supply chain representative

"What we think is simplistic turns very complex when we look farther than our own segment."

Supply chain representative

"Are we making things more valuable, or just more consistent?"

Supply chain representative

"We need to keep our image and connect it with our science."

Cow/calf producer

SECTION V

Telling Our Industry's

Respondents in Phase I of the study agreed that the image of the beef producer is generally favorable. The Beef Checkoff-funded Consumer Beef Index (CBI), a semi-annual online survey designed to identify and track consumer perceptions and spotlight consumption trends, supports that belief.

Nevertheless, the need to aggressively and proactively tell the industry story was a key priority identified by participants in the NBQA Strategy Workshop. They recognized that because of a lack of proactive communication, some industry processes that provide benefits to consumers (e.g. lean finely textured beef) can become marginalized by those who don't want the industry to succeed. The industry has a good story to tell.

Beef Quality Assurance is an industry success story. We're making progress, and regularly doing things right, while stepping up efforts to assure conformance by every producer.

Beef producers operate on more than just the profit motive. Research indicates that most producers do things properly "because it's the right thing to do."
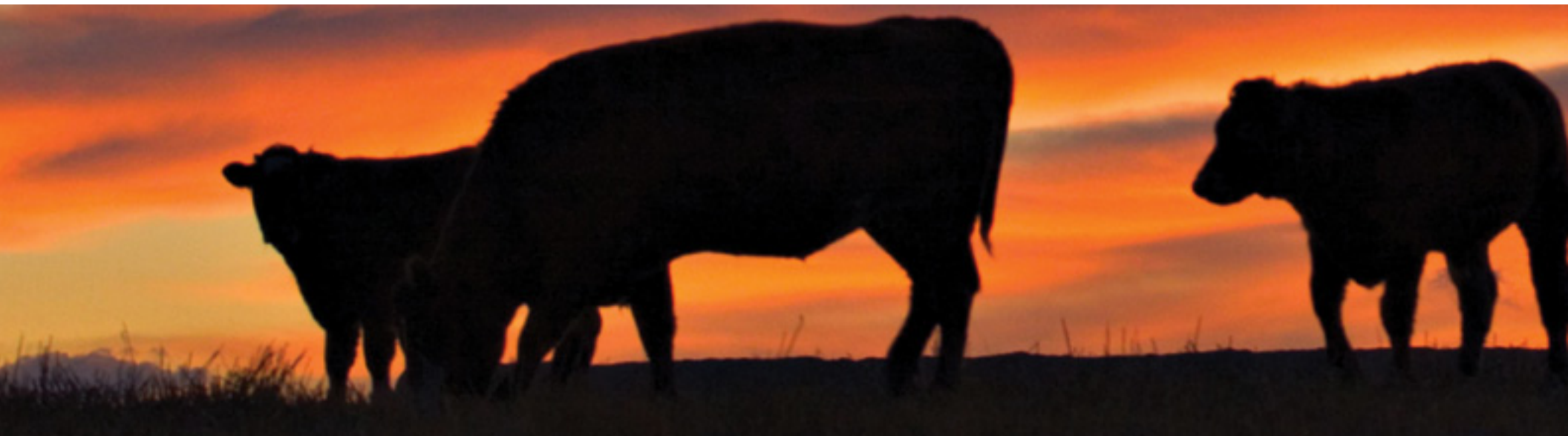
Story

Animal welfare has always been a top priority for cattlemen. Cattle producers embrace their role as stewards of their livestock, not only because well-cared-for cattle are healthier and more productive, but because quality care manifests our belief in good husbandry and stewardship.

The industry has a terrific story to tell when it comes to food safety, flavor and tenderness. Our positive stories must be better championed by the industry and confidently shared with consumers and the media.

Our international story is also unique, positive and compelling. Because of our history of grain feeding and attention to quality and safety, no country in the world has the type of beef produced in the United States.

Science is only a part of our tremendous story. However, we must find ways to maintain and enhance our image and connect it with our science.

The industry must be authentic, honest and transparent. Quality challenges must be dealt with quickly, openly and honestly. ■
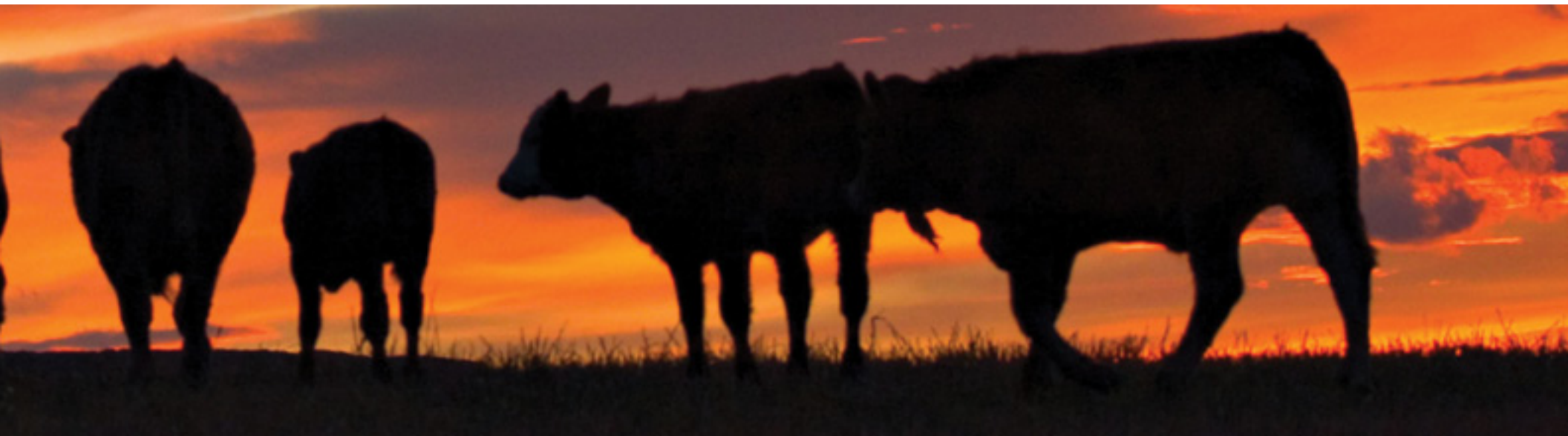
Barriers to Continued

The 2011 NBQA Strategy Workshop helped put focus on key shortcomings that must be addressed:

Low level of written protocols:

- Many producers continue to rely on habit or memory for animal treatment. In fact, the Phase III survey found that only 31.3 percent of overall respondents said they used a written protocol;

- **BQA and proper record-keeping must become more consistent through the entire supply chain. Instead of guidelines, we should be establishing standards.**

Figure 5: Withdrawal Times

Use of written records to track withdrawal times

11.7

14.8

46.7

26.9

- Always
- Usually
- Sometimes
- Never
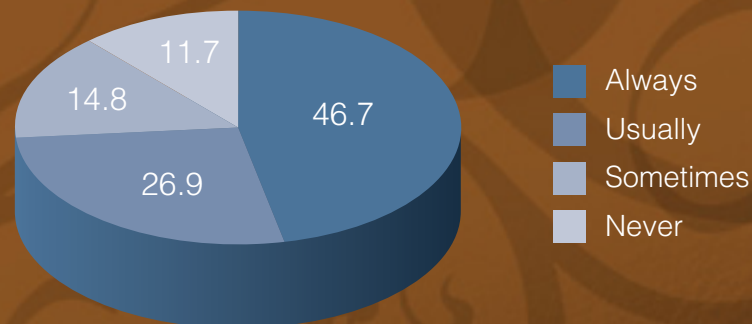
Percentage of all sectors in Phase III survey of cattlemen

Source: NBQA 2011

Progress

Balancing needs of all industry segments:

- Though all segments rely on beef demand and consumer acceptance for their success, each segment of the industry has different business requirements to stay in business;

- The market signal throughout the chain is based on price-per-pound, but that signal may not be the only one to communicate;

- **The industry must create a system that transmits information and facilitates data flow, communicating the proper signals throughout the supply chain.**

Lack of trust between industry segments:

- While 100 percent of feedyards in the benchmark survey had active BQA plans, only 37.5 percent of the feedyards required their calf suppliers to be BQA-certified – and only 25 percent required their transporters to be trained in proper animal handling;

- Because of the low information flow between sectors, many cattle processing procedures are duplicated unnecessarily, adding to the cost of beef production;

- **Transparent and accurate information-sharing between segments would help increase trust, and build a more authentic and sustainable beef industry.**

Disconnect with dairy:

- Though 9.9 percent of carcasses were from dairy animals, based on Phase II research, fewer than half (44.4 percent) of dairy respondents had attended an educational program that taught BQA principles;

- The goal for conformance on withdrawals must be the same throughout both the dairy and traditional beef production segments: 100 percent;

- **Because dairy animals supply a significant portion of the beef marketed, communicating the importance of BQA to the dairy segment is crucial, either through veterinarians, managers, milk co-ops or directly.**
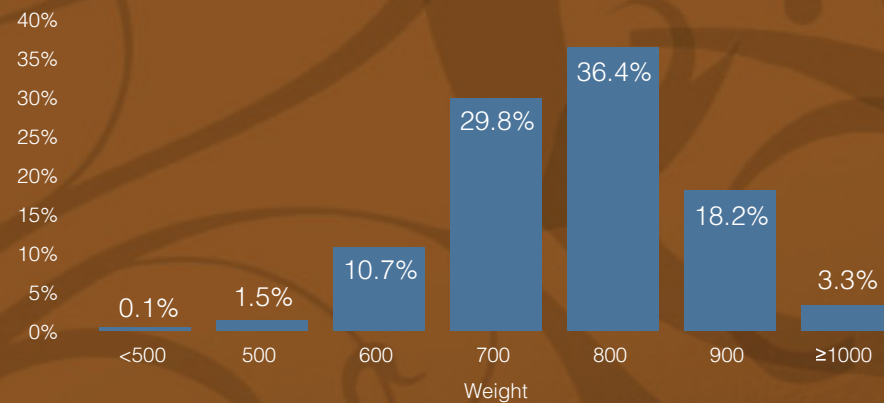
Carcass inconsistency:

- While it appears cattle sorting is being done effectively in feedyards, beef carcasses that are non-conforming and inefficient still exist;

- As an example, for ribeyes, more than a quarter of the studied population were outside of the 12- to 16-square-inch range, creating inconsistencies that cause issues down the chain;

- Another area for improvement identified by the researchers in Phase I was producing cattle and products with an ideal lean-to-fat ratio, with appropriate quality and yield grade;

- New growth enhancements and production practices have led to tremendous efficiency in our industry. However, the industry must conduct a comprehensive assessment of the short- and long-term value of its practices and technologies, matching them

with effective communications to consumers. All technologies and practices must have substantial rationale and line up with the needs of both domestic and international consumers.

- **The industry must eliminate costly non-conformers and provide better market signals that evoke responses leading to better selection, production practices and post-harvest fabrication.**

No common language:

- Face-to-face interviews in Phase I of the 2011 NBQA made it clear that different segments of the industry define terms like food safety, animal welfare and product quality in completely different ways. This makes it difficult to communicate about common challenges between segments – and with consumers;

- **In addition, each segment of the supply chain defines value differently. For instance, cow-calf producers may not see the increasing value of cattle for branded programs. This communication barrier must be resolved.**

Potential food safety issues:

- Though the U.S. beef industry has a stellar food safety record, the industry must closely monitor emerging pathogen issues. Furthermore, *E. coli* strains and pathogens like *Salmonella* remain a concern for the entire food industry, and must be addressed with solid research, industry interventions and communications to consumers.

Poor story telling:

- **The industry must "step up its game" when it comes to telling consumers what it does and why it does it.**

Figure 6: Carcass Weights
Frequency distribution of carcasses by weight group

Source: NBQA 2011

Additional Supporting Data

NATIONAL BEEF Q QUALITY AUDIT EXECUTIVE SUMMARY APPENDIX

Table 6: Lost Opportunities

Lost opportunities* per head identified by NBQA 2011

Quality Grade	($ 25.25)
Yield Grade	($ 5.77)
Carcass Weight	($ 6.75)
Hide/Branding	($ 0.74)
Offal	($ 5.15)
Total	($ 43.66)

*Amount lost due to nonconformance with ideal targets for quality.

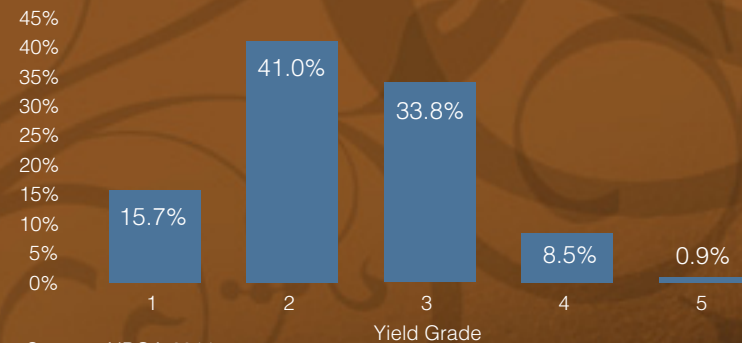Source: NBQA 2011

Table 7: Ranking of Quality Categories by Sector

Relative importance of specified quality categories (best-worst scaling)

	Government & Allied Industries	Feeders	Packers	Foodservice / Distributors / Further Processors	Retailers	Overall
Food Safety	25%	11%	35%	42%	39%	28%
Eating Satisfaction	24%	9%	20%	24%	29%	20%
Cattle Genetics	14%	15%	7%	1%	3%	9%
Weight and Size	10%	19%	7%	7%	5%	11%
How and Where the Cattle Were Raised	9%	22%	12%	10%	10%	13%
Visual Characteristics	9%	9%	6%	7%	10%	8%
Lean, Fat, and Bone	9%	15%	13%	10%	5%	11%

Source: NBQA 2011

Figure 7: USDA Yield Grade

Frequency distribution of USDA Yield Grade

Bar chart — Yield Grade distribution:
- 1: 15.7%
- 2: 41.0%
- 3: 33.8%
- 4: 8.5%
- 5: 0.9%

Source: NBQA 2011

Table 8: Ranking of Quality Categories by Sector

Ways in which survey respondents intentionally influence "quality" overall and by sector

Method	Overall	Seedstock	Commercial cow/calf	Sector (%) Backgrounder / preconditioner	Stocker / yearling	Feedlot	Dairy
Genetics [1]	78.7	98.9	82.9	63.9	48.8	48.7	47.5
Preventative health [2]	89.1	94.2	88.4	93.8	92.2	85.9	81.3
Animal handling [3]	92.9	94.7	92.7	95.9	97.0	93.0	81.3
Best management practices [4]	84.0	90.2	82.3	92.8	86.7	85.9	74.1
Market targets [5]	50.1	61.3	47.8	61.9	55.2	58.1	19.4
Nutritional program [6]	85.3	92.1	83.9	90.7	87.9	90.3	72.7
Documentation [7]	66.2	79.3	64.9	68.0	59.5	64.4	51.1
BQA protocols [8]	55.7	63.4	53.0	65.0	55.8	68.1	28.1
Do not influence [9]	3.6	1.3	3.7	3.1	4.9	2.4	11.5
Other	2.2	4.3	1.7	2.5	1.7	3.0	0.0

[1] Genetic selection and breeding systems.
[2] Preventative health care (i.e. vaccination program).
[3] Use of good stockmanship and animal handling skills.
[4] Implementation of best management practices, including how vaccinations and antibiotics are administered.
[5] Matching management strategies to specific market targets.
[6] Implementation of a sound nutritional program.
[7] Documentation of management practices (possibly including age, source, etc.).
[8] Implementation of my state's Beef Quality Assurance (BQA) protocols.
[9] I do not intentionally influence quality.

Source: NBQA 2011

Table 9: Off-Label Drug Use

Frequency distribution of responses regarding the use of medications other than as directed on a drug product's label (without being directed by a veterinarian)

Frequency	Overall	Seedstock	Sector (%) Commercial cow / calf	Backgrounder / preconditioner	Stocker / yearling	Feedlot	Dairy
Always	4.2	4.3	4.1	4.2	1.8	4.4	5.6
Usually	4.1	4.0	4.2	5.3	3.6	2.7	5.6
Sometimes	17.5	16.5	17.9	7.4	12.0	14.1	33.1
Never	74.2	75.2	73.9	83.2	82.6	78.9	55.6

Source: NBQA 2011

Table 10: USDA Carcass Grade Traits

Means, standard deviations, and minimum and maximum values for USDA carcass grade traits

Trait	Mean	SD	Minimum	Maximum
USDA yield grade	2.6	0.9	-0.6	6.9
USDA quality grade [1]	693.0	61.0	220.0	887.0
Adjusted fat thickness, in.	0.5	0.2	-0.4	1.6
Hot carcass weight, lbs	824.6	102.5	309.5	1203.0
Ribeye area, in [2]	13.8	1.8	7.8	23.0
Kidney, pelvic, and heart fat, %	2.3	0.8	0.0	5.0
Marbling score [2]	440.0	98.0	100.0	960.0
Lean maturity [3]	154.0	28.0	110.0	550.0
Skeletal maturity [3]	162.0	34.0	100.0	600.0
Overall maturity [3]	159.0	29.0	110.0	585.0

[1] 100 = Canner ^{00} , 400 = Commercial ^{00} , 600 = Select ^{00} , and 800 = Prime ^{00} .
[2] 100 = Practically devoid ^{00} , 300 = Slight ^{00} , 500 = Modest ^{00} , 700 = Slightly Abundant ^{00} , and 900 = Abundant ^{00} .
[3] 100 = A ^{00} and 500 = E ^{00} .

Source: NBQA 2011

Acknowledgements

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Funded by The Beef Checkoff

For more information contact: