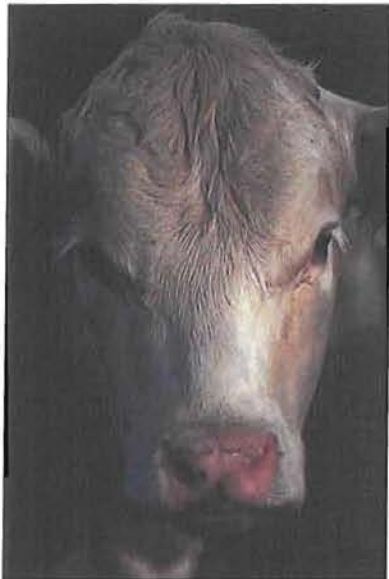
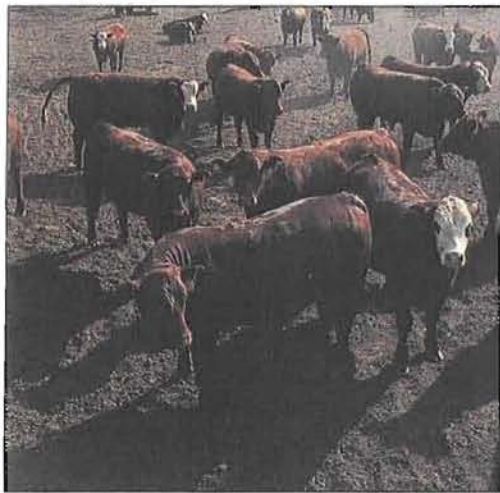


# NBQA 2000

## Executive Summary of the 2000 National Beef Quality Audit



Improving the quality, consistency,  
competitiveness and marketshare of beef



National Cattlemen's  
Beef Association



Cattlemen's Beef Board  
Funded by America's Beef Producers

# NBQA 2000

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## **Conducted By:**

Colorado State University  
Texas A&M University  
Oklahoma State University  
West Texas A&M University

*For the National Cattlemen's Beef Association*

*Funded by America's Cattle Producers through the  
Cattlemen's Beef Promotion and Research Board*

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## Improvements Today, Challenges Tomorrow

Ten years after the beef industry conducted its first-ever National Beef Quality Audit (NBQA), which determined beef was too fat, too tough and too inconsistent to remain competitive, there is finally good news for producers.

NBQA-2000, the third in a series of national audits, demonstrates that producers are making progress in improving the quality of their beef products.

And not only do NBQA-2000's findings support this. Consumers do, too. For the first time in 25 years, beef demand is on the rise, and the beef business is finally taking back some of the marketshare it lost to poultry and pork.

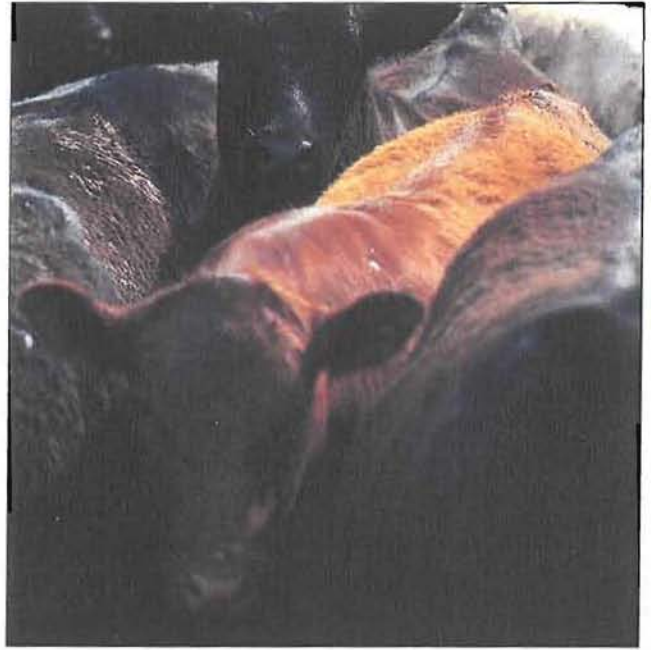
This resurgence in demand is due in large part to producers committing themselves to delivering a higher quality and safer product to the marketplace.

"There is excitement in the beef industry today—and this places even more importance on what you do with results of NBQA-2000," says Chuck Schroeder, chief executive officer of the National Cattlemen's Beef Association. "If we don't continue to build on our commitment of becoming customer-oriented, we'll just be one more generation that missed a key opportunity. Information generated by NBQA-2000 is a powerful tool for producers — and the rest of the industry — to become much more focused on meeting and exceeding demands of the marketplace."

A quick review of NBQA-2000's highlights shows just how far the industry has come since 1991:

In NBQA-2000, there were more Choice and Prime carcasses than there were in 1995. The percentage of Choice and Prime carcasses climbed from 48% in 1995 to 51% of the total fed population in 2000. The percentage of Prime-grade carcasses nearly doubled as it rose from 1.3% to 2% in 2000.

There were fewer undesirable "hardbone" and B-maturity carcasses. The percentage of B-maturity carcasses dropped from 4.3% in 1995 to 2.5% in 2000.



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*— Chuck Schroeder,  
CEO, NCBA, 2000*

There were no major shifts in excess fat production. While carcass fat thickness is slightly higher than it was in 1995, it remains well below 1991 levels. In 1991, excess fat production was a primary product quality concern.

There were substantial improvements in horns. The percentage of cattle with no horns improved dramatically from 68% in 1995 to 77% in 2000. Cattle with horns cause carcass bruising during transport and handling. NBQA-2000 showed 77% were polled or dehorned.

Ninety-eight percent of top sirloin butts were free of injection-site lesions, up from a low of 78.7% in 1991.

There were substantial improvements in the frequency of injection-site lesions. Less than 3% of all top butts contained an injection-site lesion in 2000. That's down from 22% in the early 1990s. While not a food-safety problem, injection-site lesions negatively impact tenderness and product presentation.

In addition, NBQA-2000 also showed that 86% of fed cattle were appropriately branded or not hot-iron branded at all. Ninety-six percent of fed cattle were free of excess mud.

Eighty-eight percent of fed carcasses were free of major and critical bruises, 94% graded Select or better, 88% had Yield Grades of 3 or better.

One hundred percent of federally inspected packing facilities implemented a HACCP approach to food safety — a faraway goal just a few years ago.

Eighty-five percent of fed cattle are now harvested in plants that are using multiple-tiered food safety systems. Today, cattlemen in all 50 states have access to a Beef Quality Assurance program, and the industry now has in place 52 USDA certified or process-verified beef programs.

And finally, quarter-inch trim—once a speculative dream for the industry—is now the industry standard, and delivery of lean, but high-quality products to consumers is better assured.



Still, challenges await the industry; producers must remain focused on continuous improvement if beef is to remain competitive in the future.

The introduction of case-ready product, deemed the most significant advance in beef processing since the

advent of boxed beef in the late 1960s, has already reshaped the way beef is processed, packaged and marketed to consumers.

In the past, packers have simply sold raw product to processors, retailers and restaurateurs, allowing these industry sectors to “add value” to the product. Now, most of the major packers have either rolled out case-ready products of their own, or will very soon.

No doubt, the shift to case-ready beef will have a profound impact on producers and the way they manage their livestock in the future. Cattle will need to be more consistent and higher in quality than ever before. And producers will have to take a much more active involvement in gathering information on their cattle, and ensuring what they bring to market matches the needs of the marketplace.

But it all begins here, in these pages, where there's abundant benchmark information on where the industry stands today, and where it needs to be tomorrow.

We invite you to read it. Think about it. Then take what you've read here to continue making improvements in the way you manage your operation, and in the way you improve the quality and consistency of your cattle.

*“The shift to case-ready beef will have a profound impact on producers. The pressure to produce consistent size and quality of products will force packers to reach back further into the production system than they ever have before in order to identify producers and genetics that best suit their production needs.”*

— Charlie Mostek, IBP

# A history leading to the NBQA

## The long road to quality improvement

- In 1987, Monfort, Inc., compared the value differences between thickly muscled and thinly muscled carcasses. The company determined that thicker muscled steers were worth \$99.96 more per head.
- In 1988, National Cattlemen's Association, Texas A&M University and Swift & Company determined that value differences ranged by \$185/head between Standard-grade carcasses and Prime-grade carcasses.
- In 1989, Monfort, Inc. reported a production-potential shortfall of \$107.32 per slaughter steer/heifer because of management defects, quality deficiencies and Yield Grade problems.
- In 1990, NCA's Value-Based Marketing Task Force announced that the industry was producing 88 pounds of excess fat for every slaughter steer and heifer it produced. The task force pegged the lost value of this fat at \$97 per head.
- In 1990, NCA announced the industry's lost opportunities due to quality defects, branding, excess fat and management problems were

*"I think producers should be proud of the progress we're making. Many of the producer-related quality defects have been reduced substantially. That tells me the industry is taking this commitment to quality very seriously, and it's being taken seriously clear down to the grassroots level."*

*— Gene Wiese,  
Iowa seedstock producer*

costing the industry \$5 billion, or \$192 per slaughter steer and heifer.

- In 1991, the first NBQA announced that the beef industry leaves \$200 per head on the table for every slaughter steer/heifer it harvests because of correctable quality defects.
- In 1995, the National Beef Quality Audit found that live cattle and beef lacked uniformity and predictability, and that production of excessive external carcass fat continued to be the industry's leading quality challenges.

## NBQA-2000 — How the audit was structured

### Goals

To conduct, as a sequel to NBQA 1991 and 1995, a quality audit of slaughter cattle, their carcasses and their dress-off/offal items for the U.S. beef industry; to establish baselines for product-quality shortfalls; and to identify targets for quality levels for the year 2010.

### Objectives

To obtain information from seedstock and cow/calf producers, stockers/backgrounders and cattle feeders about their management practices and how they've changed them as a result of previous NBQAs.

To identify beef quality challenges among seedstock and cow/calf producers, stockers/backgrounders, feeders, packers, purveyors, restaurateurs and retailers.

To characterize and quantify, both statistically and monetarily, quality challenges in fed cattle, their carcasses and their dress-off/offal items via a national audit in 30 beef packing plants.

To compare results of the 1991 and 1995 Audits to those of the 2000 Audit.

And, to determine which quality strategies are working and to develop new strategies to make further improvements.



# Phase I — Questionnaires

## Producers

NBQA researchers developed and disseminated questionnaires to seedstock producers, cow/calf producers, stockers/backgrounders and feedlot operators.

A total of 2,611 operator questionnaires from 21 states were returned. Of those, 518 were from seedstock generators; 1,424 from cow-calf producers; 407 from stockers/backgrounders and 262 from feedlot operators.

In general, all of these producers were asked three questions:

- What are the top-five quality problems facing the industry?
- What changes had they made since 1991 in their genetic or management practices?
- And, what genetic or management changes had their buyers asked them to make?

*“Results of the audit show cattle show that producers are making changes to their operations, and they are committed to meeting and exceeding the expectations of consumers. Thanks to the national beef quality assurance program, state-run BQA programs, extension specialists, veterinarians and the tireless energy of individual producers, beef is seeing some vast improvement.”*

*— Ran Smith, DVM, Kansas feedlot operator and chairman of the industry's Quality Assurance Advisory Board*

**Table 1:** Top 20 "Greatest Quality Challenges", ranked according to aggregated responses by those in all four producer sectors.

	Rank
Inadequate Tenderness Of Beef	1
Lack Of Uniformity In Cattle	2
Insufficient Marbling/Low Quality Grades	3
Presence Of Injection-Site Lesions	4
Inadequate Flavor Of Beef	5
Low Cutability	6
Excess Condition/Fat Cover	7
Carcass Weights Too Heavy	8
Inadequate Muscling	9
Presence Of Bruises On Carcasses	10
Reduced Quality Grade/Tenderness Due To Implants	11
Yield Grades Too High	12
Carcass Condemnations	13
Hide Damage Due To Brands	14
Liver Condemnations	15
Too Small Ribeyes	16
Carcass Weights Too Light	17
Too Large Ribeyes	18
Hide Damage Due To Parasites	19
Hide Damage Due To Mud/Manure	20

**Table 2:** Top 14 "Changes They Had Made Since 1991", by Feedlot Operators ranked by percentage of responses weighted by production size.

	Percentage of responses
(1) Changed Injection-Site Location	13.72
(2) Changed The Genetic Type(s) Of Cattle	12.00
(3) Collected And Used Carcass Data	11.91
(4) Improved Handling Practices	9.15
(5) Increased Record-Keeping	8.46
(6) Increased Worker/Employee Awareness	8.37
(7) Changed Implant Strategy	7.94
(8) Provided Incentive For Preconditioned Calves	6.65
(9) Maintained Health/Management Data	5.91
(10) Increased Individual Animal Identification	4.70
(11) Provided Incentive For Genetically Superior Calves	4.45
(12) Changed Vaccination Program	4.14
(13 tie) Improved Transportation Practices	1.29
(13 tie) Fed Supplemental Vitamin E For Caselife Extension	1.29



# Phase I — Questionnaires

## Packers

A total of 36 questionnaires were sent to all of the packers whose plants were audited for this study. Twenty-nine completed questionnaires and returned them.

In general, packers were asked three questions:

- What are the industry's top five quality challenges?
- In what areas has the industry made the most improvement since 1991?
- In what areas has the industry made the least improvements since 1991?

**Table 3:** Packing companies, based on Packer responses, using specific food safety interventions.

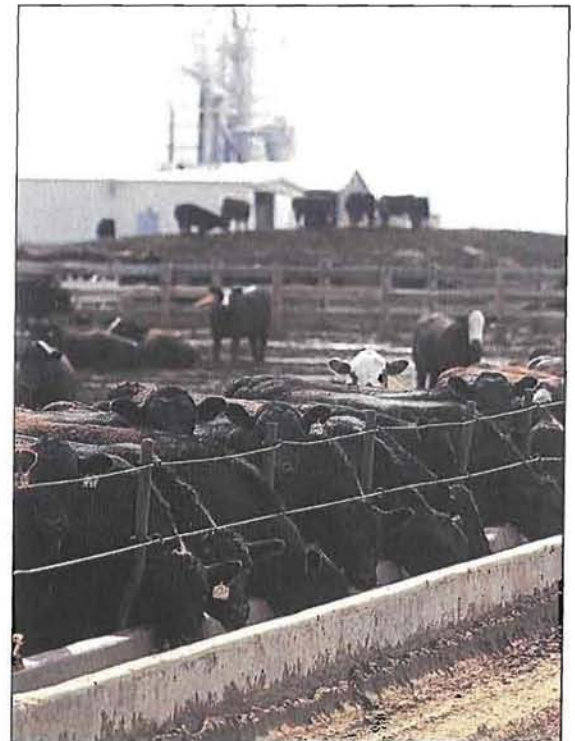
Packers Using the Intervention:	(percent)
Steam Vacuum	100.00
Pre-evisceration Wash	86.21
Steam Pasteurization	82.76
Acid Wash or Rinse	75.86
Hot Water (>165°F) Wash	34.48

**Table 4:** Top 23 "Greatest Quality Challenges", identified by Packers, ranked by percentage of responses weighted by number of plants operated.

	Percentage of responses
(1) Lack Of Uniformity In Live Cattle	17.73
(2) Carcass Weights Too High	17.02
(3) Excess Fat Cover	12.14
(4 tie) Inadequate Tenderness	7.80
(4 tie) Insufficient Marbling/Quality Grades Too Low	7.80
(4 tie) Reduced Quality Grade/Tenderness Due To Implants	7.80
(7) Food Safety	7.09
(8) Low Cutability	4.96
(9) Presence Of Bruises On Carcasses	2.84
(10 tie) Yield Grades Too High	2.13
(10 tie) Presence Of Injection-Site Lesions	2.13
(12 tie) Liver Condemnations	1.42
(12 tie) Hide Damage Due To Brands	1.42
(14 tie) Hide Damage Due To Mud/Manure	0.71
(14 tie) Presence Of Horns	0.71
(14 tie) Carcass Condemnations	0.71
(14 tie) Hide Damage Due To Parasites	0.71
(14 tie) Carcass Weights Too Light	0.71
(14 tie) Too Small Ribeyes	0.71
(14 tie) Inadequate Muscling	0.71
(14 tie) Inadequate Flavor	0.71
(14 tie) <i>E. coli</i> O157:H7 Carriers	0.71
(14 tie) Lack Of Uniformity In The Grading Service	0.71

*"We can manage some of the variation in weight, and not all of it's bad. We have some customers that want the heavier carcasses. But we become concerned when we watch the average weight move up. There are times when we can find ways to accommodate that variation, and there are times when it's more difficult."*

— Glen Dolezal, Excel Corporation, Wichita, Kan.



# Phase I — Questionnaires

## Purveyors, Retailers and Restaurateurs

Researchers sent out 227 questionnaires to members of the North American Meat Processors Association, 315 to the top retailers as identified by *Progressive Grocer*, and 367 to restaurateurs.

A total of 37 questionnaires from purveyors, 44 from retailers and 32 from restaurateurs were received.

These respondents were asked four general questions:

- What are the leading concerns and desires of your customers or consumers?
- In what areas has the industry made the most improvements since 1991?
- In what areas has the industry made the least improvements since 1991?
- What are the industry's top quality challenges?

*"When our industry went to consumers in the 1980s and heard they wanted lean beef, we found our definition was different than theirs. We've had to rethink what we heard, because the kind of product we ended up producing was not really what the consumer wanted. They didn't want trimmable fat. They didn't want to buy product then leave a bunch of it on their plate. Unfortunately, the industry responded by producing a product that lacked marbling, which got too tough when they cooked it. That mistake cost the industry 10 or 15 years of progress. We simply didn't understand what consumers were telling us."*

— James Henderson,  
B3R Country Meats



**Table 5:** Top 10 "Greatest Quality Challenges", ranked according to aggregated responses of Purveyors, Retailers and Restaurateurs.

	<u>Rank</u>
Insufficient Marbling	1
Lack Of Uniformity In Cuts	2 tie
Inadequate Tenderness	2 tie
Excess Fat Cover	4
Inadequate Flavor	5
Cut Weights Too Heavy	6
Too Large Ribeyes	7
Low Cutability	8
Inadequate Juiciness	9
Inadequate Overall Palatability	10

**Table 6:** "Greatest Quality Challenges", identified by Purveyors, Retailers and Restaurateurs, by percentage of responses.

	<u>Purveyor</u>	<u>Retailer</u>	<u>Restaurateurs</u>
Insufficient Marbling	13.89	13.02	11.03
Lack Of Uniformity In Cuts	13.19	13.02	9.56
Excess Fat Cover	11.11	7.81	10.29
Cut Weights Too Heavy	10.42	8.34	4.41
Too Large Ribeyes	10.42	3.65	6.62
Low Cutability	9.72	2.60	7.35
Inadequate Tenderness	9.03	14.59	13.23
Excess Seam Fat	4.86	2.08	5.15
Bruises	4.17	3.13	1.47
Inadequate Flavor	4.17	13.02	10.29
Inadequate Overall Palatability	3.47	7.81	3.68
Inadequate Juiciness	2.78	6.25	9.56
Inadequate Muscling	1.39	0.00	1.47
Cut Weights Too Light	0.69	0.52	2.94
Too Small Ribeyes	0.69	1.56	2.21
Injection-Site Lesions	0.00	2.60	0.74



## Phase II — On-Site Audits

Researchers conducted audits at 30 packing plants, geographically distributed throughout the U.S., collecting data on the harvest floor.

They evaluated a total of 43,415 cattle, 43,595 carcasses and 8,588 carcasses for condemnations.

They also collected data from 9,396 carcasses for carcass weight, gender, breed type, Quality Grade and Quality Grade factors, Yield Grade and Yield Grade factors, dark cutters, blood splash, yellow fat and callused ribeyes.

Data-collecting teams were comprised of six people. Three trained people, with the assistance of government personnel, were responsible for obtaining Yield Grade, Quality Grade and other carcass data. Two people evaluated slaughtering/dressing, carcass, and offal defects. And, one observed the incidence of horns, brands, mud and other physical characteristics of cattle at the

time of stunning.

To assure that teams from the three cooperating universities were consistent in their evaluations, a training session was conducted at the IBP plant in Amarillo, Texas, over a four-day period. At least one representative of each of the four cooperating universities was present during the training session.

Data were analyzed by personnel at Texas A&M University to determine factors affecting quality and/or value and the relative impact of each type of quality defect. In addition, the frequency of the quality defects was determined. Frequency also was determined for combinations of categories. These estimates are presented in a national format. Seasonal variation of both cattle and carcasses was taken into account by collecting data throughout the year.

### Harvest Floor Audits

Information collected on the harvest floor was segmented into three categories: hide-on, bruise and condemnation.

University teams audited each plant for the equivalent of one day's production. Fifty percent of each lot for each shift was audited in each plant, resulting in a total sample size of 43,415 cattle and 43,595 carcasses for hide-on and bruise evaluations, respectively.

For condemnation data, approximately 10% of each lot for each shift was audited in each plant, resulting in a total sample size of 8,588.

Data collected while hides were still on the animal included primary hide color, percent saturation of hide color, mud/manure location, mud/manure amount, presence/absence of mud/manure in the tail region, presence/absence of horns, size of horns, and presence/absence, location (shoulder, side, butt) and size of brands.

Data collected after hides were removed included the presence/absence, location and severity of bruises, incidence of contamination, injection sites and grubs. Heads, tongues, livers, lungs, tripe and carcasses were evaluated for

*"I need cleaner cattle. And the industry needs research on how to control mud and manure in a simple and inexpensive way. Mud that's on the legs and bellies of cattle, that's where the problem is."*

*—Steve Van Lannen,  
Packerland Packing*

incidence of and reason for condemnation. In addition, researchers recorded the incidence of fetuses in slaughter heifers.

**Hide color**—Forty-five percent of cattle evaluated had black as the predominant hide color, 31% were red and 8% were yellow. Holstein cattle were the fourth-most predominant color classification at 5.7%.

Thirty-two percent of the cattle were solid black in color while an additional 11.7% were predominantly black with a white face. Solid red cattle comprised 16.6% of the cattle evaluated, and 12.5% were predominantly red with a white face.

## Phase II — On-Site Audits

**Mud and manure** — Of cattle evaluated, 18.0% had no mud or manure on them, 55.8% had a small amount, 23.0% had a moderate amount and 3.8% had a large or extreme amount. Location of mud/manure was variable; 61.0% of the cattle had coverage in multiple locations.

“I need cleaner cattle. And the industry needs research on how to control mud and manure in a simple and inexpensive way. Mud that’s on the legs and bellies of cattle, that’s where the problem is,” says Steve Van Lannen of Packerland Packing.

**Horns** — Cattle without horns comprised 77.3% of those evaluated, an improvement over 1991’s 68.9% and 1995’s 67.8%. Of cattle with horns, 10.1% of horns were less than 1 inch in length, 75.5% were between 1 inch to 5 inches in length, and 14.4% had horn lengths longer than 5 inches.

**Brands** — Close to half of the cattle did not have any brands (49%), a slight increase from 1995. The percentage of butt brands decreased slightly from 1995 (36% versus 39%), but was still much higher than the 30% observed in 1991. The percentage of side brands decreased 3 percentage points from 1995 to a level comparable to 1991. The percentage of cattle with multiple brands was 4%, which was lower than the 6% reported in 1995.

**Bruises** — A majority of the carcasses (53%) had no bruises, an improvement over the 52% observed in 1995. The percentage of bruises occurring in the loin (26%) decreased dramatically from the 41% reported in 1995. The percentage of bruises occurring in the round (15%) more than doubled from the 7% in 1995, and there was a much greater incidence of bruising in the brisket/flank/plate area.

“Loin bruises have been reduced by approximately 40% compared to 1995,” says Oklahoma State University’s Brad Morgan. “But we still need to work on how we handle and transport these cattle.”

### **Offal condemnation and fetal incidences** —

Condemnation rates for livers (30% versus 22% from 1995) and lungs (14% versus 5% from 1995) were significantly higher in 2000 than in 1995.

In addition, condemnation rates for heads and tongues also increased from 1995; in 2000, 6% of heads were condemned versus 0.9% for heads in 1995. In 2000, 7% of tongues were condemned versus 3.8% in 1995. Incidence of bruises was 1.2%, similar to past audits.

**Injection-site lesions** — Information for injection-site frequency was gathered separately from the NBQA-2000, and results of this portion of the study reflect results of quarterly audits since the mid-1990s through 2000.

Overall, the incidence of lesions in top sirloin butts has dropped significantly. In 1995, the incidence rate exceeded 11% of all carcasses evaluated; in 2000, the incidence had dropped to 2%.

*“Loin bruises have been reduced by approximately 40% compared to 1995. But we still need to work on how we handle and transport these cattle.”*

*—Brad Morgan,  
Oklahoma State University*

**Table 7: Comparative Results: NBQA 1991, 1995 & 2000.**

	1991	1995	2001
No Brands (% frequency)	55.5	47.7	49.3
No Horns	68.9	67.8	77.3
No Manure	93.2	61.6	18.0
No Bruises	N/A	51.6	53.3
Liver Condemnations	19.2	22.2	30.3
USDA Prime & Choice	55	48	51
A-Maturity Carcasses	93	95	97
B-Maturity and Hardbone	7.0	4.9	3.4
Prime	2.2	1.3	2.0
Choice	52.7	46.7	49.1
Select	36.9	46.7	42.3
Standard	7.6	4.6	5.6
Fat Thickness (inches)	.59	.47	.49
Carcass Weight (Lbs.)	759	748	787
Ribeye Area (Sq. Inches)	12.9	12.8	13.1
Ribeye Area/Cwt.	1.70	1.71	1.66
Yield Grade	3.2	2.8	3.0

## Phase II — On-Site Audits

### Cooler Audits

During the second portion of Phase II, investigation teams collected carcass data in the coolers of 30 packing plants. Sample size was 9,396 carcasses. Information included sex of carcass, breed-type, yield grade factors, ribeye area, carcass weight, quality grade factors and defects such as dark cutters, blood splash and yellow fat.

**Sex classification** — Sixty-eight percent of carcasses were steers, 31% were heifers, and 0.3% were bullocks. Compared to 1995, there were essentially no changes in the sex class distribution of the fed-beef population.

• **Yield Grade factors, heifers versus steers** — Heifer carcasses had a slightly more desirable yield grade (2.9 versus 3.2) and a much lower carcass weight (741.4 pounds versus 807.8 pounds) compared to steer carcasses.

In contrast, steers had slightly lower adjusted fat thickness. There were virtually no differences in ribeye area and KPH percentage between steers and heifers. Heifers had slightly higher marbling scores, but overall quality grade was essentially the same. Steers had lower overall maturities, however, both on average consisted of youthful A-maturity carcasses.

**Breed-type** — Researchers noted an increase in the percentage of native-type carcasses, up 2.4 percentage points since 1995, to a total of 90.1%.

The frequency of *Bos indicus*-type carcasses declined 3.5 percentage points since 1995.

The frequency of dairy-type carcasses increased 2.0 percentage over 1995, and are now at levels similar to 1991.

Dairy carcasses had higher yield grades, heavier carcass weights, higher KPH percentages, lower adjusted fat thickness, and smaller ribeyes.

• **Yield grade factors** — Carcasses recorded an average yield grade of 3.0 (higher than 1995's 2.8, but lower than 1991's 3.2), and an adjusted fat thickness of 0.50 inches, which is similar to 1995's 0.49 inches and much better than 1991's 0.59 inches.

The 2000 data show a shift toward lower-cutability carcasses as evidenced by fewer yield grade 2 carcasses and a higher percentage of



yield grade 3.5 or higher carcasses when compared to 1995.

The 2000 data show improvement in the percentage of carcasses with backfat exceeding 0.5 inches. In 1991, 69% of carcasses exceeded this threshold of desirability compared to 47% in 2000.

Ribeye areas in 2000 were slightly larger than in previous audits. In 2000, 64% of ribeyes fell between 11.0 square inches and 13.9 square inches, which is comparable to 1995's 69% and 1991's 62%.

Researchers noted a trend toward larger ribeyes in 2000, with 13% of carcasses exceeding 15 square inches, compared to 9% in 1995 and 3% in 1991.

• **Carcass weight** — Dairy carcasses had slightly heavier carcass weights than did the two other carcass classifications.

Carcass weights continued to increase in 2000. They averaged 787 pounds, or 40 pounds heavier than in 1995, and 27 pounds heavier than in 1991.

The percentage of carcasses less than 550 pounds and exceeding the 950-pound threshold was 4.6%, compared to 1995's 3.2% and 1999's 3.9%.

• **Marbling scores and quality grades** — Dairy-type carcasses had higher marbling scores and consequently higher quality grades than both native and *Bos indicus*-type carcasses.

With the highest marbling, 67.4% of dairy-type carcasses graded Low Choice or higher, compared to 50.6% and 32.2% for native and *Bos indicus*-type carcasses, respectively.

Sixty-six percent of *Bos indicus*-type carcasses graded Select or Standard.

The percentage of Choice or Prime carcasses in 2000 was 51%, up from the 48% reported in 1995.

Researchers noted an increase in the percentage of Choice carcasses and a decrease in Select carcasses over 1995 levels.

**Dark cutters and other defects** — The incidence of dark-cutting carcasses continued to decline from previous audits. The 2000 study posted a 2.3% rate of incidence, compared to 2.7% in 1995 and 5% in 1991. Blood splash and yellow fat had an incidence rate of 0.5% and 0.4%, respectively; no callused ribeyes were reported in 2000.

## Phase III — Strategy Workshop

Representatives of all industry sectors participated in a Strategy Workshop to discuss findings of Phases I and II and to develop strategies and tactics for the industry to continue to address quality issues.

Using data and information gathered during Phase I and II, workshop participants developed a list of top 10 quality challenges for the U.S. fed beef supply. These are included in Table 8.

Participants also identified, characterized and quantified quality defects and costs for nonconformance for slaughter steers/heifers, their carcasses and their dress-off/offal items.

These costs were estimated based on the frequency and incidence at which each defect occurred. The average loss of value associated with the presence of the defect was then computed for each fed steer/heifer harvested in 2000. The value-losses were computed to be \$277.81 in 1991 and \$135.88 in 1995.

These losses were estimated using three forms of logic: first, using the same logic and prices as in the 1991 Audit, to allow direct comparison of results of the economic losses in the NBQA-1991 and in the NBQA-2000 and to measure producer progress over the past nine years; second, using the same logic and prices as in the 1995 Audit to allow direct comparison of the results of the economic losses in the NBQA-1995 and in the NBQA-2000 and to measure producer progress over the past five years, and third, employing new logic and updated prices and expanding

**Table 8: Top 10 Quality Challenges.**

1. Low overall uniformity and consistency of cattle, carcasses and cuts.
2. Inappropriate carcass size and weight.
3. Inadequate tenderness of beef.
4. Insufficient marbling.
5. Reduced Quality Grade/tenderness due to growth promoting implants.
6. Excess external fat cover.
7. Inappropriate USDA Quality Grade mix.
8. Too much hide damage due to brands.
9. Too frequent and severe bruises.
10. Too frequent liver condemnations.

coverage, as needed, of quality losses for which there was no accounting in 1991 and/or 1995. A summary of quality losses is presented in Table 9.

In addition to the top 10 quality challenges, Strategy Workshop participants identified what the beef industry is doing well, and developed strategies, tactics, research goals and industry goals for improving quality, consistency, competitiveness and marketshare of U.S. fed beef.

*“Now's the time for producers to make positive changes on their own farms and ranches through improved genetic selection and management practices. Quality improvement begins there, long before consumers purchase their products in the supermarket or restaurant.”*

*— Bill Sanguinetti,  
NCBA Quality Assurance*

**Table 9: Benchmark value-losses for quality challenges identified in Phase II of the Audits, NBQA-1991 vs. NBQA-1995 vs. NBQA-2000.**

	1991	2000 Logic/Prices	1995	2000 Logic/Prices	2000 New Logic
Excess External Fat	111.99	113.20	27.42	35.25	42.80
Excess Seam Fat	62.94	63.90			
Beef Trim (20%)	14.85	16.58			
Muscling	29.47	14.22	20.34	8.16	8.16
Total Waste	219.25	207.90	47.76	43.41	50.96
Palatability	2.89	2.39	7.64	2.39	2.39
Marbling	21.68	18.67	28.41	19.17	20.96
Hardboned	1.29 (3.80)	0.52	1.35	0.90	0.63
Bullocks	0.44	0.27	0.90	0.68	0.47
Total Taste	26.30 (28.81)	21.85	38.30	23.14	24.45
Hide Damage	16.88	28.12	24.30	23.92	1.70
Carcass Condemnations	1.35	1.93	0.46	0.72	0.96
Offal Condemnations	0.91	1.50	3.44	5.49	4.54
Injection-Site Lesions	1.74	0.25	5.11	3.02	3.59
Bruises	1.00	1.19	4.03	0.61	0.75
Dark Cutters	5.00	2.33	6.08	5.18	5.43
Grubs/BS/YF/CRE	0.38	0.13	1.74	1.20	1.26
Total Management	27.76	35.45	45.16	40.14	18.23
Weight (550-949)	4.50	6.07	4.66	8.23	6.46
	\$277.81	\$271.27	\$135.88	\$104.92	\$100.10
	RECAPTURED \$6.54			RECAPTURED \$20.96	
	RECAPTURED 2.35%			RECAPTURED 15.73%	

## Strategies

1. Assist producers with use of selection and management techniques to produce cattle that fit customer expectations for marbling, red meat yield, weight and other value-determining attributes.
2. Assist producers with the process of collecting and analyzing data and sharing and utilizing information.
3. Enhance an already commendable record in regards to the production of safe, nutritious and wholesome beef.
4. Assure delivery of predictable and uniform lots of cattle by more correctly managing implants, nutrition, horns, castration, sorting and health programs while refining selection strategies to meet specific market windows.
5. Assure that the needs of case-ready product marketing efforts can be met by improving the yield, consistency and palatability characteristics of beef.
6. Implement new production technologies only after carefully considering the consumer demand-perception, economic, environment and animal welfare consequences.
7. Encourage continued use of cattle-marketing systems that identify, categorize and assign price to product attributes that affect consumer satisfaction by appropriately rewarding and discounting performance.
8. Identify breeding, management and sorting systems that optimize production, palatability, cutability and profitability.
9. Encourage post-harvest product enhancement technologies to assure the delivery of suitably tender and flavorful products to consumers while simultaneously managing the pre-harvest production process to achieve the same objectives.

# Phase III: Strategy Workshop

## Tactics

1. Develop and implement a voluntary, industry-driven, standardized electronic individual animal identification system that is tied to a seamless system of transmitting information up and down the production, processing and distribution chain.
2. Merchandise and purchase only those seedstock that are accompanied by objective performance information relative to economically important traits (production and end-product).
3. Eliminate side brands.
4. Eliminate horns via selection or early dehorning.
5. Castrate early.
6. Match implant strategies to cattle types to optimize product quality with economic returns.
7. Develop management/production practices to reduce variation in weight and cut sizes within a lot.
8. Utilize health management and nutrition protocols that contribute to improved quality attributes.
9. Match a majority of the fed cattle to carcass weight targets of 650-850 pounds.
10. Handle and transport cattle in a safe and humane manner.



*"The greatest improvements resulting from the NBQA have been reductions in injection-site lesions, fewer light-weight carcasses, improved locations of hide brands on cattle, and fewer bruises on carcasses. But the industry has made the least improvement in increasing marbling, reducing the incidence of carcasses that are too heavy, improving uniformity, reducing hide damage due to mud/manure, and reducing the incidence of condemned livers."*

*— Dr. Gary Smith,  
Colorado State University*

11. Train 100% of beef and dairy producers, veterinarians, transport providers and others with an impact on cattle in Beef Quality Assurance principles and procedures as well as humane handling practices.
12. Move all injections to the neck region and eliminate intramuscular injections.
13. Reduce immediately those genetic and management practices that contribute to production of USDA Standards, Yield Grade 4s and 5s, dark cutters and non-conforming carcass weights and cut sizes.
14. Change the Quality Grade and Yield Grade mix to 6% Prime, 27% Upper Two-Thirds Choice, 32% Low Choice and 35% Select, and to 15% Yield Grade 1, 26% Yield Grade 2A, 27% Yield Grade 2B, 24% Yield Grade 3A and 8% Yield Grade 3B.
15. Participate in partnerships and coordinated market chains to foster communications and the delivery of products that meet consumer demands.
16. Continue to support and encourage development of branded beef product concepts and value-added, further processed beef items.

# Phase III: Strategy Workshop

## Industry Goals:

1. Eliminate USDA Standard-grade carcasses.
2. Eliminate Yield Grades 4 and 5.
3. Eliminate injection-site lesions from whole-muscle cuts including the chuck.
4. Eliminate side branded hides
5. Reduce horns to less than 5% of the fed cattle supply.
6. Develop and implement a standardized electronic individual animal identification system.
7. Develop an information system that allows each producer to conduct a quality audit for his/her own herd.
8. 100% of seedstock animals should be accompanied by meaningful genetic data (EPDs, etc.) for production and end-product traits.
9. 100% BQA training.
10. Eliminate major and critical bruises that result in a devaluation of subprimals.
11. Improve the transportation (handling and equipment) of cattle.
12. Continually improve the eating quality of beef.

*"Now, the key to continued improvement will depend on individual producers to conduct their own, individual quality audits, evaluating where their management and genetics stand. Then they need to initiate contact with their customers or suppliers to open up lines of communication within this industry. There is no longer a one-size-fits-all protocol for this industry. It's the small, individual conversations that will make continued quality improvements happen."*

*— Dr. Tom Field,  
Colorado State University*

## A Commitment To Never-Ending Improvement

"I am a member of the U.S. beef industry and because I am committed to the role I play as a producer of safe, nutritious and wholesome food for myself, my family and humanity, I promise to:

Continually seek to learn more about my business and my industry so that my family can prosper, that opportunities can be created for others, and that better products can be made available to the world's consumers.

Collect, share and use meaningful information that affects the value and quality of beef.

Seek opportunities to improve relationships with others in the production, processing and marketing of cattle, beef and beef by-products.

Train and retrain myself and my employees in the principles and procedures of Beef Quality Assurance.

Be a good steward of the natural resources, the animals and the products under my care."

For more information about NBQA-2000, contact NCBA's Dr. Gary Cowman or Chad Vorthmann at 303-694-0305. Or email them at [gcowman@beef.org](mailto:gcowman@beef.org) or [cvorthmann@beef.org](mailto:cvorthmann@beef.org).



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