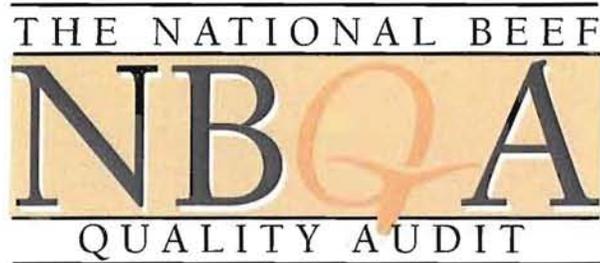
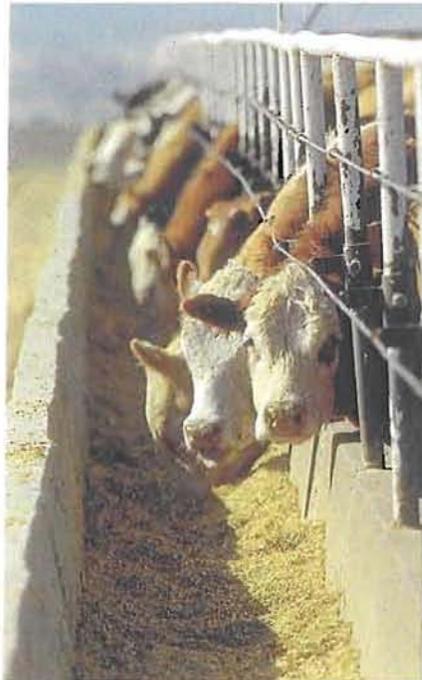


# *Executive Summary – 1995*



*Improving the Quality, Consistency,  
Competitiveness and Market-Share of Beef*



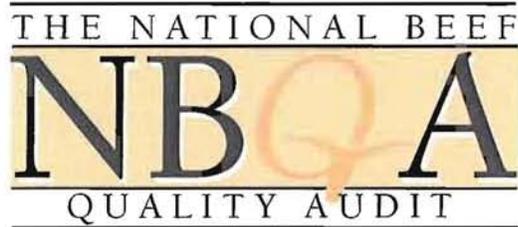
*A Blueprint for Total Quality Management in the Beef Industry*

*Conducted by Colorado State University, Oklahoma State University and Texas A&M University  
for the Industry Information Program, National Cattlemen's Beef Association*

*Funded by the Cattlemen's Beef Promotion and Research Board*

*December 1995*

## *Executive Summary*



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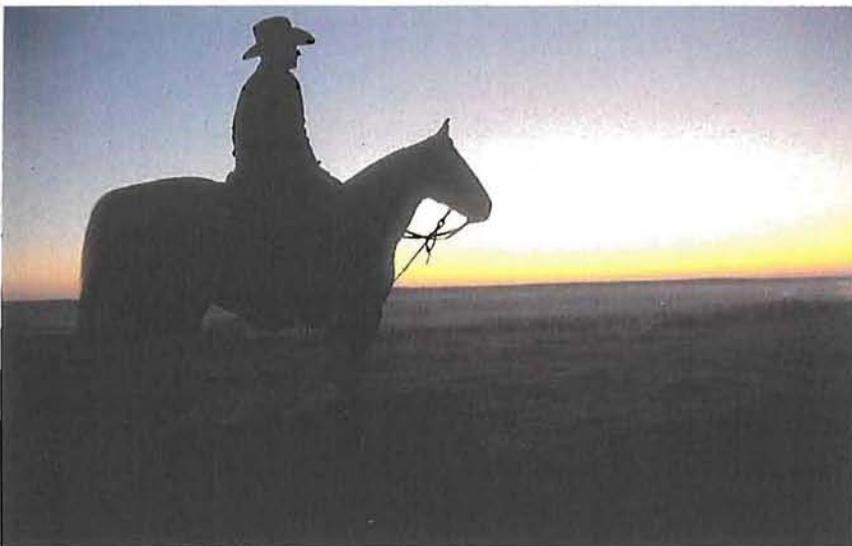
Chuck Lambert, Project Manager, National Cattlemen's Beef Association  
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# A Commitment To Never-Ending Improvement

**F**our years have passed since researchers released results of the 1991 National Beef Quality Audit (NBQA). That Audit, the first such industry-funded research effort of its kind, proved that the beef industry was faced with a long list of seemingly insurmountable challenges. It showed that beef was too fat, too inconsistent and too tough to remain competitive. Most notably, the 1991 study showed that the beef industry lost nearly \$280 for every fed animal it marketed that year. Most of the loss was caused by excess fat, lack of marbling and other carcass defects.

To address those problems, the 1991 Audit recommended that producers evaluate their herd health and genetic management programs, eliminate non-conforming cattle from their cow herds, analyze their management practices, transportation and handling systems and encourage the flow of information from the packing plant back to the ranch. That way, everyone involved in fed cattle production could make improved decisions and produce better beef.

Now, a new Audit is on the table, the results of which are contained in this document. The message it delivers is a mixed bag of successes and continued product-quality shortcomings.



*“We have recognized for perhaps the first time that, in order for the beef industry to survive and return to a position of strength, beef producers, packers, processors, retailers, consumers and those in the science and education community must communicate and collaborate in the name of progress. Now, it is essential that we continue to drive toward consensus on science-based steps that the industry can take to measurably influence the quality and consistency of our product.”*

— Chuck Schroeder, Chief Executive Officer, National Cattlemen’s Beef Association

# The 1995 National Beef Quality Audit

## NBQA: Objectives

The objectives of the 1995 NBQA include:

- 1) To conduct a quality audit of slaughter cattle, which includes their carcasses and dress-off/offal items, for the U.S. beef industry. The Audit establishes baselines for quality shortfalls and identifies targets for desired quality levels by the year 2005.
- 2) To assess whether or not progress has been made in correcting deficiencies and reducing quality concerns when comparing the results to those of the 1991 Audit. Audit participants recognize that effects of changes in management most likely would be detectable in the slaughter steer/heifer population, but that effects of genetic change would not likely be detectable in this short time-frame.
- 3) To allow the beef industry to make mid-course corrections with regard to accomplishment potential, in the light of what is now known, to improve the quality, consistency, competitiveness and market-share of beef.

## NBQA: Methodology

Researchers conducted the 1995 NBQA in three separate, but related, phases.

**Phase I** involved Face-To-Face Interviews with packers, purveyors, retailers and restaurateurs in order to identify specific shortfalls in beef's quality and consistency and to identify top concerns among those in these sectors about beef's quality and competitiveness.

**Phase II** involved On-Site Audits on slaughtering/dressing floors and in coolers at 27 different packing plants from April 1995 to December 1995.

**Phase III** consisted of a Strategy Workshop where representatives of all industry sectors met to address concerns and develop strategies for overcoming many of the beef industry's product problems.

At its core, the 1995 Audit demonstrates that cattle producers can make considerable headway when they are given the tools to make improvement. For example, they reduced the amount of external fat on beef carcasses by more than 20 percent, dropped the frequency of injection-site lesions and shored-up some of the total economic loss associated with carcass defects. All told, cattle producers reduced the per-head loss to \$276.59, or \$3.23, a positive—albeit, lukewarm—trend toward end-product improvement.

At the same time, results of the 1995 study show that much more work remains. Efforts to diminish excess fat production have led to worrisome declines in marbling. That has purveyors, restaurateurs and retailers concerned about beef's flavor, tenderness, juiciness and overall eating quality—the four things that distinguish beef from its competition and enable it to command a premium price.

Most importantly, the Audit shows that the road to improvement is continuous and never ending. Producers must continue to identify genetics and production schemes that produce cattle with desirable marbling without the excess fat. They must continue to adopt management schemes to reduce carcass bruising, hide damage and injection sites. They must find new ways to narrow variation in carcass weights and composition (lean, fat and bone proportions), addressing not only product quality but product inconsistency as well.

"We have recognized, for perhaps the first time, that people don't have to buy our product on whatever terms we choose to produce it," remarks Chuck Schroeder, chief executive officer of the National Cattlemen's Beef Association. "We have recognized for perhaps the first time that America's natural resources can be put to economic uses other than beef production. We have recognized for perhaps the first time that, in order for the beef industry to survive and return to a position of strength, beef producers, packers, processors, retailers, consumers and those in the science and education community must communicate and collaborate in the name of progress.

"Now," says Schroeder, "it is essential that we continue to drive toward consensus on science-based steps that the industry can take to measurably influence the quality and consistency of our product. We do not have the luxury of agreeing to disagree any longer—our competitors are delighted with our behavior in the past. We must take the results of the Audit, evaluate areas in our own operations where we can make improvements, work with others in our industry to overcome our weaknesses, and build market share together to secure our future."



# PHASE I—

## Face-To-Face Interviews

During Phase I, Audit teams interviewed 40 people from the purveyor, retailer, restaurateur and packer sectors to identify quality problems, defects and shortfalls in slaughter steers and heifers. The results confirm that the industry has addressed many of the top-of-mind concerns since the 1991 NBQA, but many new challenges have also emerged.

Here's the positive side of story. Purveyors in 1991 ranked injection-site lesions as their No. 2 concern. That dropped to No. 10 in their 1995 rankings. Bruise damage was their No. 4 concern in 1991, but did not make their top-10 list in 1995.

For retailers, excessive external fat topped their list of concerns in the first Audit, but dropped to No. 9 in 1995. Injection sites ranked No. 3 in 1991, but fell to No. 10 in 1995.

In 1991, restaurateurs ranked excessive seam fat and excessively large ribeyes as their Nos. 3 and 4 concerns. Neither re-appeared in the most recent Audit.

For packers, injection sites stood No. 2 in 1991, but the problem lessened and did not make their top-10 list in 1995.

Those interviewed indicated that there have been improvements through increased availability of closely trimmed beef, heightened producer awareness of quality problems, improved cutability, and extended shelf-life and retail caselife of beef products.

On the down side, purveyors, retailers, restaurateurs and packers also brought forward new and pressing concerns not mentioned in the 1991 study. Those include beef's insufficient flavor, low overall palatability and lack of uniformity. They noted that beef's price is too high for its value received and that



*During Face-To-Face Interviews, responses indicated improvements in beef quality through increased availability of closely trimmed beef, heightened producer awareness of quality problems, improved cutability, and extended shelf-life and retail caselife of beef products.*

### Table 1

#### Quality Concerns That Have And Haven't Improved Since 1991

(1991 NBQA Versus 1995 NBQA)

	Purveyor	Retailer	Packer
<b>Improvements</b>			
Fewer Injection-Site Lesions	30%	40%	33%
Increased Availability of Closer-Trim Beef	10%	33%	—
Heightened Producer Awareness	20%	27%	11%
Improved Cutability	—	13%	44%
Extended Shelf-Life/Caselife	10%	13%	—
<b>Setbacks</b>			
Inappropriate USDA Quality-Grade Mix	50%	20%	11%
Cattle And/Or Cuts Are Heavier	30%	13%	11%
Lessened Eating Quality	20%	13%	11%

*Audit teams asked purveyors, retailers and packers open-ended questions about quality attributes of beef which had either improved or become appreciably worse since 1991. The table shows that 30% of purveyors, for example, mentioned improvement in the incidence of injection-site lesions, while 50% said there were increased problems with the USDA Quality-Grade mix.*

## Table 2 Top 10 Concerns



*Purveyor concern: Excess external fat*



*Retailer concern: Low overall uniformity and consistency*



*Restaurateur concern: Inadequate tenderness*



*Packer concern: Lack of uniformity and predictability of live cattle*

### Purveyors

- 1) Excessive External Fat
- 2) Too Large Ribeyes/Loineyes
- 3) Low Overall Uniformity and Consistency
- 4) Insufficient Flavor
- 5) Inappropriate USDA Quality Grade Mix
- 6) Low Overall Palatability
- 7) Low Overall Cutability
- 8) Inadequate Tenderness
- 9) Beef's Price Is Too High For The Value Received
- 10) Incidence of Injection-Site Lesions Is Too High

### Retailers

- 1) Low Overall Uniformity and Consistency
- 2) Inadequate Tenderness
- 3) Excessive Weights of Cuts and Boxes of Cuts
- 4) Low Overall Palatability
- 5) Beef's Price Is Too High For The Value Received
- 6) Inappropriate USDA Quality Grade Mix
- 7) Insufficient Flavor
- 8) Excessive Seam Fat
- 9) Excessive External Fat
- 10) Incidence of Injection-Site Lesions Is Too High

### Restaurateurs

- 1) Excessive External Fat
- 2) Low Overall Uniformity and Consistency of Beef
- 3) Inadequate Tenderness
- 4) Beef's Price Is Too High For The Value Received
- 5) Low Overall Palatability
- 6) Excessive Weights of Cuts and Boxes of Cuts
- 7) Low Overall Cutability
- 8) Incidence of Injection-Site Lesions Is Too High
- 9) Occurrence of Dark, Unattractive Lean Too High
- 10) Insufficient Flavor

### Aggregate Response

- 1) Low Overall Uniformity and Consistency
- 2) Inadequate Tenderness
- 3) Low Overall Palatability
- 4) Excessive External Fat
- 5) Beef's Price Is Too High For The Value Received
- 6) Insufficient Flavor
- 7) Excessive Weights Of Cuts And Boxes Of Cuts
- 8) Inappropriate USDA Quality Grade Mix
- 9) Incidence of Injection-Site Lesions Is Too High
- 10) Low Overall Cutability

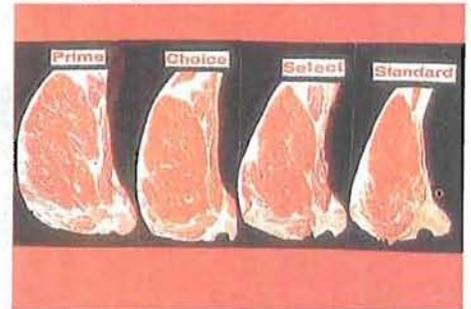
### Packers\*

- 1) Lack of Uniformity and Predictability of Live Cattle
- 2) Liver Condemnation Rate Is Too High
- 3) Too Frequent Hide Damage Due to Mud/Manure,
- 4 tie) Too Frequent Bruise Damage
- 4 tie) Too Many Dark Cutters
- 4 tie) Excessive External Fat
- 7) Cattle of Too Heavy Weight
- 8) Inadequate Marbling
- 9 tie) Too Frequent Hide Damage Due To Hot-Iron Brands
- 9 tie) Beef's Price Is Too High For The Value Received.

\*Packer rankings are for comparative purposes and were not included in the aggregated Top-10 quality concerns.

hide damage from mud and manure occurs too frequently. None of these concerns made the top 10 lists in 1991. They also expressed concern about increased USDA quality-grade mix problems, heavier cattle and/or cuts and reduced eating quality of beef. "What we're getting from the packer too often is product in the box that for the most part is on the low end of the Choice grade. It makes it very difficult to get the product we need. We have too much product that's down on the very bottom of the grade," remarked Irv Fishman, Lombardi Brothers Meats, Denver, Colo.

USDA Quality Grade



## Table 3

### Changes In Rank

Top-10 Producer-Controllable Quality Concerns  
(1991 NBQA Versus 1995 NBQA)

Change In Rank (Places)	Sector	— Rank —		"Quality" Concern
		1991	1995	
8	Purveyor	2	10	Too High Incidence Of Injection-Site Lesions
7	Purveyor	4	NR	Too Much Bruise Damage
7	Purveyor	NR	4	Insufficient Flavor
8	Retailer	1	9	Excessive External Fat
7	Retailer	3	10	Too High Incidence Of Injection-Site Lesions
7	Retailer	NR	4	Low Overall Palatability
8	Restaurateur	3	NR	Excessive Seam Fat
7	Restaurateur	4	NR	Too Large Ribeyes/Loineyes
7	Restaurateur	NR	4	Beef's Price Is Too High For The Value Received
10	Packer	NR	1	Lack Of Uniformity And Predictability Of Live Cattle
9	Packer	2	NR	Too High Incidence Of Injection-Site Lesions
8	Packer	NR	3	Too Frequent Hide Damage Due To Mud/Manure

Producers made remarkable strides in reducing the incidence of injection-site lesions and in decreasing the amount of excess external fat. At the same time, retailers, purveyors, restaurateurs and packers also expressed concern about beef's uniformity and taste.

"What we're getting from the packer too often is product in the box that for the most part is on the low end of the Choice grade. It makes it very difficult to get the product we need. We have too much product that's down on the very bottom of the grade."

— Irv Fishman, Lombardi Brothers Meats, Denver, Colo.

## Phase II—

During Phase II, researchers conducted 36 on-site audits at 27 different packing plants from April 1995 to December 1995. The plants comprise at least 75% of the country's fed-cattle slaughter. These Audits, which included extensive information gathered on slaughtering/dressing floors and in coolers, revealed a number of improvements and shortcomings. They include:

*“In my business, a 1.00 is the best grade for hides, and a 5.00 is the worst. During the third quarter of 1995, domestic hides had an average grade of 3.23 while European hides averaged 1.87. In general, any hide greater than grade 3 is difficult to sell at a profit, because the numerous defects cause the tanner to use more chemicals, as well as finish, in an attempt to disguise the defects. The marketplace does not command as good a price for those leathers.”*

— Robert Koeppen,  
Blueside Companies

- + USDA and NBQA data for percentages of carcasses in the Yield Grade 1 and Yield Grade 2 categories indicate that slaughter steers and heifers have become leaner and more muscular. In 1974, 30% of steers and heifers were classified as YG1 and YG2. In 1991, the percentage had risen to 44%, and in 1995 to 58%.
- The percentage of carcasses grading Choice or Prime, according to USDA and NBQA data, has dropped substantially during the last 21 years. In 1974, 75% of all carcasses graded Choice and Prime. In 1991, 55% graded Choice or Prime and in 1995, that figure has further eroded to 48%.
- + From 1974 to 1995, carcass weight increased 69 pounds, fat thickness decreased 0.15 inches, ribeye area increased by 1-square inch and kidney/pelvic/heart fat percentage decreased 0.9%.
- + From 1991 to 1995, carcass weight decreased 12 pounds, fat thickness decreased 0.12 inches, ribeye area decreased 0.1-square inches, kidney/pelvic/heart fat percentage decreased 0.1% and USDA Yield Grade improved by 0.34 Yield Grade.
- In 1995, 52.3% of cattle had brands, while 44.5% were reported in 1991.
- 32.2% had horns, up slightly from the 31.1% in 1991.
- 48.4% of carcasses had one or more bruises, a sizable increase over 1991's 39.2%. Major bruise damage, which resulted in significant trim loss and primal devaluation, was noted in 11% of carcasses.
- + Dark cutters improved from 1991's 5% to 1995's 2.7%
- Condemnations of the liver amounted to 22.2%; lungs, 5.0%; tripe, 11.0%; and tongues, 3.8% in 1995. That compares to 19.24% for livers, 5.07% for lungs, 3.49% for tripe and 2.7% for tongues in 1991.
- Only 1.3% of the carcasses graded Prime, 11.4% upper two-thirds of Choice, 35.6% low Choice, 46.7% Select, 4.6% Standard in 1995. In 1991, 2.3% graded

*continued on page 10*

### Table 4

**Carcass Specifications, 1974-1995**

	USDA 1974	NBQA 1991	NBQA 1995
Carcass Weight, Pounds	678.7	759.9	747.9
Fat Thickness, Inches	.62	.59	.47
Ribeye Area, Square Inches	11.8	12.9	12.8
KPH Fat, Percent	3.0	2.2	2.1
USDA Yield Grade	3.40	3.16	2.82
Maturity Score	A <sub>0</sub>	A <sup>69</sup>	A <sup>60</sup>
Marbling Score	SM <sup>+</sup>	SM <sup>24</sup>	SM <sup>06</sup>
USDA Quality Grade	CH <sup>-</sup>	SE <sup>86</sup>	SE <sup>79</sup>
U.S. Prime & U.S. Choice	75%	55%	48%
Yield Grades 1 & 2	30%	44%	58%

## Table 5

### Carcass Quality

Category	% Frequency	
	1991	1995
Carcass maturity		
A	93.0	95.1
B	6.7	4.3
C or Older	0.3	0.6
Marbling Score		
Abundant	0.2	0.1
Moderately Abundant	0.5	0.3
Slightly Abundant	1.7	1.1
Moderate	5.5	3.2
Modest	12.3	8.3
Small	37.1	36.6
Slight	36.5	46.9
Traces	5.8	3.7
Practically Devoid	0.3	0.1
Dark Cutter Discounts		
One-Third Grade Reduction	3.4	1.4
Two-Thirds Grade Reduction	1.2	0.95
One Full Grade Reduction	0.5	0.36
Blood Splash In Ribeye	0.7	1.0



## Table 6

### Management Concerns

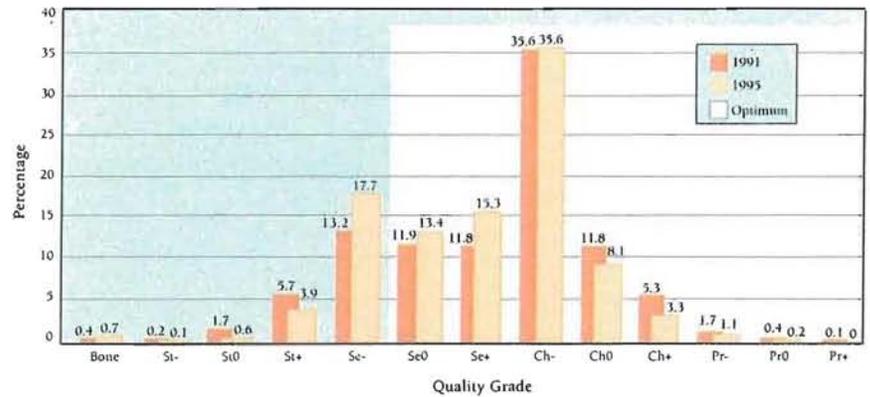
	% Frequency	
	1991	1995
Brands		
No Brand	55.0%	47.7%
Butt Brands	29.9	38.7
Side Brands	13.8	16.8
Shoulder Brands	0.8	3.0
Multiple Brands	2.1	6.2
Excessive Mud	6.8	5.1
Horns	31.1	32.2
Bruises (1 or more)	39.2	48.4
Condemnation		
Livers	19.2	22.2
Lungs	5.1	5.0
Tripe	3.5	11.0
Heads	1.1	0.9
Tongues	2.7	3.8

“Prevent the problems before they start—especially when you’re working cattle. Doing little things like moving the location of brands from the rib to the hip, or not crowding cattle in pens to avoid bruising or employing the use of effective animal health programs can pay big dividends for the entire industry.”

— Ran Smith, DVM, Chairman,  
Beef Quality Assurance Program

# Table 7

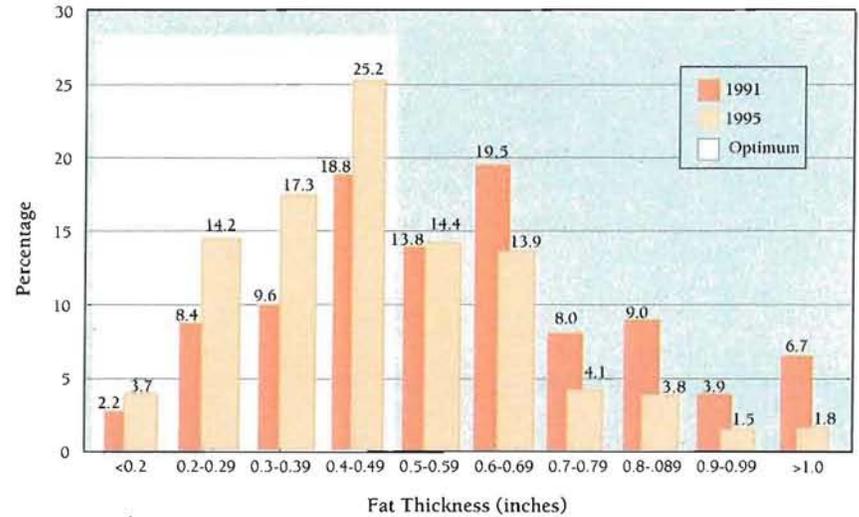
**Distribution Of Quality Grade**



Carcasses with inadequate marbling result in a loss to the beef industry in two ways. First, there is a monetary loss which occurs when an insufficient number of cattle grade USDA Choice and Prime to meet demand for those grades. Second, beef with inadequate marbling may compromise consumer eating satisfaction.

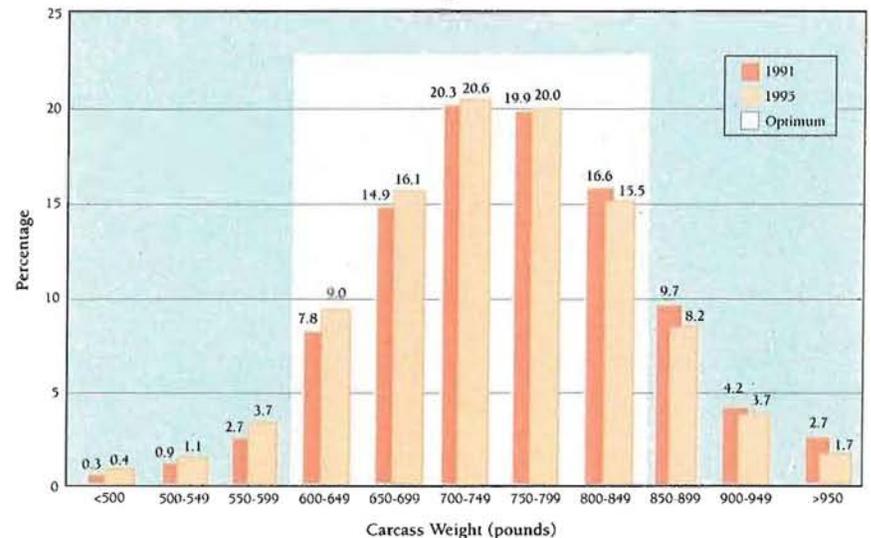
# Table 8

**Distribution Of Adjusted Fat Thickness**



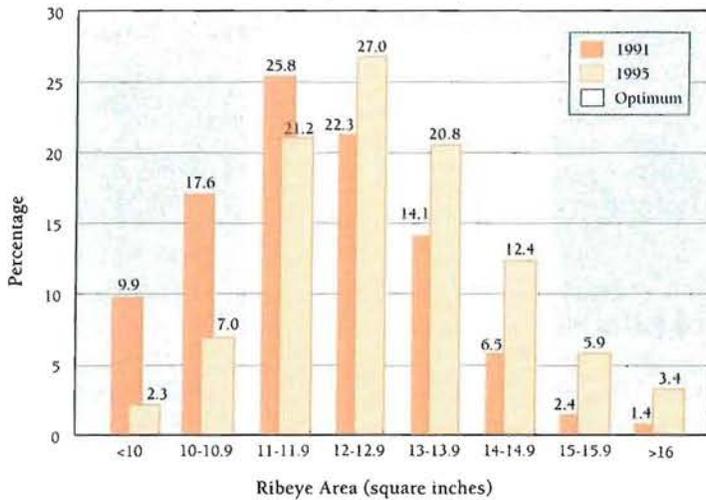
# Table 9

**Distribution Of Carcass Weight**



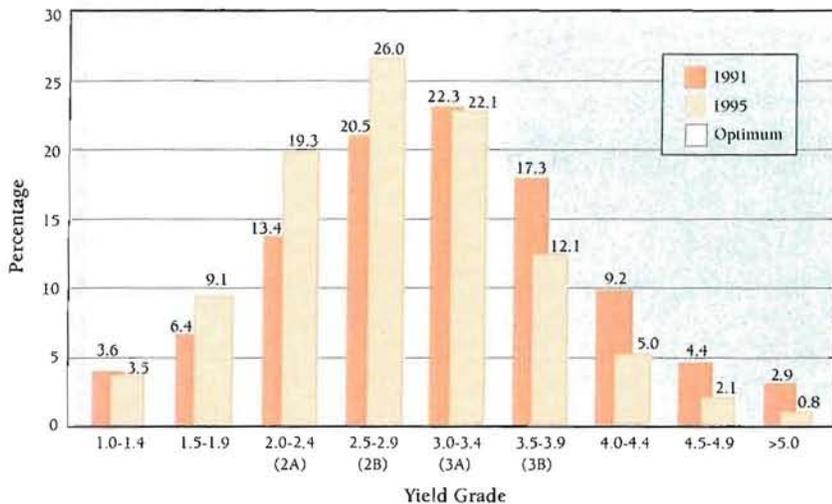
# Table 10

**Distribution Of Ribeye Area**



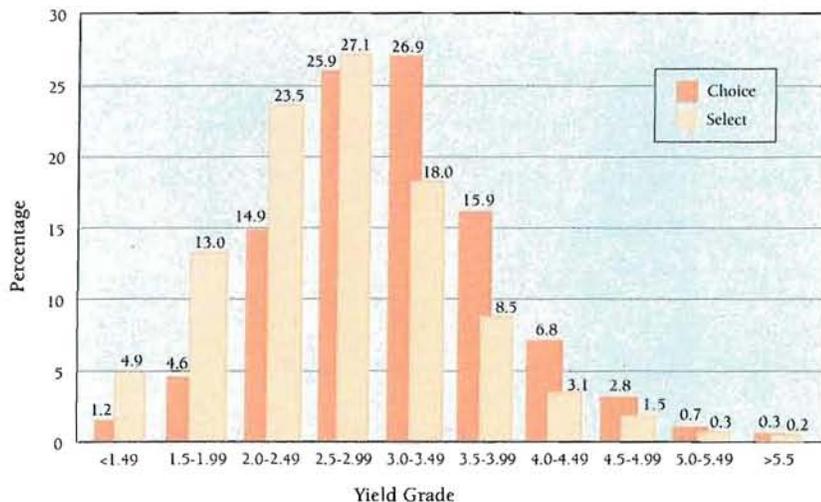
# Table 11

**Distribution Of Yield Grade**



# Table 12

**Distribution Of Yield Grade Within USDA Choice And Select, 1995**



“Within a group of carcasses that we studied at Texas A&M University which had USDA Yield Grades of 2, 45% of the carcasses had a marbling score of Small or greater. This indicates that genetic combinations exist in the cattle population to improve carcass leanness and optimize the taste appeal of beef.”

— Dr. Dan Hale,  
Texas A&M University

## Strategies For Overcoming Beef's Shortcomings

- Assist producers with use of selection and management techniques to produce cattle that fit customer expectations for marbling, red meat yield and weight.
- Establish close-trimmed beef (1/4" or less) as the industry standard.
- Develop a cattle identification system that facilitates data collection and information feedback, and reduces reliance on hot-iron branding.
- Encourage development of cattle-pricing systems that accurately identify and reward production of cattle with zero defects.
- Encourage development of cattle-pricing systems that identify, categorize, and price product attributes that affect consumer satisfaction.
- Continue to discover, develop and apply technology to enhance the quality of beef.
- Identify breeding systems that optimize production, palatability and profitability.
- Identify procedures to facilitate improved customer satisfaction and loyalty to the beef eating experience.

*Developed at the NBQA Strategy Workshop, Denver, Colo., December 1995*

*Phase II — continued from page 6*

Prime, 17.1% upper 2/3 Choice, 35.6% Low Choice, 36.9% Select and 7.6% Standard.

+ Average carcass weight was 747.9 pounds in 1995, compared to 759.9 pounds in 1991.

+ Fat thickness was 0.47 inches, an improvement over 1991's 0.59 inches.

+ Average Yield Grade was 2.82, better than 1991's 3.16.

• Ribeye area was 12.8-square inches, slightly smaller than the 12.9-square inches reported four years ago.

## Phase III—

Phase III brought together representatives of production, packing and marketing sectors for a Strategy Workshop in Denver, Colo., where participants discussed and reviewed results of the Audit's first two phases and developed methods of overcoming many of the industry's quality and competitiveness problems. Quality concerns were then discussed in-depth and a series of 22 presentations were given by individuals with unique expertise in the subject matter assigned to them.

Workshop participants agreed that by increasing the quality, palatability, uniformity and consistency of beef (that is, by reducing the costs of nonconformance), that beef's price/quality/value relationships could be improved and its market-share increased.

Researchers then addressed the manner in which the Audit calculates the costs associated with nonconformity— particularly that of excess fat production. The 1991 study defined all fat as waste and used an overestimated baseline for its calculations of the \$280 loss. That proved to be a mistake, researchers and Strategy Workshop participants agreed, because cattle producers need a certain percentage of fat to ensure reproductive efficiency in their cow herds and palatability of their product.

Quality losses per steer and heifer were computed and agreed-upon in two



ways. First, data and costs obtained in the 1995 NBQA were compared to those obtained in the 1991 study using the same logic and the same prices as those used in 1991. Using that rationale, comparisons of quality losses per steer and heifer from the 1995 Audit versus those of the 1991 Audit revealed a decrease in losses due to waste of \$15.87 and a decrease in losses due to weight of \$0.37. The study also shows an increase in losses due to taste of \$7.29 and management of \$5.72. The apparent gain of \$15.87 in waste reduction may well have resulted from improved “currentness” of feedlot cattle in 1995 as opposed to 1991 and may not be a real effect. Contrasting overall quality losses per steer/heifer for 1995 versus 1991, the gain was \$3.23 when 1991 NBQA logic and prices were used.

Second, data obtained in the 1995 study were not directly compared to those obtained in the 1991 audit. Instead, the new study used a baseline composition that says 16.5% of carcass weight should be fat; 15% of carcass weight, bone; and 68.5% of carcass weight, red meat. The average amount of total trimmable fat in carcasses from the 1995 NBQA was 20.4%. At the new targeted carcass composition of 16.5% fat, there would be 29.17 pounds of excess fat worth \$27.42. To meet the composition target of 16.5% fat, 15% bone and 68.5% red meat yield, carcasses grading Select would require a numerical Yield Grade no greater than 2.1; for low Choice, 1.8; upper Choice, 1.6; and Prime, 1.2. The new logic also took into account the “ideal consist” of USDA Quality Grades, impact of injection-site lesions on damage to muscles of the round, and inclusion of monetary impact of toughness of beef surrounding such lesions in retail and in food-service beef.



*“We can overcome these problems. We just have to learn to do things better, like share information between various segments, so we can improve our management and the genetics of our cattle.”*

— Scott Adamson, Wray,  
Colorado-based feedlot operator

## Table 13

### Ideal Consist Of USDA Quality Grades To Meet Present And Future Demands For Domestic/Export Trades

	Actual 1995 NBQA Consist	Retail (45%)	Food Service Purveyors (45%)	Exporters (10%)	Packers	Aggregate Ideal Consist (100%)
Prime	1	3	6	30	6	7
Upper 2/3 Choice	11	18	19	42	25	21
Low Choice	36	27	43	28	38	34
Select	47	52	32	0	31	38
Standard & Lower	5	0	0	0	0	0

Demand relative to USDA Quality Grade was weighted according to the approximate proportion of beef products moving through each of the various sectors (retail, food service and export) in order to determine the ideal consist. This ideal consist suggests that to adequately meet the needs of all its customers, the U.S. beef industry should produce cattle providing 7% Prime, 21% upper 2/3 Choice, 34% low Choice and 38% Select carcasses. A strong demand for U.S. Select product exists among domestic consumers, many of whom prefer trimmer cuts of beef with less marbling, according to retailer participants in the 1995 NBQA Strategy Workshop. Select product often sells at a somewhat lower price than Choice, and many more price-sensitive consumers are willing to exchange what they perceive to be negligible differences in eating quality for less fat and reduced price. Retailers indicate 50% of beef marketed through their stores must be Select to meet consumer needs.

Conversely, exporters say they need 30% Prime, 42% upper two-thirds Choice and 28% low Choice with no Select to satisfy their customer base, while foodservice representatives need a product mix different from retailers or exporters.

Producers must evaluate their total package of resources and determine which genetics will maximize profitability given constraints of that resource base. Environmental constraints on many ranches may limit the ability to reach higher quality grades. Therefore, market segmentation and targeting will be increasingly necessary to efficiently match production resources to consumer product targets.



*Strategy Workshop participants agreed that the ideal carcass weight range should be 600 pounds to 850 pounds, and that the ideal quality grade Mix should be 7% Prime; 21% Upper 2/3 Choice; 34% Low Choice; 38% Select.*

Based upon data analyses and use of 1995 logic and prices, the quality losses per steer and heifer from the 1995 NBQA totaled \$137.82. Of this total, it was determined that 34.7% could be recovered by **Increasing Red Meat Yield** (\$47.76), 27.8% could be recaptured by **Enhancing Taste and Tenderness** (\$38.30), 34.1% was recoverable by **Improving Management** (\$47.10), and 3.4% was recapturable by **Controlling Weight** (\$4.66).

To address each of these issues, Strategy Workshop participants developed four key recommendations. They include:

1) **Increase Red Meat Yield** by reducing excessive external fat and seam fat. Participants underscored the need to eliminate beef-trim fat in excess of 20% and to produce carcasses that have only 16.5% trimmable fat when fabricated into closely trimmed, boxed beef. They encouraged reducing the incidence of cattle with too much or too little muscling, improving overall cutability and increasing the understanding of the value of closer-trimmed product;

2) **Enhance Taste and Tenderness** by improving tenderness and overall palatability by increasing youthfulness of cattle, minimizing the incidence of bullocks and heiferettes, assuring sufficient marbling and achieving the desired consist of USDA Quality Grades;

## *Tactics For Overcoming Beef's Quality Shortcomings*

- Identify and manage genetic lines that may be used to produce cattle with increased ability to marble and with maximum amount of red meat yield.
- Eliminate side brands and multiple brands.
- Remove horns.
- Improve parasite control.
- Improve red meat yield.
- Adopt carcass weight targets of a minimum of 600 pounds and a maximum of 850 pounds, and encourage further product-weight segmentation by the processor.
- Change the Quality Grade mix to the following: 7% Prime; 21% Upper 2/3 Choice; 34% Low Choice; 38% Select.
- Improve transportation and handling techniques to reduce bruises and dark cutters.
- Eliminate all intramuscular injections.
- Encourage producers to measure, on a repeated basis, those traits that impact value of cattle, beef and byproducts.
- Eliminate genetic and management systems that erode the tenderness, juiciness and flavor of beef.
- Encourage premiums and discounts for superior and inferior characteristics of cattle, carcasses, cuts and byproducts that will more accurately reflect "true value."
- Encourage development of a close-trimmed, boxed-beef futures contract as a means for price discovery for the packing, retailing, and purveying sectors of the beef industry.

*Developed at the Strategy Workshop, Denver, Colo., December 1995*

# Table 14

## Economic Estimation Of Quality Losses Per Slaughter Steer/Heifer

Category	1991 NBQA <sup>a</sup>	1995 Same Logic And Prices <sup>b</sup>	1995 New Logic, Prices & Coverage <sup>c</sup>
<b>Waste</b>			
Excess External Fat	\$111.99	\$103.04	} Waste Fat >16.5% \$ 27.42 <sup>d</sup>
Excess Seam Fat	\$ 62.94	\$ 59.49	
Beef-Trim Fat In Excess Of 20%	\$ 14.85	\$ 14.65	
Muscling	\$ 29.47	\$ 26.20	\$ 20.34
<b>Total Waste</b>	<b>\$219.25</b>	<b>\$203.38</b>	<b>\$47.76</b>
<b>Taste</b>			
Palatability	\$ 2.89	\$ 3.23	\$ 7.64
Marbling	\$21.68	\$25.11	\$28.41
Hardboned Carcasses	\$ 3.80	\$ 7.60	\$ 1.35
Bullocks	\$ 0.44	\$ 0.16	\$ 0.90
<b>Total Taste</b>	<b>\$ 28.81</b>	<b>\$ 36.10</b>	<b>\$ 38.30</b>
<b>Management</b>			
Hide Defects	\$ 16.88	\$ 24.30	\$ 24.30
Carcass Pathology	\$ 1.35	\$ 1.23	\$ 0.46
Offal Condemnation	\$ 0.91	\$ 1.14	\$ 3.44
Injection-Sites	\$ 1.74	\$ 1.03	\$ 7.05
Bruises	\$ 1.00	\$ 1.34	\$ 4.03
Dark Cutters	\$ 5.00	\$ 2.70	\$ 6.08
Grubs, BS, YF, C RE <sup>e</sup>	\$ 0.38	\$ 1.24	\$ 1.74
<b>Total Management</b>	<b>\$ 27.26</b>	<b>\$ 32.98</b>	<b>\$ 47.10</b>
<b>Weight</b>			
Carcass Wt. < 550 or > 949	\$ 4.50	\$ 4.13	\$ 4.66
<b>Total Weight</b>	<b>\$ 4.50</b>	<b>\$ 4.13</b>	<b>\$ 4.66</b>
<b>Total Loss</b>	<b>\$ 279.82</b>	<b>\$ 276.59</b>	<b>\$137.82</b>

<sup>a</sup> Economic costs associated with quality losses reported in the 1991 NBQA.

<sup>b</sup> Economic costs associated with quality losses based on results of the 1995 NBQA; costs were calculated with the same logic and prices used in 1991.

<sup>c</sup> Economic costs using 1995 prices that were determined after making mid-course corrections to refine, establish benchmarks, and expand coverage of quality losses identified in the 1995 NBQA.

<sup>d</sup> Includes costs of excess external fat, excess seam fat, plus beef-trim in excess of 80:20 lean-to-fat ratio.

<sup>e</sup> Abbreviations stand for blood splash, yellow fat and calloused ribeye.



*“Market share can be bought, but not maintained, by just lowering the price; or market share can be earned, and sustained, by improving quality and thus value— and at a price that allows all sectors to remain profitable.”*

— Dr. Gary Smith,  
Colorado State University

*“Results of a computer simulation of the relationships among loineye area, steak thickness and portion weight suggested that loineye areas of 11- to 14-square inches were most appropriate for cutting top loin steaks to 1 inch in thickness and to 8 to 10 ounces in weight.”*

— Dr. Daryl Tatum,  
Colorado State University



3) **Improve Management** by lessening occurrence of injection-site lesions; decreasing hide problems; reducing pathological conditions in cattle, carcasses, livers and tongues; dehorning (to lessen bruise damage and head-condemnation losses); castrating male animals; decreasing bruises; minimizing occurrence of grubs, blood splash, callouses and yellow fat; and lowering the incidence of dark cutters;

4) **Control Weight** by reducing excessive and insufficient weights of live cattle and carcasses, lessening occurrence of excessive weights of cuts and boxes of cuts, and lowering the incidence of ribeyes/loineyes that are too small or too large.

## Opportunities For Prevention, Profit And Product Quality

### *The Challenge To Become Consumer And Quality Driven*

Contained on the following pages are discussions of each of the major areas of concern identified by Strategy Workshop participants. Much of the information provides suggestions for improving management and marketing of fed cattle. This section is provided for producers to help them explore those issues affecting the quality of their product and to help them address these challenges in the future.

#### ✓ **Increase Red Meat Yield**

- **Excess External And Seam Fat Plus Beef-Trim  
In Excess Of 80:20 Lean-To-Fat Ratio: \$27.42**

The beef industry made some headway in addressing the problems associated with excess fat, although most of the progress has been made at the fabrication level, such as packers providing closer-trimmed beef. The Audit also suggests that feeders are also marketing cattle at lower levels of external fat.

Still, the cost of excess fat production and its further handling through the beef marketing chain continues to be the No. 1 factor affecting beef's cost competitiveness with other protein sources.

When beef carries too much fat, market share is lost. After all, retailers attempt to recoup their additional trim losses by adding it to retail prices—which drives up prices that consumers must pay for beef. Restaurants and foodservice businesses simply lose customers or customers choose other entrees. Pressure to reduce fat production on beef carcasses is furthered by increasing demand for lean, ground beef products.

While the use of closely trimmed boxed beef has increased dramatically during the last four years, the responsibility of reducing excess fat lies in the

hands of the producer and the feeder — before their cattle enter the packing plant. A number of strategies exist for the industry to continue to make strides in this area:

1) Producers should identify and employ the use of genetics that produce leaner carcasses without sacrificing marbling.

2) Feeders should manage those genetics by not putting excess fat onto the cattle prior to slaughter.

3) The industry should revise market systems by moving away from traditional dressing percentage and live-weight pricing systems to one that rewards red meat production and marbling, but not trimmable external fat. “In the end, it appears that more realistic goals must be set for achieving reductions in waste so that the industry protects the very thing that creates its price/value relationship with the consumer — eating satisfaction,” says CSU’s Dr. Daryl Tatum.

#### • Muscling: \$20.34

The industry needs to produce cattle that are neither too heavily muscled nor too lightly muscled. For example, ribeyes and loineyes that are too large ranked third among the top-10 concerns of purveyors, restaurateurs and retailers interviewed during the 1991 NBQA and second among purveyors in the 1995 Audit.

Computer simulation studies at Colorado State University indicate that among cattle that are similar in skeletal size and degree of finish, average-muscled steers were \$1.50/head more valuable than their heavy-muscled counterparts and \$101.71/head more valuable than light-muscled cattle. “Results of the computer simulation of the relationships among loineye area, steak thickness and portion weight suggested that loineye areas of 11- to 14-square inches were most appropriate for cutting top loin steaks to 1 inch in thickness and to 8 to 10 ounces in weight,” says CSU’s Dr. Daryl Tatum.

#### ✓ Enhance Taste And Tenderness: \$38.30

Participants at the Strategy Workshop agreed that a number of avenues exist for beef producers to improve the taste, tenderness and palatability of their product. “Taste is a very important issue for beef,” remarks Dr. Jeff Savell of Texas A&M University. “Beef commands the highest price at the consumer level compared with other high-volume proteins such as poultry and pork. This is especially evident in white tablecloth restaurants where rib and loin steaks can be priced in the \$20 to \$30 range. When products cost this much, consumers have high expectations that the dining experience will be outstanding. When it is not, they question whether they are willing to return and again face possible disappointment.”

The problem facing the beef industry is that while producers have made some strides in reducing excess external fat, a concurrent reduction in marbling (“taste fat”) has occurred as well.

Carcasses with inadequate marbling result in a loss to the beef industry in two ways. First, there is a monetary loss which occurs when an insufficient number of cattle grade USDA Choice and USDA Prime to meet the demand for those grades. Second, beef with inadequate marbling may compromise consumer eating satisfaction, resulting in a reluctance on the part of the consumer to purchase that product again.



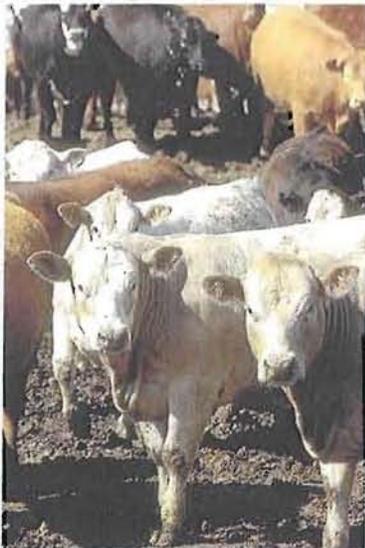
*“Taste is a very important issue for beef. Beef commands the highest price at the consumer level compared with other high-volume proteins such as poultry and pork. This is especially evident in white table cloth restaurants where rib and loin steaks can be priced in the \$20 to \$30 range. When products cost this much, consumers have high expectations that the dining experience will be outstanding. When it is not, they question whether they are willing to return and again face possible disappointment.”*

— Dr. Jeff Savell,  
Texas A&M University

Ideally, NBQA participants agreed, 7% of the carcasses the industry produces needs to grade Prime; the results of the 1995 NBQA, however, show that the number for Prime carcasses currently stands at about 1%. For Upper 2/3 Choice, the industry needs to produce about 21%, compared to the 11% it actually produces. The industry also needs about 34% of its carcasses to grade Low

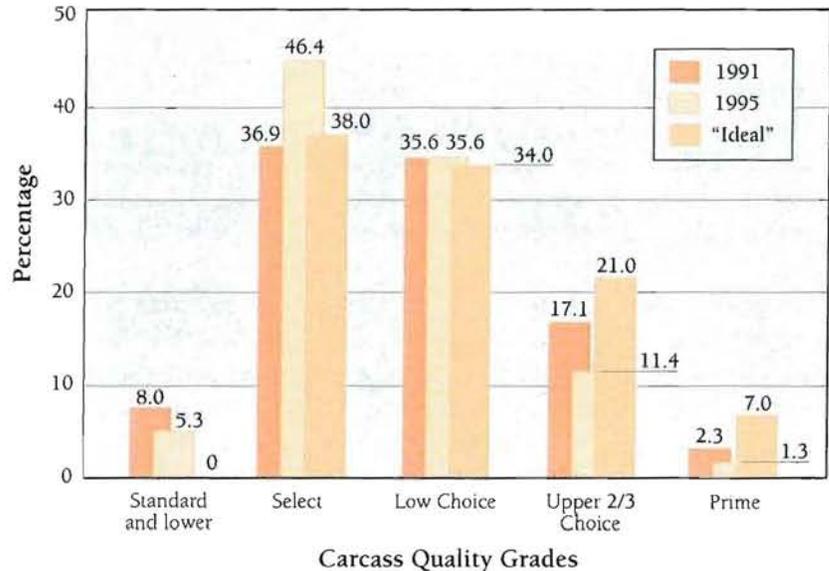
*“We’re not asking producers to launch massive genetic improvement programs. What we’re saying is that they should get rid of their troublemaker cattle, those that don’t conform to what the industry needs.”*

— Dr. Tom Field,  
Colorado State University



## Table 15

### Carcass Quality Grades – 1991 & 1995 Versus “Ideal” Mix



Choice and 38% to grade Select with no carcasses in the Standard or lower quality-grade classifications.

In addition, another immediate challenge for the beef industry is to produce more predictable and less variable cattle. Here are a few strategies that producers should consider:

- First, producers need to identify bloodlines within their cow herds that produce offspring with a higher percentage of carcasses that grade in the Choice and Prime categories. They should eliminate outlier cattle, those that produce Standard-grade or excessively fat carcasses. “Within a group of carcasses that we studied at Texas A&M University which had USDA Yield Grades of 2, 45% of the carcasses had a marbling score of Small or greater. This indicates that genetic combinations exist in the cattle population to improve carcass leanness and optimize the taste appeal of beef,” says Dr. Dan Hale of Texas A&M University.
- Second, the industry must continue development of systems that facilitate the flow of information from the packing plant back to the pasture, such as instrument grading and electronic identification of their cattle.
- Third, producers should take part in educational programs to learn first hand the importance of carcass traits. They can also see the different values associated with different carcass traits in their own cattle. A number of programs currently exist to help them do that. For instance, Texas A&M’s annual Ranch-to-Rail Program, the Oklahoma Feed-Out Program and the Rocky Mountain Ranch-

to-Rail Program offer many opportunities for carcass education and evaluation to producers. In addition, producers should consider using NCBA's Carcass Data Collection Service to obtain valuable carcass information.

- **Palatability**

Product toughness costs the beef industry \$7.64/head or about \$217 million annually. All production sectors in the beef industry — from seedstock and cow/calf producers, to stockers, to feeders, packers, retailers and food service operators — must work together to share information in order to increase the value of the product at each interface.

One way to improve palatability and tenderness is for producers to castrate young male calves. Beef from bullocks, or intact males, is more variable in tenderness, juiciness and flavor than is beef produced from heifers and steers. USDA's Quality Grading Service requires that bullock carcasses be identified as such at the time of quality grading; therefore, sizable discounts are associated with their production. Gender discounts may be avoided through castration.

A second production strategy for improving palatability and tenderness is for producers to market their cattle in a more timely manner, eliminating older cattle that produce "hard-boned" carcasses. Implementation of these two practices, in addition to addressing other management issues, would have saved the beef industry approximately \$64.9 million in 1995.

- ✓ **Improve Management**

Good management adds value to beef. And, while the industry has spent a fair amount of time and resources attacking the "headliner" issues, such as excess fat production, oftentimes, it's the little issues that make a big difference when it comes to improving competitiveness and product quality.

"In the first Audit, we over-estimated the amount of fat that we could remove from the system," remarks CSU's Dr. Gary Smith. "The cost of excess fat — \$189.78 in the 1991 Audit — so overwhelmed costs for deficient muscling, inadequate taste, improper management and incorrect weights that people became obsessed with removing it. At the same time, they didn't work to prevent many of the taste management or weight problems, and paid no attention to bruises, brands, horns or any of the little things. Market share can be bought, but not maintained, by just lowering the price; or market share can be earned, and sustained, by improving quality and thus value— and at a price that allows all sectors to remain profitable."

- **Hide Defects: \$24.30**

While hide defects continue to create problems for the beef industry, oftentimes, they are among the easiest management-related quality defects for producers to overcome. For example, by simply moving the location of a brand from the rib to the hip, producers can add value to the hide and create a win-win situation for themselves and beef industry customers.

Consider these remarks from Robert Koeppen of Blueside Companies, one of the nation's leading hide tanning companies. "In my business, a 1.00 is the best grade for hides, and a 5.00 is the worst. During the third quarter of 1995, domestic hides had an average grade of 3.23 while European hides averaged 1.87. In general, any hide greater than grade 3 is difficult to sell at a profit, because the numerous defects cause the tanner to use more chemicals, as well as

*“Companies— and industries— that provide more value relative to the price of a product capture the largest percentage of market share. This is a simple lesson, but one every beef producer must take seriously if we are to survive.”*

— Dr. Keith Belk,  
Colorado State University





*While cattle producers have made substantial improvements in the incidence of injection-site blemishes, they need to be ceaseless in their efforts to make improvements. Most notably, doing a simple thing like moving the injection-site location from the top butt and round to the neck equates to higher quality beef.*

*“It is important for producers not to cause undue stress on their cattle. Reducing the amount of animal excitement while loading and unloading them from trucks can be very helpful in reducing the occurrence of dark-cutter beef.”*

— Dr. Brad Morgan,  
Oklahoma State University

finish, in an attempt to disguise the defects. The marketplace does not command as good a price for those leathers.”

Of 56,612 head of fed cattle evaluated nationwide by the 1995 NBQA, 52.3% were branded, 6.2% had multiple brands and 16.8% exhibited side brands that usually ranged in size from 50- to 100-square inches. Brands, particularly side brands, and widespread external insect damage dramatically reduce drop credits to packers, thereby reducing the value of the entire animal.

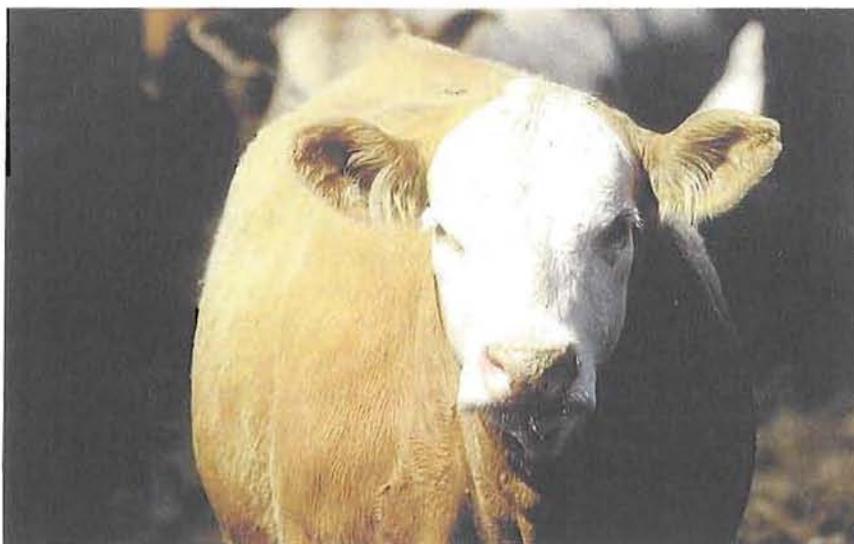
Mud, manure and damage from insects and parasites also cause considerable hide damage and need to be addressed by beef producers. The 1995 Audit concluded that producers should seek ways to prevent cattle from becoming laden with mud and manure. For example, feedlot pens should be equipped to drain excess water and mud, or cattle should be provided with mounds or bedding to help keep them dry. In addition, producers should employ the use of preventive treatments for insects and parasites. These things alone would help tanners in their efforts to achieve greater economic gains — and prevent tremendous losses — from the leather products they produce from hides.

#### • Injection-Site Lesions: \$7.05

Thanks to the work of the Beef Quality Assurance program and the efforts of cattle producers, the frequency of injection-site lesions was substantially reduced from 1991 to 1995. In 1991, the industry lost an estimated \$1.79 for every fed steer/heifer marketed that year due to injection-site lesions in the top sirloin butt. These losses included the elimination of the lesion and the diminished value of the subprimal (i.e., instead of generating steaks, they are used for kabobs, stew meat and/or ground beef).

Recently, Colorado State University researchers have been tracking the incidence of injection-site lesions in both the top sirloin butt *and the round*. Lesions in the round are now considered a significant quality concern. Moreover, current research indicates there are serious tenderness problems associated with lesion-afflicted lean tissue. As a result, economic losses due to injection-site lesions in the 1995 Audit (\$7.05) are much higher than those reported in 1991, even though the incidence level of injection-site lesions in the top sirloin butt has declined.

The Beef Quality Assurance Program emphasizes three general recommendations to reduce the incidence of injection-site lesions:



- First, producers should move the location of injection sites from the top butt and round to the neck. In addition, producers should use subcutaneous routes of administration (where label allows). Producers should also discard burred or bent needles, rather than reusing them.

- Second, the beef industry should encourage pharmaceutical companies to continue the development of new products that can be used effectively subcutaneously, rather than intramuscularly.

- Third, producers should precondition their calves before they ship them to the feedyard. They should pay particular attention to preparing their cattle's immune systems through vaccinating. Programs that emphasize the importance of calf nutrition and timing of vaccinations can significantly reduce both the incidence of cattle "pulled" (and injected) for treatment of respiratory diseases, and the incidence of excesses of multiple vaccinations which can result in injection-site lesions.

- **Dark Cutters: \$6.08**

Dark-cutting beef (DCB) is a term used to describe a condition of the muscles in certain carcasses that remain a very dark-red color long after slaughter. Normal beef muscle "blooms," turning from purple to a bright cherry red color in a period of 20 minutes to 30 minutes following exposure to air. DCB does not fully bloom, remaining dark red or purple in color even after prolonged exposure to air. DCB results when glycogen stores in muscle are depleted prior to slaughter, thus causing the abnormal, and highly undesirable end-product muscle color.

A number of factors cause dark-cutter carcasses, such as fright, fluctuating ambient temperatures, fasting, the mixing of strange cattle prior to slaughter, rough handling, and, some research suggests, improper use of implants. Whatever the case, "it is important for producers not to cause undue stress on their cattle," says OSU researcher Dr. Brad Morgan. "Reducing the amount of animal excitement while loading and unloading from trucks can also be very helpful in reducing DCB occurrence."

- **Bruises: \$4.03**

The 1995 Audit shows that bruises cost the industry \$4.03 for every fed steer and heifer it produces, which is a significant increase from the 1991 NBQA. Yet, bruises can easily be addressed by producers, feeders, truckers and packers by working together to eliminate much of the problem.

- First, because horns damage loins, producers should dehorn their cattle, preferably while they're calves and when the dehorning procedure can be done with limited stress on the animal.

- Second, because back bruises tend to occur while cattle are entering into or departing from trucks, truckers and producers should take care when loading and unloading their animals. Low-hanging bars, floors, decks and endgates on trucks and similar low-hanging elements on loading docks should be moved up or removed.

"When we started working with a packer to produce a branded beef product for consumers, he told us to go out into the corral and hammer down every nail sticking out of a fence post," says Connie Hatfield, an Oregon-based producer. "We saw first-hand the costs of bruising, and how much we could regain in the value of our product by doing such a simple thing."



*"When we started working with a packer to produce a branded beef product for consumers, he told us to go out into the corral and hammer down every nail sticking out of a fence post. We saw first-hand the costs of bruising, and how much we could add value to our product by doing such a simple thing."*

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Oregon Country Beef

*“Carcasses in the 700-pound to 799-pound range provide the most flexibility to packers for manufacturing either bone-in or boneless boxed beef products for their orders, even though a much broader range of carcass weights is sent through fabrication for boxed beef production.”*

—Dr. Glen Dolezal,  
Oklahoma State University



#### • Other Management-Related Concerns: \$1.74

**Blood Splash.** An extensively long stun-to-stick interval— the time that lapses between the stunning of an animal and severing of the carotid arteries and jugular veins— can result in blood splash. This problem is easily addressed if packers pay attention to detail, ensuring that the interval is as swift as possible.

**Calloused Ribeyes.** Problems with calloused ribeyes stem from mechanical damage to the nerves that service bundles of fibers in the muscle. These nerves can be damaged when an animal strikes its back, possibly by hitting a truck bar at loading.

**Yellow Fat.** Problems associated with yellow fat generally trace back to one of two primary causes. The first is genetic. Dairy cattle, for example, have a greater genetic predisposition for production of carcasses with yellow fat. The second is the feeding of only forage or grass. Although the condition isn't frequent, yellow fat is expensive because the entire carcass must typically be converted into ground beef because consumers prefer beef cuts in retail stores that have white fat.

#### ✓ Control Weight: \$4.66

While cattlemen from 1991 to 1995 reduced the percentage of cattle producing carcasses that weighed more than 950 pounds, they also saw a slight increase in carcasses that weighed less than 550 pounds. Ideally, producers should target cattle that would yield carcasses in a weight range of 850 pounds on the top end and 600 pounds on the bottom end of the scale. Anything heavier or lighter than that simply creates too many problems for packers, purveyors and retailers.

Indeed, three separate audits, the 1995 NBQA, the 1994 National Non-Fed Beef Quality Audit and the 1994 International Beef Quality Audit all show that excessively heavy carcass weight ranks as a major concern among people involved in the marketing and sales of beef to consumers. Carcasses that are too large or too small make it difficult for restaurateurs and retailers to offer consistent, desirable, portion-controlled cuts for consumers. In addition, when carcasses or boxed cuts are excessively heavy, they are difficult and oftentimes dangerous for workers to handle.

This is a particularly pressing issue as the industry moves toward more lean-based pricing systems and subsequently increases the number of heavier muscled cattle it produces. “Continued emphasis on reduction of carcass fat will make muscling a more important factor in determining cattle value,” says CSU’s Dr. Daryl Tatum. “If cattlemen begin to place more selection pressure on increased muscularity, live and carcass weights will become even heavier than they are presently. This is an issue we must watch very closely to ensure we do not exceed desirable carcass weight in the meantime.”

The strategies for overcoming this issue are threefold:

First, representatives of various industry segments believe that producers should narrow the window of carcass weight variation by eliminating cattle that do not meet desirable end-product specifications.

Second, adds OSU’s Dr. Glen Dolezal, producers should shoot for an optimum carcass weight range. “Carcasses in the 700-pound to 799-pound range provide the most flexibility to packers for manufacturing either bone-in or boneless boxed beef products for their orders, even though a much broader range of carcass weights is sent through fabrication for boxed beef production,” he says.

Third, if the beef industry is to control the over-production of heavy cattle,

the maximum limit for carcass weight must be reduced and price discounts imposed for carcasses that are too heavy in order to discourage the production of over-weight carcasses.

## Final Thoughts—

Participants in the 1995 NBQA believe that the information on the preceding pages will help cattle producers learn more about the quality shortfalls of their product and provide them with some solutions for overcoming many of beef's quality concerns.

While the NBQA's final assessment is far from a glowing report on beef's overall quality, the product still remains the No. 1 product in the meat case. Consumers prefer beef because of its taste and palatability. It continues to be the safest, most rigorously inspected product available, and it delivers lean and healthful nutrients, helping people live healthy, productive lives.

Still, beef producers can — and should — do better.

The NBQA is a cornerstone in the industry's commitment to Total Quality Management (TQM). TQM is a philosophy based on a commitment to continuous monitoring of end product quality and of the processes by which beef is produced. It is a never-ending commitment to continuous improvement. "You cannot manage what you don't measure," explains NCBA's Dr. Chuck Lambert.

Whether producers are large or small, operate large diversified feeding operations or small family-owned lots, the industry now has available a number of programs, such as the Cattlemen's Carcass Data Collection Service, to help them improve the quality of their cattle. By participating in these programs, producers can compare their carcass data with those of this Audit, learn first hand how their cattle stack up against industry averages, and make improvements in their genetic and production management to build a better product for consumers.

"Quality management is now a major component of a good marketing strategy, and should be a major priority in beef cattle production," remarks CSU's Dr. Keith Belk. "This is especially true because American consumers were exposed over the last 20 years to the products of other countries in which quality management principles are practiced as a matter of culture. Companies — and industries — that provide more value relative to the price of a product capture the largest percentage of market share. This is a simple lesson, but one every beef producer must take seriously if we are to survive."

*For more information about results of the 1995 NBQA, contact Dr. Chuck Lambert or Dr. Gary Cowman at the National Cattlemen's Beef Association, P.O. Box 3469, Englewood, CO 80155 or call 303/694-0305. The NCBA currently has a number of programs available— including the National Carcass Data Collection Service— that can assist producers in obtaining information to help them produce higher quality products, in a more efficient manner.*

The National Cattlemen's Beef Association is deeply indebted to the following companies for their assistance, expertise and participation during the 1995 NBQA. They include:

### Purveyors:

The Bruss Company  
Jac-Pac Foods  
Del Pero Mondon/Cargill  
SmithCo Meats Inc.  
Lone Star Foodservice Company  
Flint Hills Foods, Inc..  
K&N Meats  
Lombardi Brothers Meat Packers, Inc.  
United Meat Co., Inc.  
Vlcek's Fine Meats, Inc.

### Retailers:

Associated Wholesale Grocers  
Chuck Hendrix Consulting  
Cub Foods  
The Great Atlantic and Pacific Tea Company  
Harris Teeter  
The H.E. Butt Grocery Company  
The Kroger Food Corporation  
Nash Finch Company  
Publix  
Safeway Stores  
Save Mart Supermarket  
Topco Associates, Inc.  
Winn-Dixie Stores, Inc.  
Walmart, Inc.  
Wasman's Food Markets

### Restaurants:

Aramark Corporation  
Bugaboo Creek Steak House  
The Capitol Grille  
Hudson Foods  
Ruth's Chris Steak House  
Shoney's  
Trail Dust Steak House

### Packers:

ConAgra Red Meat Companies  
Dawson-Baker Packing Company  
E.A. Miller, Inc.  
Excel Corporation  
Iowa Beef Processors  
Moyer Packing Company  
Packerland Packing Company  
Taylor Packing Company  
Washington Beef Company

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