SECTION I
INTRODUCTION

Welcome

Welcome to the Beef Quality Assurance (BQA) program. Those who are familiar with the BQA program will find this a great review. Those not familiar with BQA will find this material helpful as part of a training program designed to help identify and manage areas in beef production operations where defects in quality can occur. The BQA program encourages you to seek and utilize all sources of information; these actions will help accomplish the BQA program’s goals and objectives. The BQA program is a cooperative effort between beef producers, veterinarians, nutritionists, extension staff, and other professionals from veterinary medical associations and allied industries.

Cattle managed using BQA guidelines will be less likely to contain a violative residue, contain injection site tissue damage or foreign material such as a broken needle. The program asks everyone involved with beef production to follow the FDA/USDA/EPA guidelines for product use and to use common sense, reasonable management skills and accepted scientific knowledge to help prevent product defects at the consumer level. Remember, the consumer signs the paycheck, they purchase what they trust and their trust and confidence is the basis of our industry’s future, and our children’s future.

As a food producer, your livelihood depends on securing the trust of your consumers. Food safety – or the perception of it – plays a major role in the buying decisions of health-conscious Americans all across the country. Fortunately for beef producers, the public generally perceives beef as a safe and wholesome product. However, there is no such thing as “too” safe when it comes to the food consumers buy for themselves – and their children. After all, the beef you produce is a product that somebody will put in his or her mouth.

Add to that reality the ever-increasing competition for the consumer’s protein dollar, and you quickly see how crucial it is for beef producers, of all sizes in every segment, to commit to a management strategy that inspires consumer confidence in the safety of beef products.

In addition to safety, factors affecting cattle quality – and food quality – are also important. At the consumer level, quality attributes such as tenderness, flavor and portion size are important. At the production level, we are concerned with things like performance, health and predictability all through the system.

In both cases, these quality factors can be affected by management decisions throughout the production chain – including management decisions at the cow-calf and stocker levels.

Furthermore, consumers have become more environmentally-conscious. They are more closely scrutinizing agricultural practices that affect air and water quality and animal well-being. Although these factors may or may not directly affect the safety and quality of beef, they impact public perceptions of the beef industry, which may alter consumer acceptance of beef products.

The beef industry is evolving into vertically-coordinated (vs. integrated) production systems, which require all segments – from the cow-calf producer to the consumer – to communicate and share information to assure that beef is safe and wholesome, increase the efficiency of production and help ensure environmental quality.

Beef Quality Assurance is a proven system of sensible management practices that will help further strengthen consumer confidence in beef products. Adopting BQA principles is a proactive way to implement a philosophy of Total Quality Management (TQM) into a beef operation and address quality and safety issues.

BQA can also help a producer become more competitive. Active participation in this program is beneficial as the world’s image of beef originating from the United States is enhanced.

The Beef Quality Assurance manual was developed for use in the BQA program to help provide a TQM framework for cow-calf and stocker producers. The information in this manual and the instruction and
support throughout the training sessions will help identify critical points in a beef production operation that may influence safety and quality.

Helping to ensure food safety and quality from the producer to the consumer requires everyone involved with beef production to follow regulatory guidelines for product use and to utilize BQA Best Management Practices (BMPs). The BMPs outlined in this manual are based on accepted scientific knowledge.

The History of Beef Quality Assurance

In the early 1960s, the Pillsbury Company, NASA and the U.S. Army Natick Laboratories (now the U.S. Army Natick Research and Development Center) cooperatively developed a revolutionary quality control program. Its objectives were to help ensure food safety on NASA missions and to reduce the chance of product defects from entering the food chain.

Their program, the Hazard Analysis Critical Control Point (HACCP) system, gained U.S. Department of Agriculture acceptance and is presently the accepted framework for safety assurance programs in processed and fresh foods. HACCP plans are simply prevention plans that identify and help control potential foods hazards and monitor critical points of the production process.

Concerned with additional government regulation, beef producers began investigating ways to help ensure that their production practices were safe and would pass the scrutiny of the consumer. In 1982, the USDA’s Food Safety Inspection Service (FSIS) began working with the U.S. beef industry to develop the Pre-harvest Beef Safety Production Program.

Between 1982 and 1985, three feedyards cooperated with FSIS to evaluate production practices and assess residue risks. In 1985, after careful analysis and adjustment of production practices, these three feedyards were certified by FSIS as “Verified Production Control” feedyards. What was learned during those three years now serves as the backbone for the Beef Quality Assurance program. (Guidelines for the BQA program are presented in the Appendix on page tbd.)

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This voluntary program has clearly been successful. BQA practices have helped to nearly eliminate any problems associated with violative residues and significantly reduced incidences of injection site lesions in fed beef cattle (steers and heifers fed in a commercial feedyard). However, residues and injection site lesions are still a significant issue in culled breeding stock - both cows and herd bulls. Market cows and bulls provide approximately 15 to 20 percent of the annual U.S. beef production total.

In the 1990s, the USDA mandated that all meat packing and processing plants develop and implement HACCP programs. To date, similar mandatory regulations do not exist for preharvest segments of the beef industry. However, in order to provide a quality, wholesome product without government regulation, industry groups have developed voluntary safety and quality assurance programs for the preharvest production segments of the industry.

In the mid-1980s a number of cattlemen associations initiated the first state-level BQA programs. These have grown and now incorporate HACCP-like principles addressing food safety concerns and they also further address quality issues by identifying quality control points within the feedyard management system. These programs have helped pave the way toward ensuring the safety and quality of beef.

With this in mind, the BQA program has been developed to assist beef producers as they implement BQA management strategies to help ensure the safety and quality of cattle within their control.

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Why Get Involved?

Other segments of the industry, from feedyards to foodservice, have already adopted HACCP or HACCP-like programs and BQA management principles. These companies are looking to do business with cow-calf producers and stocker operators who utilize similar management philosophies to further help to ensure the safety of products leaving their operations, whether fed cattle or case-ready meat products.

Adoption of BQA principles as a method of doing business helps positioning an operation to take advantage of these opportunities. In other words, making a commitment to Beef Quality Assurance isn’t just the right thing to do for the consumer – it’s also the right thing for a producer to do in terms of market access.

Participation in the BQA program is one way to show our customers, whether they are cattle buyers or beef consumers, that producers take every possible step to raise beef responsibly. Furthermore, each aspect of a BQA program is part of good business management.

For example, the information gained from recordkeeping in a BQA program can help a producer make better business decisions and help prevent costly production issues. BQA may also be an important resource for producers who may be confronted with additional government regulation and/or possible litigation.

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What is Quality?

“Quality” can be defined in several different ways. One definition is “providing products that meet or exceed expectations and established requirements every time.” Obviously, in the beef industry, established product requirements differ among the various production segments, but there are some common expectations.

For example, the products of a commercial cow-calf operation are weaned calves and culled breeding stock. These calves should possess performance, health and carcass characteristics that satisfy stocker operators and cattle feeders, and they must also meet food safety requirements. Culled breeding stock must meet the requirements of market cow and market bull beef processors for health and food safety as well as expectations for carcass characteristics.

As products of a stocker operation, feeder cattle should meet the requirements of cattle feeders for performance, health, carcass characteristics and food safety. Fed cattle must meet the requirements of beef processors for health, carcass characteristics and food safety. Commodity beef products must meet requirements of beef purveyors for fat trim, marbling, portion size, safety and lack of defects, such as injection site blemishes, dark cutters, etc.

Beef products sold to the consuming public must consistently meet expectations for both food safety and eating satisfaction.

The bottom line is that quality in the beef industry goes far beyond the parameters of food safety. It also encompasses performance, health, carcass characteristics and eating satisfaction, which can all be affected as a result of management decisions throughout the beef production system. Because factors other than food safety are involved in quality, the material in this manual is oriented toward the Total Quality Management concept.
BQA Goals

To ensure the consumer that all cattle shipped from a beef production unit are healthy, wholesome and safe, their management has met FDA, USDA and EPA standards, they meet quality requirements throughout the production system and are produced with environmentally-sound production practices.

BQA Objectives

1. Set production standards for quality and safety that are appropriate to an operation and that can be met or exceeded. Key elements that influence production of defect-free food include biosecurity, animal health and well-being, production performance and environmental stewardship.

2. Establish data retention and recordkeeping systems which satisfy FDA/USDA/EPA guidelines will help allow for validation of management activities and fulfill program goals.

3. Provide hands-on training and education to help participants meet or exceed BQA program guidelines and help realize the benefits of the program.

4. Provide technical assistance through BQA program staff, veterinarians, extension specialists and other qualified individuals working with the BQA program.

Quality Challenges

The importance of beef quality assurance can be seen when analyzing the top quality challenges within the beef industry. These quality challenges include injection site blemishes, rib brands, excessive external fat, excessive seam fat, dark cutters, inconsistent size of meat cuts, inconsistent cuts and non-uniform cattle.

Injection-site blemishes cost the beef industry $188 million annually, and cost producers approximately $7.05 per head, according to the 1995 National Beef Quality Audit (NBQA). In 1991 21.6% of all fed cattle top butts evaluated in the injection-site audit had injection-site blemishes, with a majority of those being fluid-filled. In 1997, also in fed cattle, this defect was down to 6.2%, with 0.7% being fluid-filled. While this is quite an improvement during six years in fed cattle, the results in market cows and market bulls are not quite as pleasing. During the first market cows/bulls audit, conducted in 1994, the percent of injection site blemishes in market cows and market bulls was found to be 28.9% (7.5% fluid-filled) but in the November 1997 audit, the incidence of blemishes had increased to 40.9% (3.9% fluid-filled).

Brands and other hide defects, such as parasite damage, cost the beef industry more than $648 million annually. Typically, this loss is passed along to all cattle that are sold in the industry through reduced live cattle prices. According to the 1995 NBQA, this was equivalent to $24.30 per head.

The 1995 NBQA provides management tactics to help overcome reported beef quality shortcomings. These include: eliminate side and multiple brands, remove horns, improve parasite control, improve red meat yield, improve handling/transport techniques, eliminate intramuscular injections (IM), measure traits that impact value and eliminate genetic and management systems that diminish tenderness, juiciness and flavor.

Management practices can help reduce, if not eliminate, the occurrence of these quality challenges. Proper administration of animal health products, branding only in the shoulder or hip areas, marketing cattle at an optimum time, reducing stress placed on cattle and sorting cattle into marketing groups are just some of the management practices that can help prevent quality defects and increase market value.
Involvement: A Team Approach

The BQA program is a beef producer’s program and will be supervised by beef producers. BQA program representatives will provide information and training support to state and local trainers and producers. BQA program representatives, working with state BQA coordinators, will be responsible for development and maintenance of BQA training materials, training certification and follow-up on any program issues, updates or modifications. This training will continue in communities across the U.S. with the assistance of qualified local individuals, such as veterinarians and extension educators who have completed BQA Trainer training, serving as BQA Trainers.

Involvement: Economically Logical

The cattle business is tough enough without doing things that don’t make economic sense. BQA is economically logical and each component of the BQA program relates to good business management. Information from production records maintained may be used to help prevent costly production mistakes and produce better business decisions. Implementing BQA is an excellent decision, one that can help identify and avoid certain production defects. It is also who we are, it is who our parents are/were and it is who our children will be.

Above all, involvement in BQA is a statement that reminds everyone from cowboy to consumer that we are doing everything possible to produce a defect-free product. Involvement in the Beef Quality Assurance program is one way to show the media and consumers that cattlemen raise beef responsibly. Consumers may lose confidence in beef if they find a defect that escaped a cattleman’s facility and entered the food chain. Loss of consumer confidence in beef can cause a significant change in eating habits and impact the future of our industry.

All meat industries face similar challenges and concerns. If there were a time to get involved, it was yesterday. Producers who are not BQA participants are invited to begin participating in the program. The events in the near future could affect production within an operation for generations to come. Will Rogers said, “The world is run by those that show up”. It is time for all of us to show up.

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How do you participate?

The BQA program is designed to be a voluntary program which will include “basic training” in BQA followed by an exam. Don’t worry; this is not a “test” of your skills. The exam does two things. First, it helps instructors make certain the material has been presented to you effectively. Also, it satisfies national guidelines for helping states determine whether their various BQA programs are “equivalent” to each other, even though no two programs are likely to be identical. Program variations are typically due to environmental differences (climate, precipitation, parasites, etc.) that may require management strategies to be adapted to fit specific regions.

Equivalency among states is also an important aspect for marketing forces that are driving the dynamic adoption of BQA principles and management. For example, today there are marketing outlets that name particular state BQA programs and equivalent programs as a specification for describing the type of feeder cattle (or management) they want to buy. This trend will likely continue to increase.

Following a producer’s completion of BQA training and successful completion of the exam, a certificate of completion will be provided to proudly display your commitment to beef quality and animal well-being.

The next level of voluntary participation may include helping a producer put together a BQA Management Plan customized for a specific operation. Advanced BQA training at this level should include a review of what was covered during the initial training session and may go into more detail about some of the topics.
Then each producer’s operation will be reviewed and assistance provided to help develop individual, operation-specific BQA Management Plans.

Development at this level will require documentation of management procedures, treatment protocols, pesticide use, recordkeeping and more. At this level, the producer will be given the opportunity to sign a Participation Agreement, which simply declares his or her intention to follow the plan developed and adhere to the Best Management Practices recommended in this manual.

The Participation Agreement is a “standard” that is expected of state BQA programs.

The Basic Ideas behind HACCP-like Programs

The basic ideas behind HACCP-like programs include; identifying what can go wrong that can cause a defect, determine how to prevent it from happening, and document that you are doing what you set out to do. The defect may be quality or safety. Safety defects include chemical - such as a violative residue, physical - such as broken needles or biologic - such as beef measles. It should be a team approach that includes a producer’s family, employees, veterinarian, nutritionist, extension specialists and suppliers among others.

At the ranch level, a HACCP-like program is as simple as creating a plan ahead of time to deal with something that doesn’t go well; for example, an embedded needle shaft resulting from a needle breaking off when a calf is being given injection. The seven core HACCP principles are incorporated in the discussions throughout the manual as HACCP-like programs are described and developed. Although these seven principles are not always specifically referenced, the concepts of control points, critical limits, preventive measures, corrective actions and monitoring are utilized in the discussion points. The seven HACCP principles include:

1) **Review all management programs** to identify production practices that affect food safety, quality and the environment. More formally, this is called a “hazard analysis.” For example, everyone who helps you work cattle should be instructed to avoid giving intramuscular injections anywhere but the neck area. An intramuscular injection given in the hip at branding has been shown to be able to cause an identifiable injection site blemish in the steaks from that animal, and it may also toughen the meat in an area up to several inches around the injection site.

2) **Identify the control points** where potential problems can occur, be prevented and/or controlled. For example, storage of feed and/or chemical products is a control point. To help ensure that feed is not accidentally contaminated, batteries, fuel containers or paint should never be stored in the same location as feedstuffs.

3) **Establish critical limits** associated with each control point. For example, identify the proper withdrawal time associated with a drug treatment to determine the earliest date the treated animal could be sold.

4) **Establish control point monitoring requirements** to ensure that each control point stays within its limit. For example, pesticide use records should be maintained so that you can check grazing restrictions on a particular field or pasture before turning cattle out.

5) **Establish corrective actions** to implement if a problem occurs. For example, corrective actions for a drug residue violation might include improving recordkeeping and employee training.

6) **Establish effective recordkeeping procedures** that document a system is working properly. For example, using a processing map to record where each injection was given, how much was given, how it was given and what the injection was is a way to verify your treatment protocol.
7) Establish procedures for verifying that the system is working properly. For example, a periodic review of your animal treatment records, production practices, critical limits, treatment protocols, etc. is a way to help verify that management strategies are being carried out according to an operation’s management plan.

These seven principles may seem complicated at first, but for the most part it is simply a matter of anticipating what can go wrong, and developing preventive solutions prior to the occurrence or reoccurrence of an issue … before you have a serious problem on your hands.

Control Points

As with any industry trying to build or improve a production system, points in the production chain where challenges could arise must be anticipated. Each such point is called a “control point”. Within each segment of the beef industry, there are three broad types of control points that need to be identified. These three types of control points are also the three main areas of emphasis in this manual. They are: Food Safety control points, Quality control points and Environmental control points.

Important Points to Remember

1. Cattlemen cannot foresee all potential challenges. One area at a time should be identified and then a plan should be developed and implemented for assuring quality in that area of production. The experience gained will help make it easier to develop quality assurance in other areas of the operation.

2. Cattle will be free of violative residues and product-related defects if products are administered according to USDA/FDA/EPA standards, withdrawal times are followed and BQA recordkeeping procedures are utilized without exception.

3. There are a number of safeguards integrated into beef production that help the beef industry avoid quality defects. These safeguards include: handling animals on an individual basis, the length (long period) of time required to produce a finished product, and the quality and safety built into modern health-related beef production technologies.

4. Every employee/caretaker must be trained to know, understand and identify areas where with the possibility of violative residues or quality defects may occur. Anyone who supplies services, commodities or products to a producer must also understand the beef operation’s quality assurance objectives.

5. Cattlemen must be able to document each step of production. Good production records are necessary to allow for documentation, analysis and improvements in financial decision making.

6. There are points in production that must be monitored to ensure no residue violations or carcass defects occur. The critical points include, but are not limited to: incoming cattle, products and commodities, cattle handling and evaluation of outgoing cattle.

7. There are production areas that have higher residue and carcass defect risks than others. High-risk production areas include, but are not limited to: non-performing cattle, unusual single-source feed ingredients and providers of non-standard supplies.