National Market Cow and Bull Beef Quality Audit – 1999

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SUMMARY

The 1999 National Market Cow and Bull Quality Audit was comprised of face-to-face interviews with industry representatives (n = 49), in-plant evaluations of cattle/carcasses in holding pens (n = 3,969), on harvest floors (n = 5,679) and in carcass coolers (n = 4,378), and a Strategy Workshop. Face-to-face interview concerns related to price discovery for carcasses following excessive trimming due to bruises and arthritic joints, along with too frequent incidence of antibiotic residues and birdshot. In-plant audits revealed that 88.9%, 10.3% and 88.2% of cow carcasses and 18.9%, 21.2% and 52.9% of bull carcasses had inadequate muscling, arthritic joints and at least one bruise, respectively. Also, 14.5% and 30.8% of cow carcasses and 6.9% and 5.9% of bull carcasses had excess external fat and yellow-colored external fat, respectively. In aggregate, 24.1%, 19.2%, 7.2%, 6.7%, 9.5% and 1.1% of livers, tripe, hearts, heads, tongues and whole cattle/carcasses, respectively, were condemned and 60.6%, 2.4% and 46.5% of cattle had hide damage from latent defects, insect damage and brands, respectively. The four tactics to reduce the incidence of defects that emerged in the Strategy Workshop included recognize and maximize the value of your market cows/bulls, be proactive to ensure the safety and integrity of your product, use appropriate management and handling practices to prevent quality defects, and closely monitor herd health and market cull cattle at the appropriate time to avoid severe quality defects. Producers should promote value in cows/bulls by managing to minimize quality defects, monitoring the health and condition and marketing in a timely manner. Using these techniques, producers might have recaptured $13.82, $27.50 and $27.50, respectively, for each cow/bull harvested in 1999.

Key Words: quality, cow, bull

METHODOLOGY

The NMCBBQA-1999 was conducted in three phases – Face-To-Face Interviews, Packing Plant Audits and a Strategy Workshop.

Phase I – A series of in-depth, Face-To-Face Interviews with industry leaders was used to identify quality defects and to quantify, numerically and monetarily, the incidence of quality defects in U.S. market cows and bulls, their carcasses and their dress-off/offal items.

Phase II – A National Audit, in packing plants, was conducted to identify quality defects in U.S. market cows and bulls, their carcasses and their dress-off/offal items detectable in the holding-pens, on the slaughtering/dressing floors and in the chilling coolers of cooperating packing plants.

Phase III – A Strategy Workshop was convened to describe/discuss results of the present Audit, to compare results of the NNFBQA-1994 with those of the NMCBBQA-1999 and to identify strategies and tactics needed to reduce incidence of, or eliminate, short-comings, to correct non-conformities and to improve the quality, consistency and competitiveness of market cows and bulls.

RESULTS

Phase I, Face-To-Face Interviews. In Phase I of the NMCBBQA-1999, 49 interviews with packers, representatives of affiliated industries, government agencies, associations, auction markets and other groups were questioned by the Interview Team to identify quality problems, defects, short-comings or shortfalls with market cows and bulls. Interviewees were asked to identify the top five issues and the top five directives that should be presented to beef and dairy producers in order for producers to supply packers with a defect-free market cow or bull.

Packers also were interviewed to determine the changes that have occurred in procurement of market cows and bulls and marketing of market cow and bull carcasses. It was determined from interviews that 38.1% of cattle were being purchased directly from farms/ranches and that 61.9% of cattle were being purchased from auction markets/sale barns. Based on information supplied by 17 plants, 34.1% of total number of market cows and bulls were purchased "on-the-rail" or on a dressed weight basis. It also was determined that packers are selling 43.6% of the final product as whole muscle product, including 100% visual lean and/or vacuum packaged subprimals.

The most frequent quality challenges as cited by packers included bruises, antibiotic residues, birdshot/buckshot, arthritic joints, dressing percentage/yield per carcass and condition/leanness of the cattle. The most frequent cited quality challenges by representatives of affiliated organizations included pricing and prompt payment relative to trimming and testing issues, antibiotic residues, national identification/verification, pathogen control, injection-site lesions, and birdshot/buckshot.

Auction Market Interviews

All five auction market owners/operators agreed that the overall quality of market cows and bulls has not declined. Two interviewees indicated that the overall quality has not changed over the past five years. The remaining three of the five operators indicated that quality has improved (partly due to genetics; partly due to more severe culling programs used by producers) during the past five years.

The major market cow/bull quality challenges faced by auction market owners/operators include "broken down" cows, severity of bruising,

cancer eye, structural problems (stifle joints, arthritis, broken legs, etc.), condition/amount of finish on cows and bulls, and education of producers regarding timeliness of culling. Two auction market owners agree that producers would not have the "problems" of selling market cows and bulls if they would manage the cows and bulls more appropriately and send them to market sooner.

It was the unanimous opinion of auction market owners that the quality and value of market cows and bulls can be improved. Several auction market owners provided suggestions, such as selling market cows and bulls earlier, feeding market cows and bulls before selling them, and "getting cattle in shape before sale" as options for producers to exercise in attempts to improve the quality of market cows and bulls.

Phase II, Live cattle, slaughter-floor and cooler assessments. A sample of the Federally Inspected Slaughter (FIS) of market cows and bulls was surveyed during the Summer and Fall of 1999 (August – November), in 21 packing plants chosen to approximate 50-60% of the plant comprising Federally Inspected Slaughter facilities and to represent the geographic distribution of market cow and bull slaughtering/dressing in the U.S. From the supply of cattle at a given packing plant, as many of the animals as possible were evaluated by the Packing-Plant Audit Team for live animal characteristics (including lameness and hide defects), for slaughter-floor defects (including condemnations and bruises) and for carcass characteristics (including USDA Quality Grade and Yield Grade factors).

Holding-Pen audits revealed the following: (a) Muscle scores were too low for 90.5% of beef cows, 15.1% of beef bulls, 99.8% of dairy cows and 35.5% of dairy bulls. (b) Body Condition Score was too low for 2.3% of beef cows, 1.2% of beef bulls, 5.4% of dairy cows and 1.3% of dairy bulls. (c) Bovine Ocular Neoplasia was serious enough to cause carcass condemnation in 0.3% of dairy cattle evaluated and serious enough in 2.1% of beef cattle to cause head condemnations. (d) Prolapse of the rectum/vagina occurred in 1.0% of beef cattle and 0.2% of dairy cattle. (e) Udder/teat defects were present in 12.4% of beef cows and 12.8% of dairy cows. (f) Sheath damage was present in 6.2% of beef bulls and 2.5% of dairy bulls. (g) Knots (injection-site knots, infections, etc.) were evident on 0.4%, 0.7%, 1.4% and 3.5% of shoulders, top sirloin butts, rounds and necks, respectively, in all cattle evaluated. (h) Horns were of a size to be of concern (due to potential to increase the incidence of bruising) for 17.3% of beef cattle and 2.0% of dairy cattle. (i) Latent defects (scars and scratches – not including brands – on hides) were present on 60.5% of beef cattle hides and on 61.9% of dairy cattle hides, and disease/insect damage was present on 2.2% of beef cattle hides and 2.9% of dairy cattle hides. (j) Incidence of side (rib) brands, shoulder/hip brands and multiple brands was 28.8%, 55.0% and 29.9%, respectively, for beef cattle and 4.5%, 14.3% and 2.6%, respectively, for dairy cattle. (k) Lameness was serious enough to disable 0.6% of beef cattle and 1.5% of dairy cattle and was sufficient to cause stifling in 12.9% of beef cattle and 14.7% of dairy cattle. (l) Lumpy jaw was detected in 1.2% of beef cattle and 0.8% of dairy cattle.

Slaughter-floor audits revealed the following: (a) Incidence of whole cattle/carcass condemnations was 1.1%. (b) Incidence of head condemnations was 6.7%. (c) Tongues were condemned 9.5% of the time. (d) Incidence of liver condemnations was 24.1%. (e) Hearts were condemned 7.2% of the time. (f) Tripe was condemned 19.2% of the time. (g) Incidence of cows that were pregnant and contained a calf large enough to yield blood for extraction of fetal bovine serum was 12.0%. (h) The weight of the tissue removed when an arthritic stifle-joint was excised averaged 39.4 pounds. (i) Arthritic stifle joints were present in 10.3% of cow carcasses and 21.2% of bull carcasses. (j) Among bulls, 47.1% had no bruises, while 1.0%, 6.9%, 16.7% and 44.4% had extreme, major, medium and minor bruises, respectively; among cows, 11.8% had no bruises, while 2.4%, 21.6%, 41.7% and 77.2% had extreme, major, medium and minor bruises, respectively. (k) The weight of tissue removed when trimming out/removing bruised tissue from a carcass for extreme, major, medium and minor bruises was 15.0 pounds, 4.8 pounds, 1.4 pounds and 0.7 pounds, respectively. (l) Incidence of extreme bruises on the round, top sirloin butt, loin, rib, chuck and flank/plate/brisket was 1.1%, 0.4%, 0.5%, 0.8%, 0.3% and 0.9%, respectively, for cow carcasses and 0.2%, 0%, 0%, 0.1%, 0.2% and 0.5%, respectively, for bull carcasses. (m) Occurrence of major bruises on the round, top sirloin butt, loin, rib, chuck and flank/plate/brisket was 11.3%, 1.1%, 1.9%, 3.6%, 2.0% and 8.5%, respectively, for cow carcasses and 2.9%, 0.8%, 1.0%, 1.6%, 0.5% and 2.4%, respectively, for bull carcasses. (n) Incidence of medium or average-sized bruises on the round, top sirloin butt, loin, rib, chuck and flank/plate/brisket was 22.5%, 2.7%, 3.3%, 6.8%, 3.3% and 17.4%, respectively, for cow carcasses and 5.7%, 2.8%, 2.2%, 3.1%, 1.2% and 5.7%, respectively, for bull carcasses. (o) Occurrence of minor bruises on the round, top sirloin butt, loin, rib, chuck and flank/plate/brisket was 44.6%, 8.9%, 9.0%, 22.7%, 11.2% and 39.3%, respectively, for cow carcasses and 16.4%, 8.1%, 6.3%, 11.1%, 4.0% and 17.1%, respectively, for bull carcasses. (p) Multiple bruises were present on 71.8% of cow carcasses and 26.6% of bull carcasses.

Cooler audits revealed the following: (a) Mean values for carcass traits for cow carcasses and bull carcasses, respectively, were 541 and 859 pounds for hot carcass weight, 0.48% and 0.30% for kidney/pelvic/heart fat and Cutter/Canner $^{+}$ and Bull^{+} for packer grades, respectively. (b) Additional

mean values traits of the ribbed cow carcasses (a small subset of the cow carcass population evaluated) were 0.37 inches for 12th-rib fat thickness, 11.96 square inches for ribeye area, 2.4 for USDA Yield Grade and low E for USDA Maturity. (c) Carcass weights were too light in 42.8% of cow carcasses and 39.3% of bull carcasses. (d) Muscling score, when coupled with finish scores of 1 or 2, were too low in 68.0% of cow carcasses and in 8.2% of bull carcasses. (e) Fat Color was too yellow in 57.5% of cow carcasses and 21% of bull carcasses. (f) Blood-splash was evident in 0.99% of cow carcasses and 2.22% of cow carcasses exhibited dark-cutting beef characteristics. (g) Finish scores were too high in 14.5% of cow carcasses and 6.9% of bull carcasses.

Phase III, Strategy Workshop. A Strategy Workshop was convened on December 6-8, 1999 in Denver, CO to include more than 40 participants and guests, and was designed to use of the results of Phase I and Phase II to arrive at a consensus on mechanisms for improving "The Consistency and Competitiveness of Market Cows and Bulls." Prior to convening this Workshop, Colorado State University personnel had conducted and completed an economic assessment of the costs associated with each of the Quality Losses per Market Cow and Bull. Following discussion of each of these values, consensus was achieved for individual components and for the total economic Quality Losses per Market Cow and Bull due to problems, defects, short-comings. Participants also identified the top ten quality concerns for dairy cattle and beef cattle. The questionnaire was completed at the beginning and at the end of each day of the Workshop. As the Workshop progressed, the list was shortened from 25 to 10 items for each beef cattle and dairy cattle and participants were asked to identify a method by which producers could address the issue.

As they were ranked by participants in the Strategy Workshop, the top ten quality challenges, short-comings or defects for beef market cows and bulls were: (1) Too Frequent Incidence of Birdshot/Buckshot. (2) Too Frequent and Severe Bruises. (3) Too Frequent Rib and/or Multiple Brands. (4) Too Advanced Cancer Eye Damage. (5) Too Frequent Injection-Site Lesions/Knots. (6) Too Advanced Arthritis/Severe Structural Defects. (7) Too Frequent Downers. (8) Too Severe Emaciation. (9) Too Frequent Antibiotic Residues. (10) Inadequate Muscling. The top ten "Quality Challenges, Short-Comings or Defects" for dairy market cows and bulls were: (1) Too Frequent Antibiotic Residues. (2) Too Frequent Injection-Site Lesions/Knots. 3) Too Frequent Downers. (4) Too Advanced Arthritis/Severe Structural Defects. 5) Too Severe Emaciation. (6) Too Frequent and Severe Bruises. (7) Inadequate Muscling. (8) Too Frequent Incidence of Birdshot/Buckshot. (9) Too Frequent Rib and/or Multiple Brands. (10) Too Advanced Cancer Eye Damage.

It was agreed-upon that potential existed to have recovered an additional $68.82 (using the 1999 new logic and coverage) for each market cow and bull harvested in 1999. For each market cow and bull in 1999, whole cattle/carcass condemnations cost $4.11, carcasses passed for cooking cost $0.03, head condemnations cost $0.54, tongue condemnations cost $1.17, heart condemnations cost $0.05, tripe condemnations cost $2.59, liver condemnations cost $0.14, additional handling required for disabled cattle cost $0.56, hide value due to branding cost $3.10, hide value due to latent defects and/or insect damage cost $3.17, arthritic joint trimming loss cost $9.72, bruise trimming cost $2.24, producer-related trimming losses caused by Zero-Tolerance cost $0.46, trimming losses as a result of birdshot/buckshot cost $0.52, trimming losses due to injection-site lesions in rounds and top sirloin butts cost $1.46, yellow-colored external fat cost $6.48, dark-cutting beef cost $1.41, inadequate muscling cost $18.70, excess external fat cost $10.17, light weight carcasses cost $1.28 and additional handling and management of carcasses tested for antibiotic residues cost $0.92.

At the conclusion of the Strategy Workshop for the National Market Cow and Bull Beef Quality Audit – 1999, four primary directives were developed to provide both beef and dairy producers with strategies for improving the quality and value of market cows and bulls.

1. Recognize and Maximize the Value of Your Market Cows and Bulls.
2. Be Proactive to Ensure the Safety and Integrity of Your Product.
3. Use Appropriate Management and Handling Practices to Prevent Quality Defects.
4. Closely Monitor Herd Health and Market Cull Cattle at the Appropriate Time to Avoid Severe Quality Defects.

QA Marketing Code of Ethics

In an effort to facilitate implementation of the four directives, a Quality Assurance Marketing Code of Ethics was developed for use by cattlemen, dairymen and packers. The QA Marketing Code of Ethics follows:

I will only participate in the marketing of cattle that:

1. Are safe, wholesome and do not pose a public health threat.
2. Are managed under state and national quality assurance guidelines.
3. Continue to be mobile.
4. Are free of any terminal condition (including advanced lymphosarcoma, septicemia, etc.).
5. Are in acceptable body condition.
6. Are free of prolapses with visible fetal membranes.
7. Are free of advanced eye lesions.
8. Are free of advanced lumpy jaw.

Furthermore, I will:

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

***Finally, I WILL*:**

Humanely euthanize cattle when necessary to prevent suffering.

Finally, producers should be reminded that improving the quality and value of market cows and bulls is an attainable goal. Based on 1999 audit results, approximately 96% of market cows and bulls have clear eyes, 99% show no evidence of lumpy jaw, 96% are without abscesses, 85% are sound or have only minor structural problems, 99.8% show no evidence of prolapse, 97% have a body condition score of 3 or higher, 90% are free of excessive hide contamination, and 99.7% are free of birdshot/buckshot. In this case, *success will come no by doing 1 thing 100 percent better; it will come by doing 100 things 1 percent better*.

Call to Action

The basic elements of the message to cattlemen and dairymen, developed during the Strategy Workshop for the National Market Cow and Bull Beef Quality Audit – 1999, are concisely stated in the following three *ACTION POINTS.* Producers can promote value in market cows and bulls by: *MANAGING to minimize quality short-comings, MONITORING the health and condition of market cows and bulls, and MARKETING cows and bulls in a timely manner*

Producers could have recaptured $13.82 if they would have managed cows and bulls to minimize quality defects, $27.50 if they would have monitored the health and condition of cows and bulls and $27.50 if they would have marketed cows and bulls in a timely manner.