

# Executive Summary of the 2007 National Market Cow and Bull Beef Quality Audit



- Recognize and optimize cattle value
- Monitor health
- Market cattle in a timely and appropriate manner
- Prevent quality defects
- Be proactive to ensure beef safety and integrity



# Executive Summary of the 2007 **National Market Cow and Bull Beef Quality Audit**

**Conducted by**



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December 2007

## Do the right thing.

Ultimately, this is a roadmap to optimize beef quality.

- This document summarizes an industry-wide research effort that is unique to all of U.S. agriculture.
- In these pages, we talk openly about the challenges and opportunities our industry faces. We discuss our weaknesses. And, we explore where we've been and where we've made progress.
- We share ideas on how we can work together – in our own way, on our own farms – to improve beef quality and the stewardship of cattle.
- Since the first beef quality audits were conducted in the early 1990s, cattle producers like you have moved aggressively to make beef better.
- You recognize quality matters.
- You understand the necessity of food safety to underpinning beef demand.
- You realize beef production doesn't end when a cow or a bull leaves your farm, that it's really a first, critical step in a complicated journey to the dinner plates of America.
- You also recognize how consumers have changed in recent years.
- They worry more than ever before about antibiotics and disease.
- They want to know their steaks or hamburgers are produced safely and humanely.
- They scrutinize abuse or mishandling of livestock like never before.
- At the same time, they trust us, and they demonstrate this trust by keeping beef at the center of the plate.
- They continue to prefer beef's flavor to all other products in the marketplace today, and they'll continue to support our livelihood as long as they know we're doing a good job.
- But it's something we can never take for granted.
- About 250 million Americans will eat beef – the beef you helped produce – this week.
- And, beef produced from cows and bulls has become an increasingly important food item in America's kitchens and restaurants.
- It's no longer just fast food hamburgers. It's roasts, steaks, fajitas and an endless array of innovative, flavorful and value-added food items that are available at just about every restaurant, grocery store and eatery in America.
- "Beef producers must stop thinking of market cows and bulls as culls and start managing, monitoring, and marketing them as the important food source they are," says Dr. Bill Henning of Pennsylvania State University. "Improved production of cull cows and bulls will help keep up with the American consumer's love affair with beef."
- And ultimately, that's what the 2007 National Market Cow and Bull Beef Quality Audit is all about. It provides a review of where we've been, a snapshot of where we are today, and a roadmap for where we can be tomorrow.

## Background

In 1994, the industry conducted its first audit to develop strategies and tactics for improving quality and minimizing economic losses.

The audit determined the industry fell short in ensuring the quality of its product in a number of important areas. These included:

Producers did not harvest cows and bulls in a timely fashion, waiting instead until the physical condition of the cattle had deteriorated, resulting in numerous problems down the production line:

- Beef and dairy cows had inadequate muscling at harvest.
- Too many market cows were disabled prior to harvest.
- Too many market cattle and carcasses were condemned.

Too many carcasses had excessive bruises.

The audit concluded these problems could have been reclaimed if producers managed, monitored, and marketed their herds more closely to promote value in their cows and bulls and improve the quality of beef.

In 1999, a second audit determined that the industry had made significant strides in reducing condemnations, the frequency of disabled cattle,

bruising, damage caused by branding, injection-site lesions and the overall condition of cattle, but concluded much more work needed to be done to make beef better and beef producers more competitive.

## Point of Improvement

Reduce the use of electric prods and other aggressive driving aids when moving cattle.



## The 2007 Audit

Researchers carried out the 2007 National Market Cow and Bull Beef Quality Audit between December 2006 and September 2007.

Their goal was to compare results to the 1994 and 1999 audits, determine how far the industry has come in addressing previously identified quality problems, what areas are still below grade, and future challenges.

### The audit was comprised of four phases:

During Phase I, researchers conducted audits in packing plants to identify quality defects in cows and bulls in receiving areas and holding pens, and in their carcasses on harvest floors and in chill coolers. They also audited packing plants for fabrication and traceability.

The packing plant phase of the audit was the result of the work of over 70 auditors, including faculty, staff and graduate students, as well as state beef council personnel and other members of the industry working in collaboration with seven universities.

The audit took place in 23 packing plants in 11 states. Collectively, these plants harvest more than 15,000 head per day. The audit surveyed approximately 5,500 live animals, 5,000 carcasses during harvest, and 3,000 carcasses in the coolers.

In Phase II, interviews consisting of free response and aided questionnaires were conducted with two interviewees at each plant – one packer and one Food Safety Inspection Service (FSIS) employee. The purpose of the interviews was to determine improvements and declines in the quality of cattle since the 1999 audit.

In Phase III, the audits consisted of interviews with eight end users, looking specifically at subprimal defects, top sirloin center cuts, caps, and bottom round flats. They also looked for injection-site lesions and other defects that would cause devaluation.

In Phase IV, researchers, producers, retailers, restaurateurs, packers, processors and government representatives met for a two-day workshop to discuss strategies and tactics to ensure continued quality and animal-handling improvements.

## Phase I – Packing Plant Audits

During this phase, auditors monitored six areas at 23 packing plants: receiving, holding pens, harvest floors, coolers, and fabrication rooms. The auditors also looked at the traceability of the cattle being processed by these plants.

## Receiving Audits

### Key points:

- Auditors evaluated approximately 5,500 live animals and 10 % of trucks during this phase.
- Substantial reductions in the incidence of downer cattle.
- All truck and trailer loads met AMI guidelines for spacing.
- Use of electric prods has diminished but continues to be a cattle-handling problem that needs improvement.
- Cattle slipping while being unloaded is low but exceeds AMI guidelines and is still a problem that needs to be addressed.
- Cattle need to be separated by gender to avoid injuries.
- Dairy cattle traveled shorter distances than beef cattle.

Overall, cattle loads averaged 34.7 square feet per animal and 24 animals per load. Dairy cattle loads averaged 36 square feet per animal and 15 head per load.

**Travel** – Among overall load numbers, less than 1% of the cattle traveled more than 28 hours.

- Average travel for all cattle was 6 hours and 283 miles.
- Dairy cattle were trucked an average of 3 hours and 125 miles.
- The minimum distance traveled by cattle overall was 1 mile.
- The minimum traveled for dairy cattle was 5 miles.
- The maximum distance traveled for all cattle was 1250 miles, while the maximum distance for dairy cattle was 602 miles.

**Trailers** – 64% of all loads and 37% of dairy loads arrived on tractor trailers, while 36% of all loads and 63% of dairy loads came in on gooseneck/ bumper trailers. 17% of dairy loads traveling in tractor-trailers contained cattle in the doghouse (the rear compartment of potbelly trailers), compared to 16% of overall loads.



**Load sorting** – 65% of all loads and 90% of dairy loads were single gender. 35% of all loads and 10% of dairy loads were multi-gender. 67% of all multi-gender loads were not sorted by gender. 50% of multi-gender dairy loads were not sorted by gender.

**Cattle unloading** – 65% of all cattle loads had no cattle slip, 70% had no more than 3% cattle slip, and 30% had more than 3% cattle slip. 71% of dairy loads had no cattle slip, 71% had no more than 3% of cattle slip, and 29% had more than 3% of cattle slip.

**Dead/moribund cattle** – A total of 0.24% loads had moribund cattle and 0.04% had dead cattle. Dairy cattle loads contained 1.04% moribund and 0% dead cattle.

**Electric prod usage for unloading** – Electric prods were used on 22% of all loads and 15% of dairy cattle loads.

13% of all cattle loads saw electric prods used on more than 25% of the animals unloaded.

10% of dairy loads saw electric prods used on more than 25% of the animals unloaded.

**Other driving aids used while unloading** – 14% of all cattle loads experienced the aggressive use of driving aids other than electric prods. Aggressive use is defined as making contact with the animal with driving aids such as sticks, paddles, and whips. 5% of dairy loads experienced the aggressive use of body parts as driving aids.

**Electric prod usage while moving cattle to the restrainer** – 83% of all plants used electric prods for moving cattle to the restrainer. 65% used electric prods on more than 25% of the cattle as they were moved.

**Other driving aids used when moving cattle to the restrainer** – 39% of plants audited showed the aggressive use of driving aids, (aids other than electric prods), when moving cattle to the restrainer. Employee fatigue resulted in an increase in aggressive handling as the day progressed.

## Point of Improvement

Improve footing so cattle don't slip and injure themselves.

## Holding Pen Audits, Part 1

### Key points:

- Fewer cattle had mud/manure problems than in 1999.
- More cattle were polled than in 1999.
- Fewer cattle had brands than in 1999.
- 92% of the cattle had some form of identification.
- Majority of dairy cattle were Holstein.
- Fewer abscesses in dairy cattle than in 1999.
- Dairy cows had the most visible defects compared to other gender/cattle types.

**Visible defects** – 69% of all cattle had no visible defects. 63% of dairy cows and 80% of dairy bulls had no visible defects.

**Abscesses and lumpy jaw** – 0.39% of cattle had abscesses of the jaw/tooth compared with 1% of all cattle in the 1999 audit.

1% of all cattle surveyed had abscesses of the knee/hock, down from 2% in 1999.

At 2% for dairy cows and 4% for dairy bulls, knee/hock abscesses were down from the 1999 figures of 6% for dairy cows and 5% of dairy bulls. Hook/pin abscesses occurred in 1999 at a rate of 1% for all cattle surveyed. In 2007, 1% of all cattle, 1% of dairy cows, and 2% of dairy bulls had hook/pin abscesses. 0.59% of all cattle, 0.15% of dairy cows,

and 1.09% of dairy bulls had lumpy jaw in 2007, compared to 0.59% of all cattle, 1% of dairy cows, and 0% of dairy bulls in 1999.

**Udder defects** – 83.9% of all cows audited had no udder defects, while 76% of all dairy cows were free of udder defects.

**Reproductive defects** – Cows surveyed had a 0.23% incidence of vaginal prolapses and 0.31% incidence of retained placentas. 4.08% of bulls had broken penises.

**Hide colors** – 93% of dairy cows and 90% of dairy bulls were Holstein.

**Identification types** – 68% of all cattle surveyed had back tags. 60% of all cattle, 66% of dairy cows, and 44% of dairy bulls had visual identification tags. Metal clips were used to identify 45% of all cattle, 37% of dairy cows, and 16% of dairy bulls. 8% of all cattle, 8% of dairy cows, and 20% of dairy bulls had no identification.

**Mud/manure** – 57% of all cattle had some amount of mud/manure with 51% of mud/manure located on the legs.

All cattle improved from only 6% with no mud/manure in 1999 to 43% with no mud/manure in 2007.

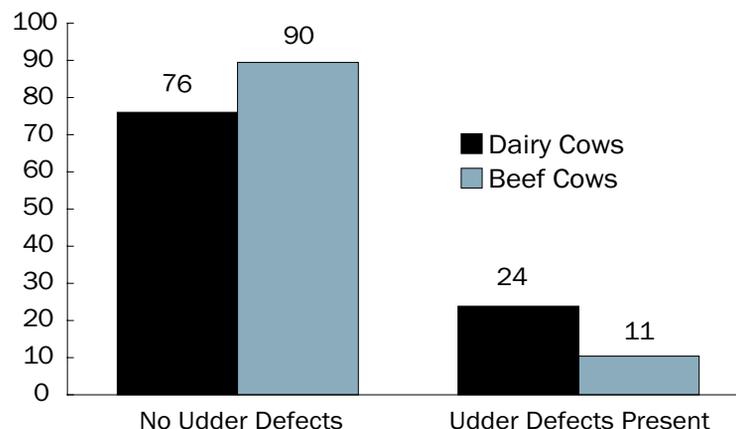
**Brands** – 76% of all cattle surveyed during the 2007 audit had no brand, an improvement from 1999's 54%.

**Horns** – There was an increase in the percentage of polled animals since the 1999 audit, from 77% to 83%.

### Point of Improvement

When transporting cattle, separate them by gender to avoid injury or bruising to livestock.

## Frequency Distribution of Udder Defects in Cows



## Holding Pen Audits – Part 2

### Key points:

- 97% of the cattle had no evidence of cancer eye, an improvement over 1999 and 1994.
- Dairy cattle had more knots in the neck and shoulder than in beef cows, with more observed in the shoulder than the neck, an indication that producers need to observe labeling instructions for injectable animal-health products.
- There was a higher incidence of lame dairy cows in 2007 than in 1999 and 1994.
- Fewer cattle had light muscle scores than in 1999.
- More dairy cows were in leaner condition than in 1999.

**Cancer eye** – 97% of all cattle had no evidence of cancer eye. Cancer eye has been on a downward trend since 1994, dropping from an incident rate of 8.5% in 1994 to 4% in 1999 and 3% in 2007.

**Visible knots** – 92.1% of all cattle surveyed had no visible knots. When visible knots were present 2.6% were in the neck, 4.6% in the shoulder, 0.2% in the top butt, and 0.50% in the round. 85.8% of dairy cows and 91.1% of dairy bulls had no sign of knots in the neck and shoulder. 4.3% of dairy cows and 1.5% of dairy bulls had knots in the neck area. 8.8% of dairy cows and 6.7% of dairy bulls had shoulder knots. The incidence of knots in the round area in dairy cows decreased from 4.2% in 1999 to 0.7% in 2007. Incidence of knots in the shoulder area of dairy cows rose sharply from 0.6% in 1999 to 8.8% in 2007.

“The higher incidence of shoulder knots indicates a need for continued education,” says Texas A&M’s Dr. Jeff Savell. “These knots are likely the result of intramuscular injections of animal health products instead of the recommended subcutaneous injections in the neck area.”

**Lameness** – 70% of all cattle, 51% of dairy cows, and 78% of dairy bulls showed no sign of lameness. 4% of all cattle received scores of 4 and 5, qualifying these animals as very disabled.

At 49%, more dairy cows were lame in 2007 than the 39% in the 1999 audit and the 23% in the 1994 audit.

Dairy bull figures were slightly improved. In 2007 22% of dairy bulls were lame, compared to 29% in 1999 and 24% in 1994.

**Muscling** – 21% of all cattle audited were inadequately muscled. There were fewer light-muscled dairy cows in 2007 than in 1999. In the 1999 audit 72% of dairy cows came in with a muscle score of 1 or 2. In 2007 that number fell to 35%.

**Body condition score** – Dairy cattle were scored from 1, severely emaciated, to 5, severely over conditioned.

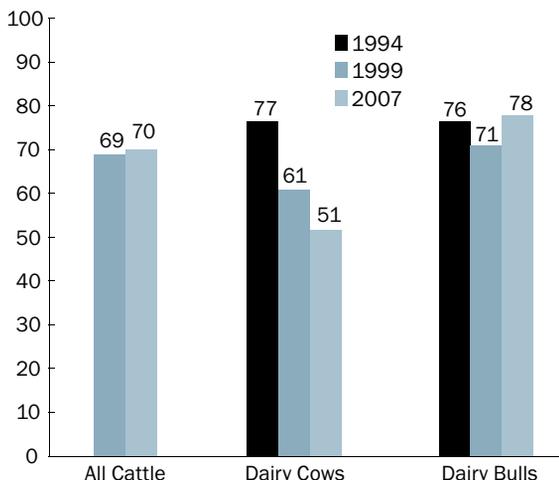
63% of dairy cattle had body condition scores of 2.5 and lower.

### Point of Improvement

Administer animal-health products in the neck, and do so subcutaneously when the label allows.

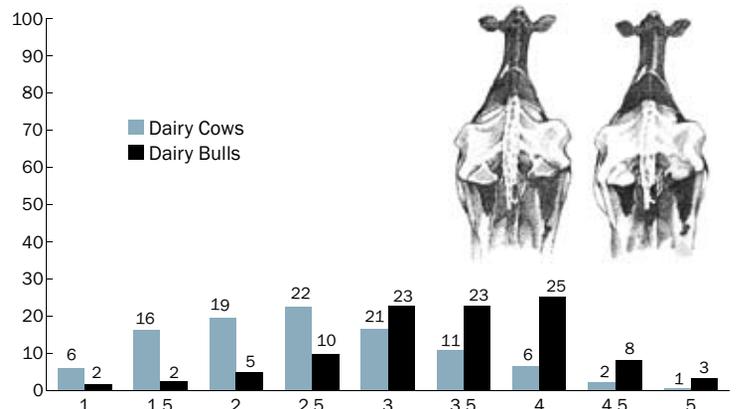
## Frequency Distribution of Cattle with No Evidence of Lameness Across all Audits

Dairy Cows are More Lame than in 1999



## Frequency Distribution of Body Condition Scores for Dairy Cattle

Approximately 63% of Dairy Cows are BCS 2.5 and Lower



## Harvest Floor Audit

### Key points:

- Fewer cows had bruises than in 1994 and 1999.
- Overall 94% of the cattle had no evidence of injection sites.
- Dairy cattle had more visible injection-site blemishes than beef cows (11% versus 2%).
- Fewer arthritic joints than in 1999.
- No buckshot/bird shot was observed during the 2007 audit, an improvement over 1999.
- More heads and livers were condemned than in 1999.
- Fewer cows were pregnant at harvest than in 1999.

## Point of Improvement

Follow the guidelines for animal care and handling.

**Dentition** – 11.2% of all cattle and 5.7% of dairy cows had 8 extremely worn adult incisors (classified as gummers). 58% of all bulls and cows had 8 adult incisors. Dairy cattle came in at 63% with 8 adult incisors.

**Bruises** – The 2007 audit found fewer carcasses with bruises than in the 1994 and

1999 audits. The highest incidence of bruising in dairy cow carcasses was in the round at 14%, followed by 10% FPB, 6% loin, 3% rib, and 2% chuck. Dairy bull carcass bruising figures were 19% round, 7% FPB, 8% loin, 0% rib and 3% chuck.

**Injection-site lesions** – Overall, 94% of carcasses showed no evidence of injection site lesions. 89% of dairy cow carcasses had no lesions and 99% of dairy bulls had no lesions, but dairy cows had more injection-site lesions than any other

gender/cattle types. 2% of all carcasses had minor injection site lesions that resulted in trims of less than one pound per bruise site. 3% of dairy cows and 1% of dairy bulls had minor lesions. 4% of dairy cows had medium injection site lesions, (between the size of a golf ball and a softball), 3% had major lesions (larger than a softball and requiring substantial trim per bruise site), and 2% had extreme lesions (resulting in a trim area nearly the size of an entire primal).

**Arthritic joints** – 89% of all carcasses in 1999 had no arthritic joints removed. This figure was improved to 94% of carcasses in 2007. 93% of dairy cow carcasses and 92% of dairy bull carcasses had no arthritic joints removed. 2% of dairy cows and 3% of dairy bulls had 2 arthritic joints removed.

**Buckshot/grubs** – 100% of carcasses audited in 2007 were buckshot-free. 99.95% of carcasses were free of grubs.

**Offal condemnation** – More offal was condemned in 2007 than in 1999. 31% of livers were condemned in 1994, 24% in 1999, and 45% in 2007. Of the 45% of rejected livers, 14% were abscessed, 7% were contaminated, 6% had flukes, 5% had T-lang, and 14% were rejected for “other” reasons.

**Whole carcass condemnations** – In 2007, when carcasses/animals were condemned, 0.3% were condemned antemortem and 0.8% were condemned postmortem. No carcasses were condemned due to bruises in 2007.

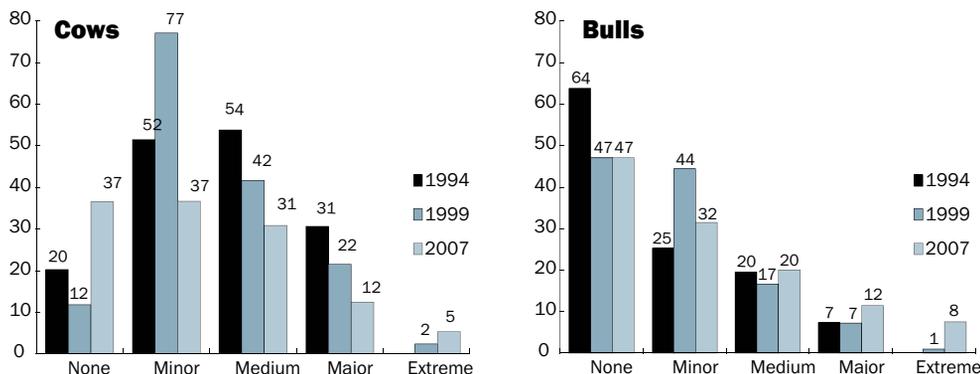
**Pregnancy** - 11% of all cows were pregnant at harvest in 2007, down from 12% in 1999, and 28% in 1994. Dairy cows had an 11% pregnancy rate.

### Bruising Severity Frequency Distribution%

#### All Cattle

1999 - 11.8% No Bruises

2007 - 36.6% No Bruises



## Cooler Audits

### Key points:

- Cow and bull carcasses were heavier than in 1999.
- Cow and bull carcasses had a lower fat thickness than in 1999.
- Majority of cows had a muscle score of 1 or 2.
- More cow carcasses had the more desirable fat color scores of 1 and 2 than in the previous two audits.

**Carcass weight** – Cow and bull carcasses were heavier in 2007 than in 1999. In 1999, cow carcasses averaged 540.5 lbs. and bull carcasses averaged 858.5 lbs.

In 2007, dairy cow carcasses averaged 648.8 pounds and dairy bull carcasses averaged 927.9 pounds

21% of all carcasses were less than 500 lbs. and 7% of all carcasses were too heavy (more than 1,000 lbs.) compared to the 46% that were too light and the 27% that were too heavy in 1999. 19% of dairy cow carcasses were too light, and 4% were too heavy. 2% of dairy bull carcasses were too light, and 36% were too heavy.

**Fat thickness** - Fat thickness for all carcasses averaged 0.22 inches in 2007, lower than the 0.37 inches measured in 1999.

**Ribeye area** – Ribeye area averaged 10-square inches. Ribeye area/cwt. of carcass averaged 1.54.

**Marbling** – 3% of carcasses were devoid of marbling.

**Lean maturity** – 27% of all carcasses were scored as C maturity for lean. 24% of dairy cow

carcasses and 71% of dairy bull carcasses were classified as C lean maturity. In 1999 33% of cow carcasses were D lean maturity.

**Skeletal maturity** – 16% of all carcasses, 14% of dairy cow carcasses, and 15% of dairy bull carcasses were D maturity. In 1999 cow carcasses averaged E and bull carcasses averaged D<sup>+</sup>.

**Overall maturity** – 39% of all carcasses, 44% of dairy cow carcasses, and 29% of dairy bull carcasses were graded as D overall maturity.

**Quality grade** – 44% of all carcasses graded utility. 29% of all carcasses and 20% of dairy cow carcasses graded as cutters. 8% of all carcasses and 4% of dairy cow carcasses graded as canners. 0.2% of the carcasses audited graded prime.

**Muscling scores** - The majority of dairy cow carcasses had a muscle score of 1 or 2, with an average for all cattle of 2.06. In 1999 cow carcasses averaged 1.6 and bulls averaged 3.5.

**Fat scores** – More carcasses audited in 2007 had fat color scores of 1 and 2 (whiter color). The 2007 average score was 2.7. The average fat color score in 1999 was 3.8 for cow carcasses and 2.5 for bull carcasses.

**Yield grade** – The average yield grade was 2.6 in this year's audit. Cow carcasses in the 1999 audit averaged a 2.4 yield grade.

## Point of Improvement

Market your cattle before they become too thin or too lame for transport.



## Fabrication Audit –

### Key point:

- A significant portion of beef cuts from cow and bull carcasses are used as whole muscle cuts and lean strips of meat.
- The round, sirloin and chuck from cows and bulls are being sold as lean trim for primal-specific ground beef programs.

### Average percentage of products produced

– The 2007 audit found on average, during one full production day, 11% of the products produced were forequarter cuts, 28% were hindquarter cuts, 1% were FPB, and 58% were trim. With the exception of tenderloins, most hindquarter subprimals were 100% lean and likely used for grinding.

**Subprimals** – Of plants that submitted information about fabricating subprimal cuts from primal regions of cow and bull carcasses, 100% fabricated rib cuts, 100% fabricated loin, 85.7% round, 85.7% flank, 57.1% chuck, and 21.6%

brisket.

**Plant production by product** – The 2007 audit noted an increase in the production costs of most cuts since 1999.

## Point of Improvement

Maintain record-keeping systems to verify your “Best” management practices and reduce or eliminate potential for liability surrounding issues of food safety.

% of Plants that Produce Each Item		
Product	1999 %	2007 %
Ribeye	74	100
Tenderloin	79	100
Knuckle	37	86
Flank	74	86
Inside Round	42	79
Strip Loin	68	71
Top Sirloin Butt	5	71
Chuck Tender	16	57
Eye of Round	42	57
Bottom Round	37	50
Chuck Roll	16	28.6
Bottom Sirloin Flap	21	28.6
Brisket	21	21
Shortloin	32	14
Clod	16	14
Tri-Tip	11	14

**Traceability audits** – 2% of carcasses were selected randomly to determine whether the animal could be traced back to the ranch/farm.

Plant information such as back tags, bangs tags, and owner information were used for this process. Auction barns, USDA offices, and actual owners were contacted to identify the point of origin for each animal.

64% of all cattle and 56% of dairy cattle were traced back to their original owner. 19% of all cattle and 22% of dairy cattle were traced back to the auction barn. 13% of all cattle and 16% of all dairy cattle were traced back to the cattle dealer/trader. 5% of all cattle and 7% of all dairy cattle could not be traced back past the packing plant.



## Phase II – The Interviews

Interviews were conducted with one packer and one Food Safety and Inspection Service employee at each packing plant. The interviews consisted of free response and aided questionnaires and were used to determine improvements and declines in the quality of cattle since the 1999 audit.

Packing plant and FSIS representatives interviewed, acknowledged that the downer rule instituted by the United States Department of Agriculture’s Food Safety and Inspection Service has led to several improvements in beef cattle quality.

Packing plant representatives noted a decrease in the number of downer, dead and moribund cattle, and fewer instances of inadequate space on trailers and incorrect loading of cattle.

FSIS representatives also noticed fewer downer, dead and moribund cattle, and fewer instances of inadequate space on trailers. Their observations indicated fewer animals arriving suffering from advanced lameness and extreme emaciation.

## Top quality challenges, 1999 versus 2007

1999	2007
Bruises	Food safety
Antibiotic residues	Animal welfare/handling
Birdshot/buckshot	Poor condition/nutrition
Arthritic joints	Antibiotic residues
Yield	Bruises
Condition/leanness	Hide damage
Condemnation rate	Lameness/soundness
	Condemnation rate/downers
	Injection-site prevalence

## Top 5 improvements over 1999

- Herd management techniques
- Animal welfare and handling
- Hide damage
- Injection-site location
- Bruises

## Point of Improvement

Recognize and optimize the value of your market cows and bulls. Cows and bulls comprise a significant portion of your farm or ranch’s income – so they need to be managed and marketed in ways that add value – not subtract from it.



### Phase III – End User Audits –

A total of eight end-user audits were conducted.

These audits consisted of interviews and looking for quality defects in subprimal cuts as they were being further processed. Auditors looked at top sirloin center-cuts, and caps, and bottom round flats. They looked for any injection site lesions as well as other defects that cause devaluation.

### Top 5 cow and bull quality challenges according to end users as determined during the interview process –

- Product uniformity
- Product quality
- Buck shot
- Cattle availability
- Injection sites

## Point of Improvement

Ensure the safety of your product. Cows and bulls must be free of chemical, pathogenic and physical hazards when you ship them for harvest.

### Top 5 improvements in cow/bull subprimals –

End users said that overall injection-related defects (beef and dairy carcasses) have improved since 1999, including a reduction in the incidence of needles, abscesses, injection site lesions, and bruising. They also noted that there were fewer incidences of buckshot.

### Declines in cow/bull subprimals since 1999 –

End users noted growing concerns over meat from subprimals that is too light or too dark in color. Coloration problems were mainly a concern for steaks cut from top butts.

**Top sirloin cap defects** – When examining the subprimals as they were being further processed, end-user auditors found that 9.4% of top sirloin caps had injection site blemishes. 90.0% of dairy top sirloin caps had no defects. 8.0% had minor defects, 0.1% had severe defects, and 0.2% were condemned.

**Top sirloin center cut defects** – 95.8% of all center cuts had no defects. 3.8% of center cuts had injection-site blemishes.

**Bottom round defects** – 67.0% of all bottom rounds had no defects. 10.4 % had active lesions, 15.5 % had woody calluses, 3.6% had fibrous scars, 1.0% had bruises, and 2.7% were dark cutters. In 1999, 57.5% of dairy flats had defects, compared to 59.1% in 2007. 25.3% had minor defects, 1.3% had severe defects, and 0.1% were condemned.

### Conclusions – The Strategy Workshop

Representatives of all industry sectors met at a strategy workshop to discuss findings of the audit, and to develop industry-wide recommendations for the improvement of quality defects in cows and bulls.

Overall, participants agreed, the dairy cattle industry has made significant quality gains since the last audit.

- There has been significant improvement in the reduction of downer cattle.
- All trailer and truck loads met the American Meat Institute guidelines for spacing.
- Less than 1% of the cattle traveled for more than 28 hours.
- Fewer cattle had mud/manure problems than in 1999.
- More cattle were polled than in 1999.

“The reduction in the incidence of horns is a positive development because horns can cause substantial bruising to other animals in pens and on trucks,” says Lynn Delmore, California Polytechnic State University. “Horns can also result in head condemnations during postmortem inspections because they have to be removed to allow the hide to be removed properly. This exposes the sinus cavity to hair and other foreign materials that violate the zero tolerance standards.”

- More cattle had no brands than in 1999. The presence of brands causes devaluation of hides, particularly if the brand is located on the ribs.
- 92% of the cattle in the 2007 audit had ID (predominantly back tags), so traceability was improved.
- The majority of dairy cattle were Holsteins.
- 97% of the cattle had no evidence of cancer eye (an improvement over 1999 and 1994).
- More dairy and beef cows were in leaner condition.
- Fewer cattle had inadequate muscle scores.
- Fewer cattle had bruises than in 1994 and 1999. This is a positive trend because bruises require trimming in varying degrees depending on the severity of the bruise.
- Overall 94% of the cattle had no evidence of injection-site blemishes, but 11% of dairy cows had visible injection-site blemishes.
- Fewer cattle had arthritic joints than in 1999. This is a very positive trend because packers are required to remove all tissue associated with arthritic stifle joints. Fewer arthritic joints equal less trim loss.

- No buckshot or birdshot was observed during the audit, although it is still a packer concern.
- Fewer cows were pregnant at harvest than in 1999.
- Cows and bulls were heavier than in 1999.
- Cows and bulls had a lower fat thickness than in 1999.
- Majority of cows had a muscle score of 1 or 2.
- More cows had desirable fat color scores of 1 and 2 (whiter color) than in 1999 or 1994.

### Initiatives for Improvement:

- 1) The cattle industry needs to reduce the use of electric prods and provide training in low stress cattle management in order to minimize the aggressive use of driving aids when moving cattle off of trailers and when moving cattle to a restrainer or knock box.  
65% of the plants used the electric prod on more than 25% of the animals.
- 2) Improvements are needed to lessen the incidence of cattle slipping when unloading.
- 3) Continued improvement is needed in separating cattle by gender.
- 4) More knots in the shoulder than in the neck indicates a need for continued education about the proper way to administer animal-health products; most of these products need to be administered subcutaneously rather than intramuscularly when both routes are approved. Because the NCBA encourages producers to administer products in the neck, knots in this region are not counted as quality defects.
- 5) More heads and livers were condemned.
- 6) All producers should realize that the animal care guidelines adopted by the National Cattlemen's Beef Association apply to the handling and care of all cull animals.

### Culling

Dairy producers should market cull cattle in a timely and appropriate manner, long before their cattle become too thin or too lame for transport.

Culling dates for dairy cattle are often set due to production level. Culling can be dependent on a certain time in the lactation cycle. Dairy producers who use the Dairy Records Management System (DRMS) observe the condition of their cattle at calving, first breeding, just past mid-lactation, and at dry-off. Dairy producers should use those opportunities to coordinate culling with better management practices to maximize the quality of cull animals.

Dairy producers should conduct frequent observation of their cattle to prevent loss of body condition to the point where the animal is emaciated. Sudden changes in body condition are an alert to health problems such as twisted stomachs, parasites, and respiratory infections.

Dairy producers need to be aware of the liability connected with selling animals that have been exposed to drugs, insecticides and wormers and set market dates that allow for the recommended withdrawal time, so that any violative residue dissipates before the animal is marketed.

Market dairy cattle with a body condition score below 2.5 should be considered for a reconditioning program to increase muscle and fat deposition prior to marketing. When marketed, these cattle need to possess sufficient soundness for transport and sale.

### Point of Improvement

Continuously monitor herd health. It's in your best interest to observe the health of your cow herd, and to ensure you market cows and bulls before they become too compromised to make the trip to town.



## Transport and handling of animals

All persons involved in the handling and transport of beef and dairy animals should follow the guidelines defined in the Master Cattle Transporter program.

Judicious use of driving aids such as electric prods (electric prods) is always recommended.

Truckers should receive more training.

## Risk management and information management

Dairy producers should maintain recordkeeping systems to verify their Best Management Practices (BMP). Production records should document the use of animal health products as well as the animal husbandry practices that have been employed prior to the animals being marketed.

The result will be a decrease in liability for issues that may occur after harvest. And, integration of existing ID systems will improve traceability of the product, such as the integration of tag numbers and visual animal ID tags.

### Four Primary Directives

Participants at the Strategy Workshop also developed four primary directives for the improvement of cow and bull beef.

These include:

#### 1.) Be proactive to ensure the safety and integrity of your product

Consumer confidence is one of the most important issues facing today's beef industry.

Market cows and bulls must be free of chemical and physical hazards when they are shipped for harvest. Additionally, both dairy and beef producers must do their part to reduce the incidence of pathogens in the beef supply. Producers, by their efforts alone, cannot eliminate the occurrence of pathogens in the beef supply. However, they can play an important role in reducing the incidence of pathogenic organisms in or on beef by maintaining biosecurity and cleanliness of animal facilities and by keeping market cows and bulls as clean as possible.

Injectable pharmaceuticals must be administered using recommended guidelines

regarding location and route of administration, dosage and specified withdrawal time to ensure cattle are free of antibiotic and other violative residues. Following proper industry guidelines also will minimize the occurrence of injection-site lesions in whole muscle products entering the beef trade.

Producers cannot risk leaving broken needles in the muscle tissue of cattle that ultimately will enter the human food supply and must develop a protocol for removing needles should they break-off into the muscle tissue when treating/vaccinating cattle. Producers also must be aware of the growing concern regarding adulteration of beef products with birdshot and buckshot. Use of shotguns to gather cattle must be prohibited. Moreover, efforts of cattlemen to identify sources of birdshot/buckshot by hunters and others should be intensified.

#### 2.) Closely monitor herd health and market cull cattle timely and appropriately

Diseases and injuries are common in mature cattle and cannot always be prevented or corrected. In such cases, producers must intervene promptly and appropriately to prevent suffering of afflicted animals and to maintain product quality and safety.

Producers should closely monitor their herds for serious conditions such as cancer eye, arthritis and severe structural problems or injuries, lump jaw, advanced abscesses, chronic illness and emaciation. Euthanasia should be considered for disposing of "downers" or cattle with advanced or terminal disease conditions. Euthanasia may be more responsible and humane than transporting an afflicted animal to a processing plant in an effort to use it for human consumption.

Producers can reduce marketing losses associated with advanced stages of cancer eye by early detection and correction of the problem. Long-term, cattlemen should consider genetic strategies (such as EPD development or marker-assisted selection) for reducing the occurrence of cancer eye in breeds that are most susceptible to the problem. Finally, the incidence of severe cases of cancer eye would decrease if producers would refuse to sell, and packers would refuse to buy, cattle that have advanced cancer eye lesions.

Marketing losses associated with arthritis and the considerable carcass trim loss that results from removal of arthritic joints also can be reduced by early detection and intervention. Other actions that producers may consider include training of all personnel to avoid causing injuries to cattle, selection

## Point of Improvement

Prevent quality defects.

Things like bruises, injection-site lesions, improperly placed brands, dark cutters, or cattle that are too thin or too fat, have inadequate muscling caused by emaciation – are preventable.

for structural correctness, and improvement of flooring and housing in production facilities (particularly dairies) to reduce the incidence and severity of arthritic joints.

### **3.) Use appropriate management and handling practices to prevent quality defects**

A number of quality defects – such as bruises, injection-site lesions, improperly placed brands, dark cutters, cattle that are too thin or too fat, and inadequate muscling caused by emaciation – are manageable and can be prevented.

Producers should implement a quality assurance program and use “best” management and handling practices to reduce the incidence of such quality defects.

Bruising of market cows and bulls represents a significant source of marketing losses to producers. Producers can reduce the incidence of bruises by not overcrowding cattle in alleyways, chutes and trailers; minimizing the use of prods and whips; selecting against wild or temperamental cattle; training people at all points in the marketing chain with respect to proper cattle handling techniques; eliminating horns; moving cattle slowly to and from pens; properly designing and maintaining facilities; and improving transportation methods.

### **4.) Recognize and optimize the value of your market cows and bulls**

In 1999, returns from the sale of market cows and bulls represented approximately 16% of total returns to the average beef cow/calf operation and about 4% of total returns for the average dairy operation.

Cattle-Fax reported a \$36.19/cow profit in 1999. However, without proceeds from the sale of market cows, the average commercial cow-calf producer would have lost \$22.35 per cow in 1999.

The perception of many beef and dairy producers is that market cows and bulls are simply culls rather than an important food source. However, beef from market cows and bulls are widely used in the retail and food service sectors in a variety of product forms – not just as ground beef.

It is important that producers begin to view their market cows and bulls as valuable contributors to the beef supply. During the Strategy Workshop, Dr. Bill Mies of Elanco encouraged producers to have the same mindset when selling market cows and bulls that they have when they are trading for a new pickup truck.

“Most people will clean up an old pickup truck to add value to it before trading it in on a newer model,” says Mies. “The same is not true for most producers

when selling cows and bulls.”

### **Producers should identify opportunities to add value to their market cows and bulls.**

For example, it may be possible to feed cows for a short period prior to marketing to increase weight and improve body condition and carcass characteristics.

This brief feeding period may also help identify obviously ill cattle that should be rendered.

Moreover, small operators may be able to expand marketing opportunities by pooling cattle resources and forming cooperative marketing agreements. Livestock auction markets can play an integral role in the development of expanded marketing opportunities for producers.

To facilitate implementation of the four directives, participants in the 1999 Strategy Workshop developed a Quality Assurance Marketing code of Ethics for use by cattlemen, dairymen, and packers when it comes to marketing cows and bulls.

## **QUALITY ASSURANCE MARKETING CODE OF ETHICS**

### **1. I will only participate in marketing cattle that:**

- Do not pose a known public health threat
- Have cleared proper withdrawal times
- Do not have a terminal condition (including advanced lymphosarcoma, septicemia, etc.)
- Are not disabled
- Are not severely emaciated
- Do not have uterine/vaginal prolapses with visible fetal membrane
- Do not have advanced eye lesions
- Do not have advanced Lumpy Jaw

### **2. Furthermore, I will:**

- Do everything possible to humanely gather, handle and transport cattle in accordance with accepted animal husbandry practices.

### **3. Finally, I will:**

- Humanely euthanize cattle when necessary to prevent suffering and to protect public health.

If producers fail to adopt a proactive position concerning product quality and integrity, the availability of antimicrobials and the approval of new animal-health products could be jeopardized, higher costs associated with residue monitoring systems could be incurred, the number of market outlets could decrease, and the beef industry could be forced to comply with an unwieldy and expensive national animal identification system designed and mandated by regulatory agencies.



Funded by  
The Beef Checkoff

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