



BEEF

Chapter 5

Beef Quality Assurance

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Chapter 5:

Beef Quality Assurance

Introduction

In the late, 1970s “Beef Safety Assurance” emphasized targeting real and perceived beef safety issues, focusing on educating stakeholders such as feedlots about the proper use of pharmaceutical products and procedures in using these products. The early program focused on assuring that beef aimed for the retail market was free of chemical residues. Dr. Dee Griffin, DVM and professor at the Great Plains Veterinary Education Center, University of Nebraska was one of the early pioneers developing the beef safety assurance protocols, which later became known as Beef Quality Assurance (BQA) in 1985. Through the use of science, research and educational initiatives the BQA program has identified production practices producers can implement each day. Since the BQA program is a holistic approach to beef production – practices implemented can impact a producer’s bottomline in profits/returns, decreased animal health costs, and improved records that allow for better tracking of production practices.

While the BQA program was developing, Pillsbury was also working on a quality control program that was using many of the same principles the beef industry set out to accomplish. Pillsbury’s program was called the Hazard Analysis Critical Control Point (HACCP) Program. This program has gained USDA acceptance and is presently the regulatory requirement for processing plants in the United States.

For the past 30 years, beef industry checkoff funding has supported the growth and implementation of the BQA program. Today, most states offer an educational program around BQA or best management practices. Education has expanded from the cattle feeding sector to the cow-calf sector and even to those who transport livestock. With the goal that it is the beef industry’s role to make sure beef produced in the United States is safe and wholesome for consumers, the BQA program has expanded educational efforts to help producers implement best management practices and improve the overall end product.

Key Points

- Beef Quality Assurance provides best management practices that assist cattlemen to raise safe, wholesome beef products.
- Becoming BQA certified sends a positive message to the public that cattlemen manage cattle under a high level of well-being and can present records that verify this level of care.
- Cattlemen work with veterinarians to develop herd health and treatment plans that aim to protect public health from disease or food contaminants.

When beef producers implement BQA best management practices they are enhancing the consumer confidence in the beef industry and reflecting a positive public image. Overall, the National Cattlemen's Beef Association (NCBA) says, "BQA is valuable to all beef producers".

BQA objectives/goals:

- Demonstrates commitment to food safety and quality
- Upholds consumer confidence in valuable beef products
- Protects the beef industry from additional and burdensome government regulation
- Improves value of sale of marketed beef cattle
- Enhances herd profitability through better management

(Source: www.bqa.org)

Since the 1980s the success of the producer, state and national initiative of BQA has demonstrated the value of the program. The occurrence of residues in beef tissues was reduced to zero and occurrence of injection-site lesions dramatically decreased (Smith et al., 1997). Shifting the injections from an intramuscular (IM) protocol to a subcutaneous (SQ) treatment protocol and out of the regions of the beef animal where the more valuable cuts are located (loin, round) greatly reduced the economic losses due to lesions being cut out of high valued cuts. Beef quality audits studying the entire beef industry, including fed cattle, cows and bulls, were

implemented to learn more about the end product, established animal care guidelines, transportation, and cattle handling issues.

National Beef Quality Audit

The first National Beef Quality Audit (NBQA), funded by Beef Checkoff dollars and implemented by leading university meat science researchers, took place in 1991. The ultimate goal of the NBQA was to be a benchmark study for the industry to identify areas of improvement and areas of success within the beef production chain towards beef quality, uniformity and consistency. The initial audit conducted in 1991 concluded the beef industry had many challenges ahead of them to produce a quality product (Table 1). The 1991 audit indicated beef was too fat, too inconsistent and too tough to remain competitive in the meat case. The 1991 audit indicated a loss of nearly \$280 for every fed animal marketed primarily due to excess fat, lack of marbling and other carcass defects (NBQA, 1995). Table 2 demonstrates the comparison in dollar value from the 1991 and 1995 audits and also includes the 2000 audit results to show the industry progress by segments. Continual national beef audits have occurred approximately every five years, with the most recent audit completed in 2011. Each of the NBQA's concluded additional results that aided the industry in setting benchmarks toward improvements and adjusting to changes for the betterment of the marketplace and consumers (Table 3).

Table 1: NBQA greatest quality challenges: Changing nature of the 'Big Ticket Items'. 2011 National Beef Quality Audit

NBQA 1991	NBQA 1995	NBQA 2000	NBQA 2005
External Fat	Overall Uniformity	Overall Uniformity	Traceability
Seam Fat	Overall Palatability	Carcass Weights	Overall Uniformity
Overall Palatability	Marbling	Tenderness	Instrument Grading
Tenderness	Tenderness	Marbling	Market Signals
Overall Cutability	External & Seam Fat	Reduced Quality Due to Use of Implants	Segmentation
Marbling	Cut Weights	External Fat	Carcass Weight
Hide Problems	Injection-Sites	Quality Grade Mix	Cutability
Injection-Sites	Price vs. Value	Hide Problems	Ribeye Size
Cut Weights	Carcass Weights	Bruise Damage	Reduced Quality Due to Use of Implants
Carcass Weights	Hide Problems	Liver Condemnations	External & Seam Fat

Table 2: NBQA benchmarks for quality value challenges/losses to the beef industry.
Executive Summary of the 2005 National Beef Quality Audit

Challenge/Loss	Using 1991 Logic/Prices			Using 2000 Logic/Prices	
	NBQA-1991	NBQA-1995	NBQA-2000	NBQA-1995	NBQA-2000
Waste	\$219.25	\$203.38	\$207.90	\$47.76	\$43.41
Taste	28.81	36.10	21.85	38.30	23.14
Management	27.26	32.98	35.45	45.16	40.14
Weight	4.50	4.13	6.07	4.66	8.23
Total	\$279.82	\$276.59	\$271.27	\$135.88	\$104.92

Table 3: Ranked quality challenges and changes (1991 until 2011). 2011 National Beef Quality Audit

1991	1995	2000	2005	2011
External Fat	Uniformity	Uniformity	Traceability	Food Safety
Seam Fat	Palatability	Carcass Weight	Uniformity	Eating Satisfaction
Palatability	Marbling	Tenderness	Instrument Grading	How and Where Cattle were Raised
Tenderness	Tenderness	Marbling	Market Signals	Lean, fat and bone
Cutability	External/Seam Fat	Effects of Implants	Segmentation	Weight and Size
Marbling	Weights	External Fat	Carcass Weight	Genetics

The 2011 NBQA was the most comprehensive and detailed audit to date. New technologies and measurements allowed the researchers to gather even more complete and expansive data for the benchmark study. The 2011 audit consisted of three phases:

Phase 1 – Face-to-face interviews with each segment of the production sector to determine a common definition or understanding of the terminology of quality.

Phase 2 – Was a comprehensive evaluation of 18,000 carcasses from eight different processing plants. In addition, quality and yield characteristics were gathered from 9,000 carcasses from 28 processing plants and instrument grading on 2.4 million carcasses was also compiled.

Phase 3 – Consisted of an online or written survey of 3,755 cattlemen who answered questions about the adoption of BQA management principles. Industry stakeholders reviewed results from all three phases and a blueprint for the beef industry was developed for the next five years.

State Programs

Beef Quality Assurance is a nationally coordinated program, but implemented at the state level often by

the state cattlemen's or beef council organizations. In South Dakota, BQA is managed and coordinated by SDSU Extension. For more information on the South Dakota BQA program contact the State BQA Coordinator at (605) 688-5165 or SouthDakotaBQA@sdstate.edu. Funding for the BQA program is from national and state Beef Checkoff dollars.

South Dakota BQA Program

The goal of the South Dakota Beef Quality Assurance (SD BQA) Program is to ensure that cattle born or fed in South Dakota are managed in a proper manner that will result in a nutritious, safe beef product for the consuming public. Voluntary participation in the program sends a positive signal to the public that South Dakota beef producers are concerned about the wholesomeness of the beef they produce. Participants that complete the training program will be better able to present a positive record keeping system regarding the beef they produce.

Participants trained in the BQA program will be encouraged to become SD BQA certified producers by implementing the procedures and guidelines outlined in the SD BQA manual. Training sessions outline the principles and procedures and are followed up with a written exam to reinforce the

content. Once the written exam is completed the producer is SD BQA certified and receives a certification number. The certification number is assigned to a person, not a facility, and is valid for three years.

Upon successful certification by a producer, best management practices should be implemented when caring for cattle. Each farm, ranch, or feedlot should document a valid Veterinary-Client-Patient Relationship (VCPR) annually and establish written protocols and a complete recordkeeping system. Producers work closely with their veterinarian on creating and updating herd health plans within the comprehensive BQA program.

Primary components of the SD BQA program are monitoring and recordkeeping of:

1. Feedstuffs, Feed Additives and Medications
2. Processing
3. Animal Well-Being
4. Livestock Insecticides
5. Recordkeeping and Inventory Control
6. Biosecurity

Feedstuffs, Feed Additives and Medications focuses on ensuring the feed consumed by the animals is safe. A key consideration is making sure that the label of pesticides or herbicides is followed to reach harvest date or timing of grazing. This is extremely important during drought situations. Feed additives and medications must be approved by Food and Drug Administration (FDA) to be used. Take steps to ensure the correct dose level in each batch of feed; double check medicated feed formulas with your nutritionist or veterinarian. Good feeding records are helpful as well as keeping subsamples of each feed/ mixed ration. Store pesticides and herbicides separate

from feeds, whether bagged or bulk feeds, to ensure there was no contamination that may result in an illegal residue in the meat.

Processing considers management to reduce bruising and injection site blemishes/lesions along with proper treatment records. All injections should be given in front of the shoulder and low-stress handling should be utilized to move and process animals. Treatment records should include: date, animal identification, diagnosis, body temperature, medication(s) given, serial numbers of medications or vaccinations, and withdrawal time. It may also be beneficial to include the name or initials of the person responsible for the tasks. Table 4 provides an example of treatment records.

Low-stress handling practices are utilized to reduce the possibilities of injury to man as well as the animal(s). It has been reported that improper cattle handling costs the industry \$22 million annually in carcass trims at the packinghouse (Smith et al., 1992). A regular assessment of your handling is encouraged. Improving basic stockmanship skills such as an understanding of cattle's flight zone and point of balance will also minimize the risk of injury and stress.

Livestock insecticides are useful for controlling internal and external parasites. Key considerations are to always follow label instructions and store herbicides, pesticides and insecticides away from animal access. Include insecticide application within treatment records as they have a withdrawal time. Maintain records for two years (3 years for Restricted Use Pesticides).

Record keeping and livestock inventory is critical for good management. You can't manage what you don't

Table 4: Example of a treatment record for individual cattle.

Date	Animal ID	Diagnosis	Temp	Dosage and Route			WD
				Rx1	Rx2	Rx3	

Rx = Medication name. WD = Withdrawal time.

measure. Having records allows you to determine if there are inefficiencies within your operation(s). Some important records would be animal health, treatment and cattle inventory. These records should be kept for two years. Documentation of management practices and standard operating procedures (SOP's) are imperative to meet the growing expectations of other animal well-being programs and consumers.

Biosecurity is important to optimize animal performance on operations, which also maintains profitability. Some questions for consideration include: What steps are you taking to keep diseases off your place? Do you have a quarantine plan for herd additions such as bulls or replacement females? What steps are being taken to keep feed and water clean? It is the stockman's responsibility to protect the herd's health. In doing this, the profitability of the operation is also insured.

A treatment plan or protocol describes how you intend to treat common beef cattle illnesses if they were to occur. Developing a treatment plan allows staff to handle a given situation using the veterinarian-approved protocol, since the treatment plan would have been discussed previously with your veterinarian. A treatment plan should be written for each specific class of livestock owned/managed (cow-calf, feedlot, backgrounder/stockers). An example of documentation of a treatment plan is found in Table 5.

More information on each best management practice can be found in the National BQA manual (www.bqa.org). Contact the State BQA Coordinator for assistance on implementing BQA practices on your operation. Using BQA practices and continuing to find methods to improve management practices is important for producing a positive environment for animal production. For BQA to be successful on your operation, all employees, family members, and neighbor help must use these practices. Take time to train your employees and inform neighbors how it must be completed at your operation. Additional information can be found at national or state levels.

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Table 5: Treatment plan for _(operation name)_____.

Disease	Drug(s) (include complete treatment plan)	Dose	Route and location given	Withdrawl time
Respiratory				
Foot rot				
Pink eye				
Others				

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