Kansas Beef Quality Assurance

Focused on the safety, wholesomeness and quality of beef

KANSAS LIVESTOCK ASSOCIATION

Beef Quality Assurance: Putting the Pieces Together

Across the nation, beef producers face the challenge of making a living from the land, while producing safe, wholesome beef – beef that will provide a great eating experience each and every time for American and international consumers.

To meet that challenge, the industry's Beef Quality Assurance (BQA) program was created in 1987 to assist beef producers in raising, feeding and harvesting high quality beef.

Through the use of science, research and educational initiatives, the BQA program has identified production practices producers can implement each day. The ultimate goal of these BQA practices is to maximize consumer confidence. Because the BQA program is a holistic approach to beef production, practices implemented can impact a producer's bottom line in profits/returns, decreased animal health costs, and improved records that allow for better tracking of production practices.

The foodservice and packing industries are implementing similar management principles to ensure the quality and safety of products leaving their production facilities. The entire focus of the BQA program centers around good business management practices and incorporates current FDA, EPA and USDA regulations.

By participating in the Kansas Beef Quality Assurance (KS-BQA) program and adopting BQA production practices, you are positioning your business to take advantage of opportunities that lie ahead. Making a commitment to BQA isn't just the right thing to do for the consumer, it also can open doors to new marketing opportunities for participating producers.

THE BQA MISSION

To maximize consumer confidence and acceptance of beef by focusing the producers' attention to daily production practices that influence the safety, wholesomeness and quality of beef and beef products.

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Manual adapted from the Nebraska Cattlemen Beef Quality Assurance Program.
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Kansas' Role

Since its inception in the early 1980s the Kansas Beef Quality Assurance program has been a cooperative effort between beef producers, veterinarians, nutritionists, extension staff and other professionals from the Kansas Veterinary Medical Association, Kansas State University, the Kansas Beef Council and the Kansas Livestock Association (KLA).

The Kansas Beef Quality Assurance program is designed to:

1. Set production standards that can be met or exceeded.
2. Establish systems for data retention and record keeping.

How can you participate?

Participation in the BQA program is voluntary and membership in KLA is not a requirement. Anyone who works regularly with beef cattle is encouraged to participate in the program. This educational program is available over the Internet, on CD, or in a written manual. The self-study format allows all producers and employees to complete the educational materials on their own time frame. In order to receive a certificate of completion, complete the exam and personal contract (found on pages 27-28), and return to KLA.

This certification is good for two years. KLA will contact those previously certified and ask that the recertification process be completed. Specific recertification forms are required and will be sent directly to the producer.

For questions regarding certification, please contact KLA at 785-273-5115 or e-mail kla@kla.org

HISTORY OF BQA

By uniting animal scientists, veterinarians, feed suppliers, animal health companies, packers, retailers and state and federal regulators with producers, the BQA program acts as a catalyst to encourage use of the latest science and technology to meet consumer expectations about beef quality and safety.

In 1982, the United States Department of Agriculture – Food Safety Inspection Service (USDA-FSIS) began working with the beef industry in the U.S. to develop the Pre-harvest Beef Safety Production Program. Not wanting any additional government regulatory programs, the beef industry adopted the term Beef Quality Assurance (BQA).

In 1985, after three years of careful analysis and adjustment of production practices at three participating feedlots, they were certified by USDA-FSIS and called Verified Production Control feedlots.

What was learned during those three years serves as the foundation for the National Cattlemen's Beef Association's (NCBA) BQA program established in 1987.

Involvement with BQA provides cattlemen an important key for avoiding additional government regulation. USDA-FSIS has commended the national BQA program. Currently producers in more than 45 states are involved in the voluntary program.

HACCP: The Basis of BQA

The Hazard Analysis Critical Control Point Program (HACCP) *(pronounced hassip)* gained USDA acceptance and is the dominant outline for quality assurance programs in processed foods and the packing industry. The BQA program incorporates HACCP principles.

At the ranch level, HACCP is as simple as creating a plan – ahead of time – to deal with something that doesn't go well. It includes planning to avoid physical, chemical and biological problems and documenting corrective actions. HACCP's seven principles are incorporated in this manual. They include:

1) Review of all management programs to identify production practices that affect food safety, quality and the environment.
For example, educating those who might be giving injections about the proper technique and injection location.

2) Identify the critical points where potential problems can occur and steps to prevent or control such problems.
For example, storing vaccines at improper temperatures or exposing them to sunlight.

3) Establish critical limits associated with each control point.
For example, understanding and following withdrawal times associated with animal health products.

4) Establish control point monitoring requirements to ensure that each control point stays within its limit.
For example, keeping records on pesticide application withdrawal times so the records can be checked before cattle graze treated forage crops.

5) Establish corrective actions in the event a problem occurs.
For example, training employees to avoid previous problems such as improper injection techniques.

6) Establish effective record keeping procedures that document the system is working properly.
For example, taking the time to complete the processing map, recording where injections are given, how much, etc.

7) Establish procedures for verifying that the system is working properly.
For example, periodic review of records, production practices and treatment protocols.

The BQA program acts as a catalyst to encourage use of the latest science and technology to meet consumer expectations about beef quality and safety.

Beef Quality Audits

A series of landmark studies, the National Beef Quality Audits, has taken a closer look at the quality and consistency of production practices.

Commissioned by NCBA, leading meat science departments, including Colorado State University and Texas A&M University, began the audits in 1991, followed by another comprehensive study in 1995 and again in 2000.

The results were eye-opening. Injection-site blemishes cost the beef industry $188 million annually and cost producers approximately $7.05 per head, according to the 1995 audit.

In 1991, 22% of all top butts in fed cattle evaluated had injection-site blemishes, with the majority of those being fluid-filled.

BQA guidelines have fostered ways to improve management practices and reduce economic loss while improving carcass quality. The implementation of BQA has been critical in reducing injection-site lesions to less than 3% in the 2000 audit.

Results from the 2000 National Beef Quality Audit calculated a loss of $100.10 per slaughter steer or heifer due to carcass inconsistency, a 15.73% improvement over the economic losses tallied in the 1995 audit. The industry recaptured $20.96 per marketed fed animal from 1995 to 2000.

BEEF QUALITY AUDIT FINDINGS

Management Factors BQA Can Influence

Hide defects	$1.70/head
Injection-site lesions	3.59/head
Dark cutters	5.43/head
Bruises	.75/head
TOTAL	$11.47/head

(Source: National Beef Quality Audit, 2000)

Quality Control: Market Cows and Bulls

The industry conducted its first market cow and bull audit in 1994. That audit, the National Non-Fed Beef Quality Audit, discovered the industry lost about $70 per cow or bull marketed due to product-quality defects. A repeat study conducted in 1999 tallied the economic loss at $68.82. The 1999 audit identified specific areas where the quality of market cows and bulls could be improved.

Regardless of herd size, all beef cow operations produce some cull animals. Many of these animals are marketed because they are beyond their prime producing years. Cull cows and bulls represent 15-20% of producer revenue.

In addition, cull animals supply between 15-20% of total U.S. beef production, depending on market conditions.

Ground beef is an important product of cull cattle and accounts for 43% of the total beef consumed in the U.S. However, cull cow packers today also are utilizing tenderloins, ribeyes, and strip loins for merchandizing to steakhouses.

One of the larger quality losses among non-fed cattle is bruising. This often occurs with non-fed cattle because:

- They possess less fat cover.
- Many cull cattle are lame, which increases the incidence of bruising.

The audit noted that groups of horned cattle had twice as many bruises as groups of non-horned cattle.

Quality Losses Per Head on Market Cows and Bulls

Quality Defect	Cost Per Head
Inadequate muscling	$18.70
Excess external fat	10.17
Arthritic joints (trim loss)	9.72
Yellow external fat	6.48
Hide losses: brands, injury, disease	6.27
Condemnation of edible offal	4.49
Whole cattle/ carcass condemnation	4.14
Bruises (trim loss)	2.24
Injection-site blemishes	1.46
Dark cutters	1.41
Lightweight carcass	1.28
Trim loss – birdshot/ buckshot, zero tolerance	.98
Antibiotic residue	.92
Disabled cattle	.56
TOTAL	**$68.82**

(Source: 1999 Non-Fed Beef Quality Audit)

Quality Control Points

Using the HACCP program as a basis, finding improvements in the beef production system requires a look at control points throughout the production process.

These control points are common management steps, such as calving, purchasing feedstuffs, weaning calves, and transporting cattle, that are part of an overall management scheme.

It is at these control points that BQA practices should be incorporated in order to limit any potential hazards from occurring to impact food safety and quality.

The chart below provides some examples of control points impacting the BQA program.

For example, prevention and treatment of health disorders may occur at weaning time by administering animal health products.

If properly administered at this control point, any potential food safety hazards – such as injection-site lesions or antibiotic residues should be eliminated.

CONTROL POINTS IMPACTING THE BQA PROGRAM

PROCESS	CONTROL POINT	POTENTIAL HAZARD
Feeding/supplementation	Purchasing Receiving Storage Feeding livestock	Antibiotic residues Chemical residues Feed toxins
Prevention and treatment of health disorders	Calving Weaning calves Receiving breeding or stocker cattle	Injection-site blemishes Antibiotic residues Broken needles
Processing and cattle handling	Working cows and calves Weaning calves Shipping cattle	Injection-site lesions Bruises Hide damage Carcass defects Poor health
Pasture chemical use	Herbicide/pesticide applications Container disposal	Water quality Soil contamination Residues

Beef Quality Assurance Guidelines

The following is a summary of the Kansas BQA program guidelines. These guidelines closely follow those of the national BQA program, which have been approved and implemented by NCBA. More details on each of these guidelines are explained in the remaining sections of the manual.

Details on how to obtain more specific information or resources on these topics are listed in the Appendix (page 29) or at www.kla.org.

Feedstuffs

- ☐ Maintain records of any pesticide/herbicide use on pasture or crops that potentially could lead to violative residues in grazing cattle or feedlot cattle.
- ☐ Adequate quality control program(s) is in place for incoming feedstuffs. Program(s) should be designed to eliminate contamination to incoming feed ingredients such as molds, mycotoxins or chemicals. Supplier assurance of feed ingredient quality is recommended.
- ☐ Suspect feedstuffs should be analyzed prior to use.
- ☐ Ruminant-derived protein sources cannot be fed per FDA regulations.
- ☐ Feeding by-product ingredients should be supported with sound science.

Feed Additives & Medications

- ☐ Only FDA-approved medicated feed additives will be used in rations.
- ☐ Medicated feed additives will be used in accordance with the FDA Good Manufacturing Practices (GMP) regulations.
- ☐ Follow judicious antibiotic use guidelines.
- ☐ Extra-label use of feed additives is illegal and strictly prohibited.
- ☐ To avoid violative residues, withdrawal times must be strictly adhered to.
- ☐ Where applicable, complete records must be kept when formulating or feeding medicated feed rations.
- ☐ Feed records are to be kept a minimum of three years.
- ☐ Operator will assure that all additives are withdrawn at the proper time.

Processing/Treatment & Records

- ☐ Follow all FDA/USDA/EPA guidelines for product(s) utilized.
- ☐ All products are to be used per label directions.
- ☐ Extra-label drug use shall be used only when prescribed by a veterinarian, working under a valid veterinary-client-patient relationship (VCPR).
- ☐ Extra-label drug use of Aminoglycosides is strictly prohibited.
- ☐ Strict adherence to extended withdrawal periods shall be employed.
- ☐ **Treatment records** will be maintained with the following recorded:
  1) Individual animal or group identification.
  2) Date treated.
  3) Product administered and manufacturer's lot/serial number.
  4) Dosage used.

5) Route, location, and person administering the product.
6) Earliest date animal will have cleared withdrawal period.

☐ **When cattle are processed as a group,** record the following:
1) Group or lot identification.
2) Date treated.
3) Product administered and manufacturer's lot/serial number.
4) Dosage used.
5) Route, location, and person administering the product.
6) Earliest date animals will have cleared withdrawal period.

☐ All cattle (fed and non-fed) shipped to slaughter will be checked by appropriate personnel to ensure that all treated animals meet or exceed label or prescription withdrawal times for all animal health products administered.
☐ All processing and treatment records should be transferred with the cattle to the next production level. Prospective buyers must be informed of any cattle that have not met withdrawal times.
☐ Records should be kept for a minimum of three years.

Injectable Animal Health Products

☐ Products labeled for subcutaneous (SQ) or intramuscular (IM) administration should be administered in the neck region only (no exceptions, regardless of age).
☐ All products cause tissue damage when injected IM. Therefore, IM use should be avoided if possible.
☐ Products cleared for SQ, IV or oral administration are recommended.
☐ Products with low dosage rates are recommended. For multiple injection sites, proper spacing should be followed.
☐ No more than 10 cc of products is administered per IM injection site.
☐ The dewlap is an acceptable SQ injection site location.

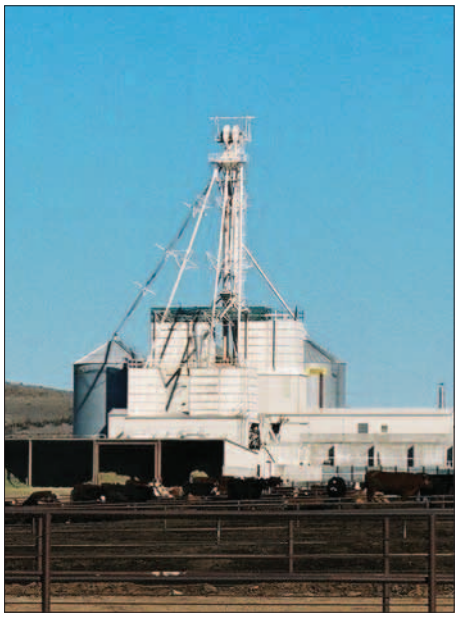
Care & Husbandry Practices

☐ Follow the "Cattle Care & Handling Guidelines" that conform to good veterinary and husbandry practices.
☐ All cattle will be handled/transported in such a fashion to minimize stress, injury and/or bruising.
☐ Facilities (fences, corrals, load-outs, etc.) should be inspected regularly to ensure ease of handling and animal well-being.
☐ Strive to keep feed and water-handling equipment clean.
☐ Provide appropriate nutritional and feedstuffs management.
☐ Strive to maintain an environment appropriate to the production setting.
☐ Biosecurity should be implemented and evaluated regularly.

Feedstuffs/Feed Additives

Ruminant By-products

No ruminant-derived protein sources can be fed. As of 1998, federal regulations prohibit the feeding of certain mammalian protein sources. The regulations primarily impact the feeding of meat meal and bone meal derived from ruminants. This restriction is a step to prevent BSE from entering the U.S. Tallow, blood by-products, gelatin and milk products are excluded from the regulation and are acceptable for use in ration formulations.



Note: In this manual, the editors have summarized requirements or provisions of state or federal statutes and regulations. This is not intended as legal advice. Moreover, this manual is not intended to be a comprehensive study of these legal provisions.

It is essential to monitor feed sources to prevent chemical residues and ensure high quality feeds. Operations purchasing outside feeds should set up a sampling program to test for quality standards in feedstuffs. Most good suppliers have a quality control testing program of their own. For example, bonded suppliers often test for: polychlorinated biphenyls, chlorinated hydrocarbons, organophosphates, pesticides, herbicides, and microbes (Salmonella).

Products, such as pesticides and chemicals, used on raised feeds must be FDA/USDA/EPA-approved. As required by the federal Worker Production Standard, proper training for pesticide handling should be available to all who work with these products.

A quality control program for feedstuffs aids in preventing chemical residues and ensures high quality feeds.

Create a checklist that includes such items as color, odor, moisture, temperature, and no evidence of foreign material or bird, rodent or insect contamination.

It is neither efficient nor economically feasible to test every load of grain or forage for contaminants. However, it makes good sense to obtain and store a representative sample of each batch of newly purchased feed. Commonly, investigation of suspected feed-related problems is hampered because no sample is available for testing.

One suggestion for purchased grains, supplements or complete feeds is to randomly sample each batch of feed in five to ten locations and pool the individual samples into a larger sample of two to five pounds. The pooled sample can be placed in a paper bag or small cardboard box and labeled. Dry samples can be kept in a dry area. Higher moisture samples should be frozen. A feed tag can be attached to the sample for future reference.

High-risk feeds include fats, rendered by-products, plant by-products, supplements and additives. These may be single loads or batches that will be fed to cattle over a prolonged period of time.

If purchasing fats and oils, monitor for potential contaminants. Letters of guarantee from companies supplying these materials that state these materials have been tested may be requested.

Feed Contamination

EPA pesticide product registration and licensed pesticide applicator requirements provide significant protection from pesticide residues in the U.S. feedgrain supply.

Feed Toxins

Mycotoxins are naturally occurring chemicals produced by fungi. They can be found in grains and forages and, if present in sufficient concentrations, can cause reduced feed consumption, poor production and adverse health effects that may result in residues in meat and milk products.

Mycotoxins can be produced in feedstuffs prior to harvesting or during storage. Mycotoxins may include vomitoxin, aflatoxin or fumonsins.

Chemical Residues:

1) Use only agricultural chemicals approved for application to land grazed by livestock or on land where feedstuffs are removed for animal consumption at a later time.

2) Follow label directions and observe grazing restrictions on pastures, rangeland and crops treated with pesticides.

3) Document usage and observe appropriate withdrawal times before marketing cattle.

4) Only use products approved for control of internal/external parasites.

Feed Additives and Medications

The term "medicated feed" includes all medicated feed products intended to be a substantial source of nutrients in the diet of an animal. The term includes products commonly referred to as supplements, concentrates (grain mixture that contains medication), premix feeds (concentrated medications mixed with additional roughage or concentrates) and base mixes, and is not limited to complete feeds (preconditioned feed used at receiving/weaning). Feed additives often are used in the industry to improve gains, for feed conversion and health of cattle on feed.

- No extra-label use of feed additives is allowed. Only FDA-approved additives are allowed.
- No one, including a veterinarian, legally can prescribe the use of any feed additive other than as directed on the product label.
- Keep records stating:
  a) additive used,
  b) date run,
  c) ration name or number,
  d) name of person adding the additive or responsible for mixing the feed, and
  e) amount produced.
- Larger beef operations that use certain highly concentrated medications may be required to register with the FDA via an FD-1900 permit.
- Ensure all additives are withdrawn at the proper time to avoid violative residues.
- Identify treated individuals or groups as described in the record keeping section.

HANDLING FEEDSTUFFS

1) Maintain a quality control program for incoming feed ingredients.
2) Store feed in a manner to prevent the development of molds and mycotoxins and exposure to chemicals.
3) Build feed-handling facilities that reduce the risk of feed contamination.
4) Store all chemicals (pesticides, lubricants, solvents) away from feed supplies. Follow manufacturer's directions for use and disposal.
5) Prior to usage, submit for analysis to a qualified laboratory any feed ingredient suspected of contamination.
6) Feeding equipment used for other purposes (e.g. pen cleaning) must be thoroughly cleaned prior to re-handling feed.
7) When possible, protect feedstuffs, feed troughs and water supplies from contamination.

Withdrawal Time:

The time required between the application or feeding of a drug or additive and the harvest of the animal to prevent any residue of the drug from remaining in the carcass. Withdrawal times are legally specified by the FDA.

Aminoglycosides:

The KS-BQA program does not allow the injectable extra-label use of products such as neomycin, gentamicin, or kanamycin, because of potential violative residues.

FDA prohibits extra-label use of fluoroquinolones. Examples are Baytril and A180.

Processing/Treatment and Records

Calves moving through the production chain must stay healthy. Sickness requires treatment and increases the probability of death loss, poor performance, injection-site lesions and residues. Proper handling/administration of vaccines is critical to this program. The highest quality vaccine available is useless if it's not handled and administered properly. Many treatment regimens include vaccines to stimulate immune system response and lessen the chance of re-treatment.

Find and work with a veterinarian who is willing to be involved with the Beef Quality Assurance program. Your veterinarian must be a team player and understand that each animal carries the reputation of your business and the beef industry. Only FDA, USDA and EPA-approved products can be used in processing and treatment programs.

Extra-Label Drug Use

There are two classes of drugs. Over-the-counter (OTC) and prescription drugs. OTC drugs can be purchased and used as directed on the label without establishing a relationship with a veterinarian. (See example label, page 11.)

Prescription drugs can be used only on the order of a veterinarian within the context of a valid veterinarian-client-patient relationship.

FDA Requirements for the Extra-Label Use of Drugs

1) A careful diagnosis is made by an attending veterinarian within the context of a valid veterinarian/client/patient relationship This relationship exists when:

- **a)** the veterinarian has assumed the responsibility for making clinical judgments regarding the health of the animal and the need for medical treatment, and the client has agreed to follow the veterinarian's instruction;
- **b)** the veterinarian has sufficient knowledge of the animal to initiate at least a general or preliminary diagnosis of the medical condition; and
- **c)** the veterinarian is readily available for follow-up evaluation in the event of adverse reactions or failure of the treatment regimen.

2) A determination is made that:

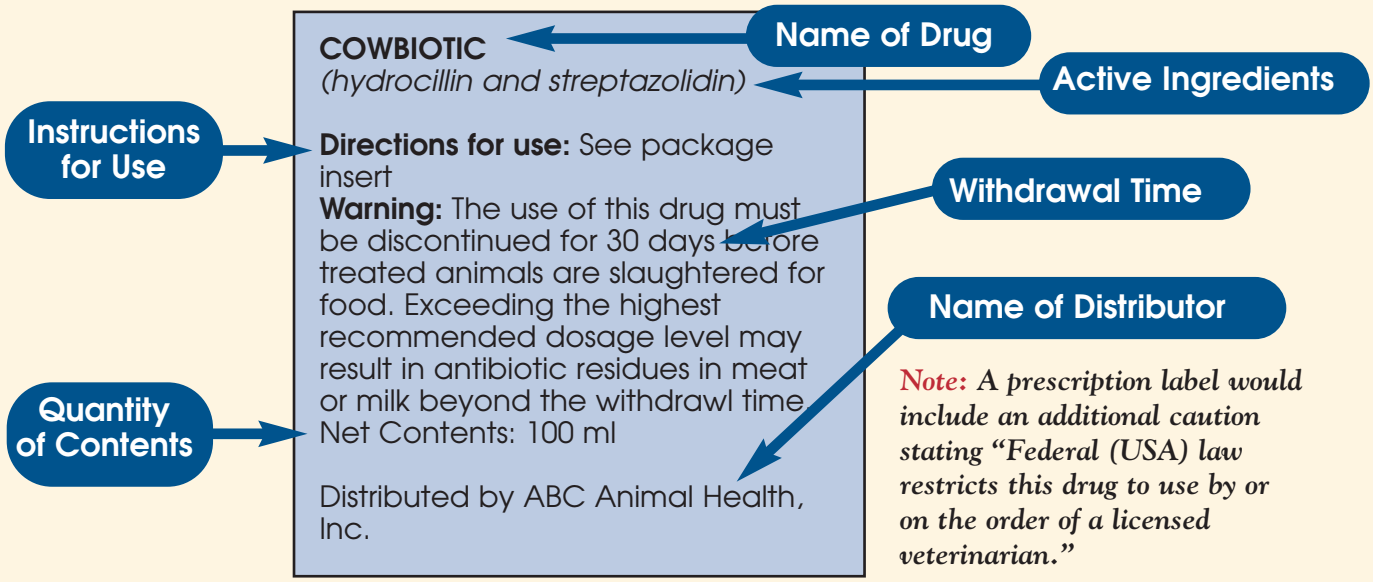
- **a)** there is no marketable drug specifically labeled to treat the condition diagnosed, or

▼ ***Label from veterinarian for "Extra-Label" use.***

Veterinarian:_____Phone: _____
Address: _____Date:_____Exp: _____
Owner/Farm: _____Animal ID: _____Species: _____
Active Ingredients/ Concentration: _____
Quantity:_____Drug Trade Name: _____
Indications: _____
Directions: Give _____cc/bolus/oz _____times each day for_____days
Drug Withdrawal Time for Slaughter: _____days
Test for Residues: Urine _____Blood _____

EXAMPLE OF LABEL TYPE

Over-the-counter (OTC) product



Note: A prescription label would include an additional caution stating "Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian."

b) treatment at the dosage recommended by the labeling was found clinically ineffective.

3) Procedures are instituted to ensure identity of the treated animal is carefully maintained.

4) An extended period is assigned for drug withdrawal prior to marketing the treated animal. The Food Animal Residue Avoidance Databank can aid the veterinarian in making these estimates.

Implants

When used properly, implants have been proven safe and effective through both research and actual use in the beef industry. Proper administration of implants is critical to achieve desired results.

Location for Implant Administration

The only approved location for implant administration is the middle third of the back side of the ear. (See illustration at right.) All implants must be located subcutaneously within this area. Implants never should be placed in locations other than the ear.

Restraint bars can be added to processing chutes to increase the likelihood of properly placing the implant. The processing facility should be adaptable to easily accommodate multiple weights of cattle.

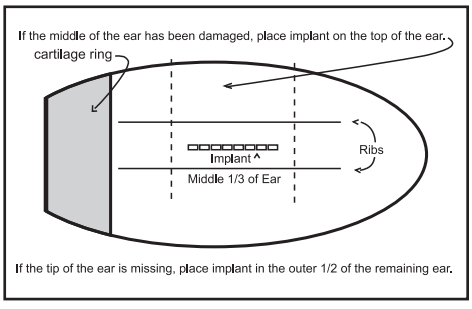
Additional health procedures also can be administered when cattle are run through the chute system for re-implant.

Sanitation is important. Use sharp, clean needles, and lay the needle on a disinfectant-soaked sponge between uses. (See photo.) ▶

Causes of Implant Failure:

- Improper site (in the cartilage)
- Abscess due to poor sanitation, prevents active ingredients from absorbing
- Missing implant (through the ear)
- Partial implant due to poor technique or gun failure
- Bunched or crushed pellets
- Improper implant storage

When implanting, lay the needle on a disinfectant-soaked sponge between uses to keep it sanitized.



Ear Implant Location

Record Keeping

Record keeping, either computer or hand-generated, is a critically important management tool. To ensure consumer confidence and maintain market share, beef producers must be able to document the safety and quality of their product.

This includes effective documentation to demonstrate control over risk factors that have a residue potential. Controlling violative drug residues can be accomplished by placing emphasis on the identification and handling of individually treated cattle.

Record the use of all processing products (vaccines, dewormers, pour-ons, etc.).

Regulatory inspections by FDA, USDA, EPA or OSHA will prove the necessity of good records. Effective documentation that shows appropriate compliance with training, inventory control, use orders, animal identification, withdrawal and disposal will help avoid liability from a residue contamination.

The only way to accurately determine if you are in compliance with withdrawal times is to know exactly what was given, how much was given, where it was given, and how and when it was given.

The key to record keeping is finding a method you are comfortable with, and that you will continue to use on a regular basis.

All processing products (vaccines, dewormers, pour-ons, etc.) should be recorded and label directions for administration followed.

Veterinary Drug Order

A Veterinary Drug Order (VDO) is a veterinarian-approved list of medications used in your operation that fit BQA guidelines.

The VDO should include all products that have a withdrawal time, including vaccines, antiparasitic drugs, and all injectables (including vitamins). When all medications, vaccines, etc., are managed as if they were prescription items, an additional measure of quality assurance and safety is obtained.

All cattle medications and vaccines should be included on the VDO and should be updated at the same time the Treatment Protocol Book is updated.

Treatment records should include:

- animal treated
- treatment type
- treatment date
- treatment dose
- prescribed withdrawal time

Treatment Protocol Book

Ask your veterinarian to develop a "Treatment Protocol Book" specific to your operation. Keep the Treatment Protocol Book on file at the treatment facility.

The concept of a Treatment Protocol Book may be more familiar to feedyards and larger stocker operations. However, it is a valuable management practice for cow-calf producers as well. It is simply writing down a plan for what treatment(s) is to be used when cattle get sick for various reasons.

Also write down your plan for follow-up and/or alternative treatments if the initial treatment doesn't produce the desired result.

The book should be reviewed regularly and updated at least every 90 days, or as often as appropriate. As you update the protocol book, previous versions should be kept on file for a year or more, so you can refer back to treatments that have worked in previous situations. When the book is updated, it must have your veterinarian's signature and the date recorded.

WHY TREATMENT RECORDS ARE IMPORTANT

1) Cattle not responding to therapy may require a delayed drug clearance. Good records would indicate if this were the case.

2) Under FDA guidelines, extra-label drug usage is permitted only under a veterinarian-client-patient relationship. Individual animal identification and record keeping is important.

3) Should a feedyard be cited for a residue violation and that feedyard believes a mistake in identity has been made, good records may be the only proof of compliance.

4) Records will indicate the list of drugs used at the feedyard. Accusations that certain drugs have been used can be avoided when the feedyard can prove it does not use specific drugs.

Accurate records also allow you to know exactly what is going into each animal. This information prevents the re-administration of treatments that previously have failed to work. Furthermore, the information tells the consultant/veterinarian what treatments you are applying so they can:

- make sure treatment recommendations are being followed, and
- judge whether treatment regimens need to be adjusted for changing animals and conditions.

Contact Information for Beef Quality Assurance Team

	Name	Phone #
Name of Operation:		
Owner/Manager:		
Feed Employee or Company:		
Cattle Employee:		
Maintenance Employee:		
Office Employee:		
Veterinarian:		
Extension Educator:		
Nutritional Advisor:		
University Specialist:		

Common Types of Records

Animal Treatment Records

1) Keep all records for at least three years from the date of transfer or sale of the cattle.

2) Treatment records should contain:
   - Treatment date
   - Animal or group identification
   - Approximate weight of animal or group average
   - Product administered
   - Product lot/serial number
   - Earliest date the animal could clear withdrawal time
   - Dose given
   - Route of administration (IM, SQ, IV or oral)
   - Location of injections
   - Name of person who administered the treatment

3) A copy of the appropriate records should be made available to the buyer of your cattle. Records should include all individual and group treatment/processing history and other information deemed appropriate.

▼ ***Example records and forms:***
These records are examples. A number of formats provide the same information. For additional forms and records, visit the KLA Web site at www.kla.org or contact KLA at 785-273-5115.

Animal Health Products Inventory

Date Received	Supplier or Distributor	Product Name	Quantity	Cost	Expiration Date

Click here to view printable forms.

Treatment Record for Individual Cattle

Animal ID: _____Home Group/Pen: _____Color:_____
(Rx = medication name, WD = withdrawal time)

Date	Diagnosis	Temp	Severity (1-5)	Rx 1	Rx 2	Rx 3	Comments	WD

Processing/Treatment Map

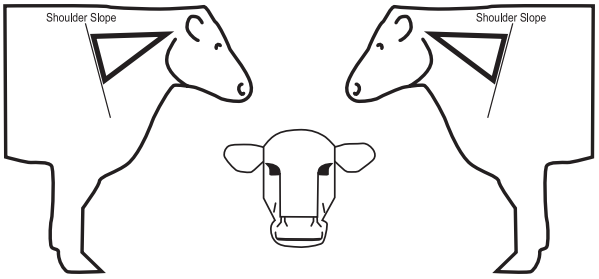
Give all injections in the neck region and, when possible, use SQ products.

Date: _____ **Time:** _____ **No. of Head:** _____

In Weight (average/variation): _____ **Breed:** _____

Sex: S, H, Bulls, mixed **Frame Size:** S, M, ML, L **Air Temperature:** _____

ID: Right Ear or Left Ear/Group Number: _____/Individual _____



R1 _____
R2 _____
R3 _____

L1 _____
L2 _____
L3 _____

Product	Lot or Serial #	Supplier	Route of of Admin	Dose	Withdrawal Time (WD)	Crew	Comments

Click here to view printable forms.

Feed Records

1) Keep all feed records for at least three years from the date of transfer or sale of the cattle.

2) It is a good management practice to require that all feed products be accompanied by an invoice that includes the:
   - date
   - amount
   - lot/batch number
   - signatures of both the person who delivered the product and the person receiving the product.

Chemical Records

Private pesticide applicators must maintain a record of each restricted-use pesticide or general-use pesticide application for three years. Restricted-use pesticides require a private applicator's license to apply the product. Records must include the following:

- Brand or product name and the EPA registration number of the pesticide applied.
- Total amount of pesticide applied.
- Location of application, size of treated area and the crop, commodity, stored product or site to which the product was applied.
- Month, day and year of application.
- Name and certification number of certified applicator who made or supervised the application.
- The animal(s) exposed to the pesticide and the withdrawal time.

Pour-on product usage can be included in the processing record for the group of cattle.

ECONOMIC LOSS PER RETAIL CUT

Top-sirloin butt	$0.71
Bottom rounds	$2.88
Total	$3.59/hd

(Results fromNBQA 2000, based on each steer/heifer slaughtered, 30.31 million head)

Injection Site Management

Injection-site lesions were first identified as a serious problem in the 1991 National Beef Quality Audit. Thanks to the work of BQA and the efforts of cattle producers, the frequency of lesions has been reduced substantially.

In March 1991, injection-site blemishes were found in 22% of the top sirloin butts studied in the audit. The 2000 audit recorded an incidence rate below 3% for top sirloin butts.

However, as further study continued, researchers learned that, in addition to the loss in product caused from the removal of an injection-site lesion, there was a substantial impact on tenderness of the wholesale cut as well.

In 1994, Colorado State University researchers revealed a highly significant increase in the Warner-Bratzler shear force values (toughness) in cooked steaks extended outward up to three inches from the center of a lesion, compared to shear force values for steaks without lesions.

Factoring in the impact on tenderness, the 1995 Quality Audit recorded a loss of $7.05 for every fed steer and heifer marketed that year.

Injection-site lesions are the result of an injection such as clostridial bacterins, antibiotics and vitamins administered intramuscularly (IM).

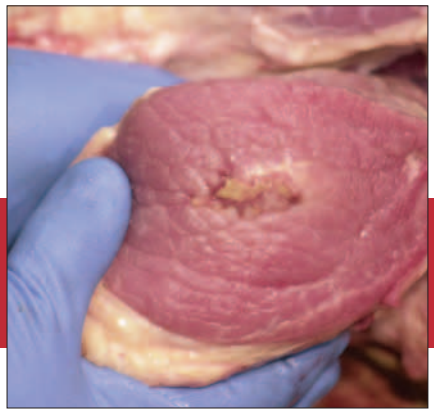
The lesions are scar tissue that develop from the irritation in the muscle.

Contaminated needles and syringes can contribute to the resulting lesions.

Injection-site lesions are scar tissue that results when an intramuscular injection is administered too deep within the muscle tissue.

This lesion from an IM injection traveled deep into the tissue. Tenderness often can be impacted within a three-inch diameter of the resulting lesion.

Injection lesions don't affect just one steak. IM injections in the hind quarter can damage numerous high-priced cuts.



Injection lesions may appear small but, in this case, the lesion occurred in the center of the eye of the round, damaging the entire retail cut.

INJECTION GUIDELINES:

1) Regardless of animal age, injections (all IM and SQ medications and vaccines) should be given in front of the shoulders, in the neck region – never in the rump, top loin or back leg.

2) Preference is given to injections that can be administered SQ, IV or orally.

3) Never exceed more than 10 cc per IM injection site. (If 24 cc is recommended, use three 8 cc injections instead of two 12 cc injections).

4) Do not use chemical disinfectants in the syringes when using a modified live virus product, as effectiveness of the product will be decreased.

5) Provide proper restraint to avoid breaking needles in animal tissue.

6) Use the needle size proper for the situation. Consider a) route of administration; b) size of animal; c) location or site of injection; and d) product administered.
The volume or amount of fluid injected also may be considered.
   a) 16-18 gauge 1/2 to 3/4 inch needles for SQ
   b) 16-18 gauge 1 to 1-1/2 inch needles for IM

7) Space injections at least four inches apart. (See photo 4 below.)

8) Never mix products. Mixing products can cause unnecessary tissue damage, reduce the effectiveness of the products, and may extend the withdrawal time.

9) Processing cattle in wet, muddy conditions can increase the chance of injection site contamination. Injection sites should be clean if possible.

10) Follow the proper record keeping protocol. (Refer to section on Records.) Records will document individual and group treatment. Include route of administration, product used, product lot number and serial number.

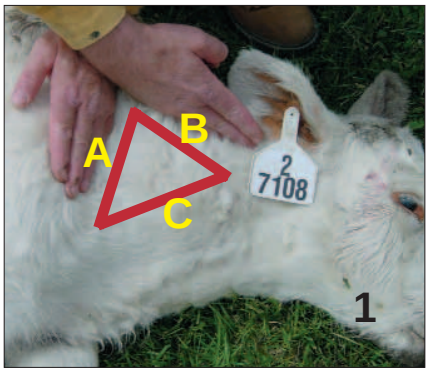
When administering an injection, follow these guidelines:

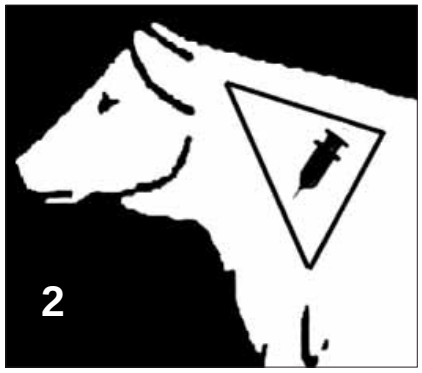
1) Give injections within the injection zone triangle, located in the neck. Draw the triangle locating:
   A) slope of the shoulder,
   B) nuchal ligament (or approximately three inches below top of neck), and
   C) vertebrae.

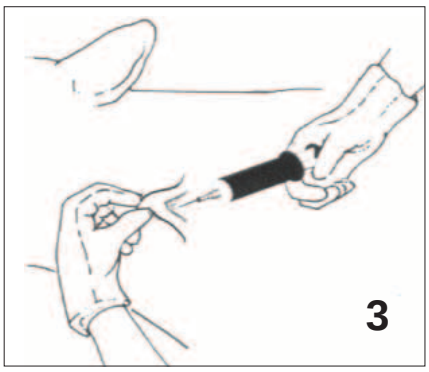
2) All SQ and IM injections must be administered in the triangle region ahead of the slope of the shoulder.

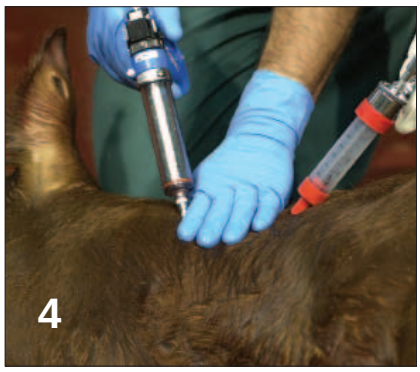
3) Tent skin for all SQ injections.

4) Space injections at least four inches apart.

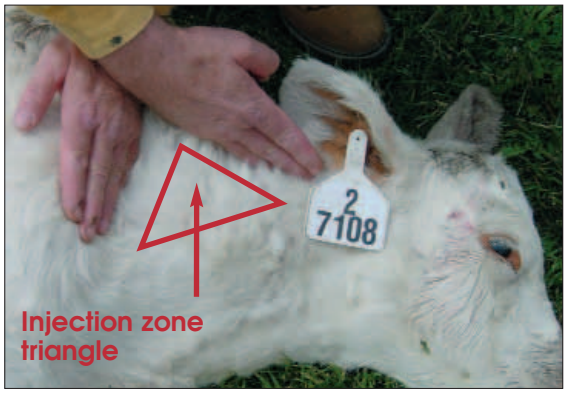








Dewlap Technique



The triangle represents approved injection zone for IM and SQ injections.

An SQ injection in the dewlap is an approved KS-BQA practice, as long as the injection site remains ahead of the point of shoulder. To administer injections in the dewlap:

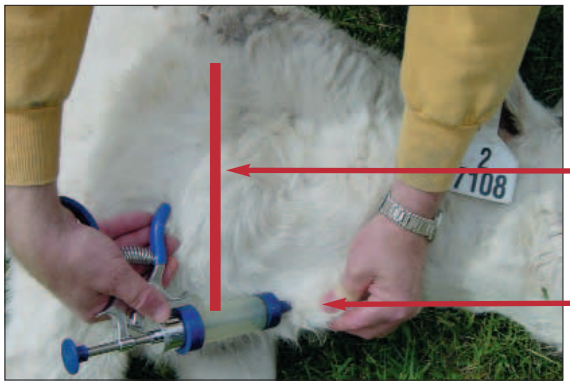
1) Restrain calf on its side. Pull the front leg back and locate the dewlap. The dewlap is the flap of skin from the throat of the calf that follows the neck down to the brisket region.

2) Find a location ahead of the slope of the shoulder.

3) Grasp the skin, using the tenting technique, and conduct the SQ injection.

4) Use the correct needle size. An 18-gauge x 5/8 inch needle is recommended.

5) If more than one SQ injection is administered in the dewlap, space injections a hands-width apart (at least four inches).



Subcutaneous injections may be given in the dewlap region by tenting the skin and staying ahead of the point of shoulder (area to the right of the red line).

Foreign Object Avoidance

Birdshot/Buckshot – The 1999 market cow and bull quality audit revealed more than 10,000 head of slaughter cattle were condemned due to the presence of lead shot. Lead birdshot/buckshot poses a food safety threat and if detected the entire carcass is condemned.

Broken Needles – Under no circumstances can animals carrying broken needles be sold or sent to a packer. Broken needles can migrate in the tissue and, if not removed immediately, the needle fragment will be impossible to find and require the animal to be destroyed rather than sold.

NEEDLE KNOW-HOW

Gauge – diameter of the needle, adjust to match cattle weight.
Length – fit the route of administration, adjust to cattle weight.

Change Needles
- immediately if the needle bends
- if the needle becomes contaminated with feces, dirt or irritating chemicals
- if the needle point is damaged/burr develops
- before the needle becomes dull (every 10 to 15 head)
- between cattle with known blood-borne infectious disease

	Route of Administration								
	SQ (1/2 to 3/4 inch needle)			IV (1 1/2 inch needle)			IM (1 to 1 1/2 inch needle)		
	Cattle Weight			Cattle Weight			Cattle Weight		
Injectable Viscosity	<300	300-700	>700	<300	300-700	>700	<300	300-700	>700
Thin Example: Saline	18 gauge	18-16 gauge	16 gauge	18-16 gauge	16 gauge	16-14 gauge	20-18 gauge	18-16 gauge	18-16 gauge
Thick Example: Oxytetracycline	18-16 gauge	18-16 gauge	16 gauge	16 gauge	16-14 gauge	16-14 gauge	18 gauge	16 gauge	16 gauge
SELECT THE NEEDLE TO FIT THE CATTLE SIZE (THE SMALLEST PRACTICAL SIZE WITHOUT BENDING)									

Syringe Care

Inadequate vaccine syringe cleaning is frequently responsible for localized infections associated with vaccination. If the infection is severe, it may become generalized and the animal may die.

Injection-site swelling is common, especially when vaccines such as clostridial bacterins are given SQ. If the swelling is hard, it could be due to getting the subcutaneous injection too deep and penetrating part of the first layer of muscles. If this is the cause, consider using a 5/8-inch needle or a short (1/2 or 3/4 -inch) regular bevel needle.

Sterile, disposable syringes will virtually eliminate injection-site infections. If you require multiple dose syringes, several brands of disposable sterile, automatic vaccine syringes are available.

Syringe cleaning steps for multiple dose syringes:

1) Clean the external syringe surface with soap, water and a brush.

2) Rinse the inside components of the vaccine syringe, including tubes and connectors with distilled or de-ionized water that is near the boiling point (hotter than 180° F). This is accomplished by drawing water that is greater than 180° F into the syringe and squirting it out. Three to five rinses should be adequate. Remove as much water from inside the syringe as can be squirted out and let the syringe cool before using. Heat kills modified live vaccine (MLV) products.

You should not use a soap or disinfectant on internal components as residues may kill MLV vaccines.

3) Store the vaccine syringe in a dust-free, dry (low humidity) environment. It is best if the newly cleaned vaccine syringe is stored in a new zip-lock bag and placed in the freezer.

Repeatedly draw boiling water into a syringe, then squirt it out to clean the syringe. Heat without pressure will not kill bacterial spores.

Vaccines

Even experienced producers overlook many key aspects when preparing and administering vaccines. With the increased use of Modified Live Virus (MLV) and Chemically Altered (CA) vaccines, you need to re-evaluate how everyone involved with your operation handles products.

First, purchase vaccines from a reputable dealer. A vaccine will be less than 100% effective if it ever has been stored improperly. Management practices can increase the percentage of cattle that respond to vaccine, and greater efficacy of the vaccine greatly enhances immune response.

Reducing exposure and stress and improved nutritional management, along with proper timing of a vaccination, will increase the response rate to the vaccine.

Handling Vaccines

1) When purchasing an animal health product, always transport it in a closed, refrigerated container. Keep vaccine shielded from UV light by storing it in a refrigerator and transport it using cold packs.

2) Always keep the vaccine cool while you process cattle. Keep the working bottle of vaccine and syringes in a cooler. Unused and unmixed product should be in a closed, refrigerated container until used.

3) Only mix MLV product within an hour of use.

4) If you are processing a small number of cattle, purchase the product in small containers with fewer doses.

Do not allow vaccine or syringes to sit in direct sunlight. Example: Styrofoam cooler used to keep syringes cool and out of direct sunlight.
Source: Thrift University of Florida

Care & Husbandry Practices

Click here to view the Guidelines for Care and Handling of Beef Cattle

Sound animal husbandry practices based on research and decades of practical experience are known to impact the well-being of cattle, individual animal health and herd productivity.

Because cattle are produced using a variety of management systems, in very diverse environmental and geographical locations in the United States, there is not one specific set of production practices that can be recommended for all cattle producers to implement. Personal experience, training, and professional judgment are key factors in providing proper animal care.

Feeding and Nutrition

Cattle should have access to an adequate quantity and quality of nutrients (feed, water, minerals and vitamins) for body maintenance and growth.

The nutrient requirements of cattle vary according to age, sex, weight, body condition, stage of production and environmental temperature.

Nutritionists can provide specific information about the nutrient needs of cattle and nutrient availability in feed ingredients.

Cattle should have access to an adequate supply of clean water. Although water requirements vary greatly, as a rule of thumb, water consumption will range from one gallons per 100 lb. of body weight during cold weather, to nearly two gallons per 100 lb. of body weight during hot weather.

Improper handling causes more than 50% of all bruises.

Livestock Facilities

Facilities (fences, chutes, etc.) should be maintained in good working condition to provide efficient movement and reduce stress when working cattle. Sharp objects and protrusions can result in bruising and should be avoided whenever possible.

Equipment to restrain cattle should allow for quick and secure restraint in order to minimize stress or injury to the animal or the operator.

Experienced and trained personnel should operate restraining equipment.

Shelter

Beef cattle are produced in a variety of production settings, from pasture and range to dry lot and confinement facilities.

When behavioral and physiological characteristics of cattle are matched to local conditions, beef cattle thrive in virtually any environment without artificial shelter. However, during extreme weather conditions, cattle should have access to well-drained resting areas and/or natural or constructed shelter.

Animal Health Practices

Producers should implement herd health programs that address the prevention and treatment of disease. These programs will vary depending upon the type of operation and disease prevalence. Cattle producers are encouraged to consult with their veterinarian to establish effective herd health programs.

Cattle should be observed regularly, particularly during critical periods of the year such as calving season or weather-related events.

When procedures such as vaccination, castration, dehorning and branding are performed, proper techniques and/or equipment should be utilized. Only experienced or properly trained personnel should perform these procedures.

Beef producers are encouraged to follow state or national BQA guidelines.

Handling Sick, Disabled or Deceased Livestock

It is the responsibility of cattlemen to humanely care for their animals and make every effort to obtain veterinary care for animals that are sick or injured.

Sick or injured livestock that are non-responsive to medical treatment for a reasonable period of convalescence should be humanely euthanized on the farm or ranch.

Moreover, cattle exhibiting symptoms of advanced disease or cattle that are non-ambulatory, "downers," should not be transported to market facilities.

Euthanasia is defined as humane death occurring without pain and suffering. Techniques for euthanasia should follow guidelines established by the American Veterinary Medical Association and the American Association of Bovine Practitioners.

Producers should use proper methods of disposing of deceased livestock in accordance with federal, state and local regulations. If utilizing a rendering service, keep deceased livestock away from public view.

Transportation

During the movement of cattle to and from farms, ranches, feedlots and marketing facilities, proper handling and transportation are important for the safety and welfare of the animals.

During the movement of livestock to and from ranches, feedlots and marketing facilities, proper handling and transportation are important for the safety and welfare of the animals.

When loading and unloading cattle, personnel should move cattle as quietly and patiently as possible to prevent stress or injury.

Cattle should be separated by size or gender prior to shipping and, if possible, different groups should be loaded into separate compartments of the truck or trailer. To prevent livestock from falling while in transit, drivers should avoid sudden starts/stops and sharp turns. Moreover, the floors of trucks and trailers should be clean and slip-resistant.

While in transit, occasional stops should be made to ensure cattle are well dispersed and still standing.

Severe weather conditions must be considered when transporting livestock. As appropriate, adequate ventilation and protection should be provided during transit.

Training & Education

All individuals working with livestock should be provided a sound working knowledge of proper care and handling techniques.

Cattle producers should observe their employees to ensure they are properly trained. Never assume anyone can properly handle cattle, or that they will always utilize proper techniques.

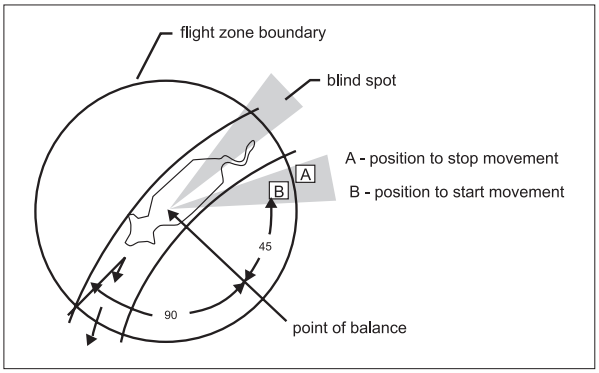
Ongoing education should be a part of any management plan.

When working with cattle, individuals should understand an animal's flight zone. (See figure at right.)

Avoid sudden movement, loud noises, or other actions that may frighten or confuse animals. Handling devices, including canes, prods, sorting sticks and paddles, should be used humanely.

Cattle Handling Key Points:

1) Be aware of the flight zone for cattle. To move cattle forward, move toward their rear past their point of balance (shoulder). To stop or back up cattle in a chute, move forward past their point of balance.
2) Never fill a crowding pen more than three-quarters full; cattle need room to turn around.
3) Cattle should move easily up the chute. Avoid hanging chains, shadows, backstops, noises, dogs or people that might prevent movement.
4) Loading ramps and handling chutes should have solid walls to prevent animals from seeing distractions outside the working area.
5) Minimize the use of cattle prods.
6) Reducing stress on the animal will reduce animal injuries and sickness, employee injury and increase overall efficiency.



Understanding an animal's flight zone can make cattle handling easier and less stressful on the animal.

Ongoing education of individuals working with livestock should be a part of every management plan.

FED CATTLE TARGETS

Desirable

Carcass Weight – 650-850 lbs
Quality Grade – Select or higher
Yield Grade – 1, 2 or 3

Undesirable

Carcass Weight – <600 or >950 lbs.
Quality Grade – Standard
Yield Grade – 4 or 5

(Source: National Beef Quality Audit)

Breeding And Genetics

Industry targets will allow the beef industry to meet requirements for portion size, marbling preferences and efficiency in the packing industry. Knowing the industry targets and understanding how to reach those is the first step toward developing a sound, logical breeding program. (See Fed Cattle Targets at left.)

Some specialty targets like high-yielding cattle, extra-lean cattle, or "all-natural" cattle may require slightly different specifications to reach those goals.

Discounts usually are applied to cattle that are in the undesirable category – often referred to as "out cattle."

Networking with calf buyers, stocker operators and feedyards that purchase your calves and feeder cattle is one way to find out how your cattle will perform after they leave your business.

Carcass traits have become the focus of many information feedback programs, especially in branded beef and value-added programs.

Performance traits such as daily weight gain, feed efficiency and health also are "quality" factors that should be measured.

Management Practices

Dehorning: Cattle with horns can cause significant carcass damage due to bruising. Bruises from horns are trimmed, resulting in lost carcass weight, devalued primal cuts and reduced carcass value. Calves born with horns should be properly dehorned to prevent horn growth.

Castration: Early castration improves animal performance and gain, and reduces health complications. Plus, beef from steers has a finer texture, higher marbling score and is more consistent in tenderness than that from bulls. Castration is recommended to occur between birth and four months of age.

Branding: Branding is a permanent and proven means of identification, and brand inspection is required in some parts of the United States. But, the placement of a brand does have an impact on the value of the hide. It is recommended that brands be placed on the hip, allowing the damaged portion to be cut away from the hide without significantly reducing the value of the hide.

Nutrition: Body Condition Score (BCS) is a measurement tool to determine the nutritional status of cattle. The range is from 1 (very emaciated) to 9 (overly fat).

The Texas A&M University Ranch-to-Rail program documented healthy calves were $93.20/head more profitable than sick calves (12,595 head tested).

Optimum range for cows at calving time is BCS 5. Cows calving below a BCS 5 produce less volume of colostrum, lower quality colostrum and have decreased milk production.

Nutritional stress can impact the animal's health and immune system. A proper balance of protein and energy is very important to the nutritional needs of cattle.

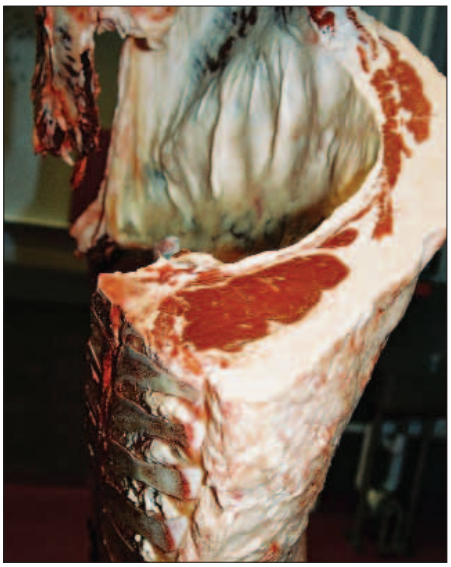
Calf Nutrition: Weaning is one of the most stressful periods for young calves. Stress will decrease immune response.

In a short period of time, a calf is weaned, removed from its mother's daily nutrition and oftentimes shipped to a new environment, commingled with other calves and started on a new ration or feeding method.

Preconditioning allows for calves to be managed and transitioned into the next phase of their life cycle. Preconditioning programs with a 45-day post-weaning period have been accepted by the industry to improve animal performance, health and carcass quality.

Calves with fewer health problems after leaving the ranch will:

1) require less medication,
2) suffer less death loss,
3) perform more efficiently and
4) potentially have higher valued carcasses.



Excess fat cover decreases profitablity.

Quality defects in mature cows and bulls include:

- **Inadequate muscling**
- **Excessive fat trim**
- **Lightweight or heavy carcasses**
- **Lameness and downer animals**
- **Eye lesions**
- **Horns**
- **Brands**
- **Bruising**

Culling Management

1) Do not market cull animals that pose a public health threat or that have a terminal condition.
2) Be certain ALL animals shipped to market have cleared proper withdrawal times.
3) Do not send cull animals that are disabled or have advanced eye lesions to market .
4) Market cull animals BEFORE they become severely emaciated.
5) Using products properly and observing withdrawal times will prevent violative residues.

Foodborne Bacteria

Thorough cooking of food will kill the following foodborne bacteria.

***E. coli* 0157:H7** – a virulent strain of this bacteria found in the intestinal tract and feces of animals and humans.

Salmonella – a family of bacteria that includes more than 2,000 strains, 10 of which are responsible for most cases of reported illness associated with bacteria. It can be found on any raw food of animal origin.

Listeriosis – a bacterium that grows in a damp environment and may commonly be found in dairy products, raw meats and poultry.

Industry Issues

Food Safety

Food safety continues to be a challenge for the industry. Ongoing research is being conducted to identify new and improved technologies and to explore opportunities to strengthen the safety of today's meat supply. Due to public concern over the incidence of *E. coli* 0157:H7 in the food supply in the early 1990s, the 1996 Pathogen Reduction – HACCP Final Rule was developed. This rule mandated the implementation of HACCP throughout the meat industry. (See page 3 for HACCP information.)

USDA-FSIS inspects all meat sold in interstate commerce and re-inspects imported products to ensure they fulfill all U.S. food safety requirements.

FSIS inspectors are in packing plants daily to ensure the products are fit for human consumption and in compliance with all federal laws governing food safety.

Current microbiological decontamination technologies include:

- Spot cleaning of carcasses by knife-trimming or steam/hot water vacuuming.
- Spraying/washing/rinsing of carcasses with water, chemical solutions and/or steam or hot water during carcass processing.
- Animal cleaning.
- Chemical dehairing at slaughter.

Contamination can enter packing plants on the hides of animals as well as in an animal's digestive tract.

Research efforts currently address live animal interventions to reduce pathogen levels in and on live animals.

Steam vacuuming carcasses is one managment option to reduce the incidence of *E. coli* 0157:H7.

Management and Emergency Preparedness

Security is designed to prevent intentional introduction of pathogen(s) into an operation. Developing a security management strategy involves evaluating potential risks, outlining steps to manage the identified risks and instituting a security plan based on the risk assessment.

At the very least, posting security signs, establishing a buffer zone or perimeter fence to separate livestock from the public, securing all access gates and establishing visitor and intruder policies should be considered.

Biosecurity management and practices are designed to prevent the spread of disease. The goal of biosecurity is to prevent, minimize or control cross-contamination of body fluids (feces, urine, saliva, etc.) between animals, from animals to feed and from animals to equipment that may directly or indirectly contact animals.

Biosecurity

To implement a biosecurity program, consider these practices for:

Controlling disease within the herd

- Vaccinate the herd against all endemic diseases (BVD, Clostridial disease, etc.).
- Use low-stress management for movement and processing. Provide ample feed, water, and shade.
- Isolate all sick animals.
- Maintain a closed herd, if possible.
- Purchase feed from reputable sources.
- Minimize fence-line contact with neighboring animals.
- Do not place cattle of different ages in the same pen.
- Keep records of all disease occurrences.

Purchasing replacement animals

- Quarantine all new animals for 30-60 days.
- Test new animals for disease (BVD, Johne's, Salmonella, etc.).
- Purchase animals from healthy, reputable herds.

Environmental and pest control

- Provide human foot baths at entrances and exits of confinement facilities.
- Provide timely manure and dead animal removal.
- Keep grounds and feed bunks as dry as possible.
- Have an insect control program in practice. (Insects can be vectors for diseases such as anaplasmosis and blue tongue.)
- Have a rodent control program in practice.

Disinfection

- Clean and remove as much organic material as possible before disinfecting.
- Choose a disinfectant that will work against the pathogen you want to control.
- Be aware of any toxic, harmful or corrosive effects of the disinfectant.
- Follow the label on the disinfectant package.

Visitors

- Minimize the number of visitors to the facility and their contact with animals.
- Be sure all visitors have clean clothing/coveralls, boots, and hands.
- Be sure all vehicles or equipment brought onto the farm are disinfected.
- Do not allow foreign visitors on the farm until they have been in the counry for five days. Do not allow foreign visitors to bring clothing, foods, or accessories they have had in another country onto the farm.

Employees

- Be sure all employees understand and follow the biosecurity protocol.
- Realize that employee-owned animals (horses, dogs, etc.) can be a possible source of contamination to your facility.

Infectious Disease Can Be Spread By:

- The introduction of diseased cattle or healthy cattle incubating disease.
- Introduction of healthy cattle who have recovered from disease, but are now carriers.
- Vehicles, equipment, clothing and shoes of visitors or employees who move between herds.
- Contact with inanimate objects that are contaminated with disease organisms.
- Carcasses of dead livestock that have not been disposed of properly.
- Feedstuffs, especially high-risk feedstuffs, that could be contaminated with feces.
- Contaminated water (surface drainage water, etc.).
- Manure handling and aerosolized manure and dust.
- Non-livestock (horses, dogs, cats, coyotes, raccoons, other wildlife, rodents, birds and insects).

Maintaining a biosecurity program is the cheapest, most effective means to control disease, and no disease prevention program will be effective without it.

Posting check-in signs at livestock entry points can aid in animal health biosecurity.

Potential Disease/ Infection Risks

There are a number of foreign animal diseases and bacterial and viral pathogens that pose a threat to the safety and economic viability of the U.S. livestock industry. Following are brief definitions and the treatment protocol, if available:

BVD – Bovine Virus Diarrhea is a viral disease that affects the respiratory, reproductive, digestive, immune and nervous systems of cattle. It is transmitted in urine, feces, nasal secretions and semen. Persistently infected (PI) cattle play a key role in transmitting and maintaining the disease in a herd. Biosecurity, vaccination and testing are important in controlling BVD.

TSE – Transmissible Spongiform Enchephalopathies are a group of rare, degenerative brain diseases that affect both animals and humans. The means of transmission is still unknown, but this disease appears to be spread in body secretions (urine, feces or saliva).

- **BSE – Bovine Spongiform Enchephalopathy**, part of the TSE family, is a rare, chronic degenerative disease affecting the central nervous system of cattle, often referred to as Mad Cow Disease. It was first identified in Great Britain in 1986. Based on USDA surveillance efforts, there are no documented cases of BSE in the U.S. One form of human TSE is Creutzfeldt-Jakob Disease (CJD). An additional TSE in humans that has been associated with BSE in cattle is new variant (nv) CJD.

  The U.S. has banned the importation of beef, ruminant animals and rendered animal products from Europe and other countries that have confirmed cases of BSE. Since 1997, the U.S. also has banned feeding mammal-derived animal protein by-products in cattle feed.

  Affected animals may display aggression, difficulty in coordination and rising, decreased milk production and loss of body weight. There is no treatment or vaccine to prevent the disease, and no test to detect the disease in a live animal. BSE is confirmed by postmortem microscopic examination of brain tissue protein.
- **CWD – Chronic Wasting Disease** is also a form of TSE and was first identified in Nebraska's deer and elk population in 1998. The disease is progressive and always fatal. The most obvious sign is weight loss over time. CWD never has been shown to infect cattle.

FMD – Foot-and-Mouth Disease is a highly contagious viral disease that usually does not affect humans, but has devastating effects on cloven-hooved animals such as cattle, swine, sheep, goats and deer. The U.S. has not had a case of Foot-and-Mouth Disease since 1929. FMD can be spread by movement of infected animals, movement of contaminated vehicles, and by contaminated facilities used to hold animals. People can carry the virus on clothing and other surfaces. Quick reporting will greatly reduce the economic losses associated with an outbreak of FMD.

The most obvious signs of the disease in animals are excessive slobbering, going off feed and lameness. Affected animals may have blisters in the mouth or other areas of tender skin, such as udders in females, nostrils and between the hooves.

Johne's Disease – Johne's is an infectious bacterial disease of animals, primarily affecting the intestinal tract. It is caused by Mycobacterium paratuberculosis, a distant relative of the bacterium that causes tuberculosis (TB) in humans and animals, but is a different disease than TB. There is no vaccine for Johne's, but there are several diagnostic tests available. Clinical signs of Johne's disease do not develop until cattle are adults, even though transmission of the disease occurs as a calf. Johne's is spread via colostrum, feces or, rarely, trans-placentally.

For more information about these or other diseases, contact your local veterinarian or refer to the Appendix on page 29 to locate a Web site reference.

KS-BQA Certification Test

Name: _____

Training Location: _____

Return test and contract to Kansas Livestock Association. (See pg 2)

Identify the letter or symbol that indicates the correct answer for each of the questions.

1) ____ True or False. All products labeled for intramuscular (IM) use shall be given in the neck region only. (Page 17)

2) ____ Who can legally prescribe the use of any feed additive other than as directed on the product label? (Page 9)
a) feed supplier b) veterinarian c) both a and b d) no one

3) ____ When administering a subcutaneous (SQ) injection to a calf weighing 500 lbs., which needle is recommended? (Page 18)
a) 18 gauge x 1-inch b) 18 gauge x 5/8-inch c) 20 gauge x 1-inch c) 16 gauge x 1 1/2 inch

4) ____ Which of the following is not true when giving injections? (Page 17)
a) give injections within the injection zone triangle
b) tent skin for all subcutaneous (SQ) injections
c) when possible, use IM injections
d) space injections 4 inches apart

5) ____ For a vaccine to be most effective, it must be: (Page 19)
a) kept out of direct sunlight and UV light
b) kept cool at all times
c) administered in a clean injection site
d) all of the above

6) ____ Market cull cows and bulls must follow KS-BQA regulations. Non-fed beef is what percentage of total U.S. beef production? (Page 4)
a) 30-35% b) less than 5% c) 7-12% d) 15-20%

7) ____ True or False. All products cause tissue damage when injected IM. Therefore, IM use should be avoided if possible. (Page 7)

8) ____ Bruising in market cows and bulls is a large problem because: (Page 4)
a) they possess less fat cover
b) they encounter more situations where bruising can occur
c) they have a higher incidence of lameness
d) both a and c

9) ____ The KS-BQA program is designed to assist producers to: (Page 2)
a) set production standards
b) establish systems for data retention and record keeping
c) be educated on industry issues and practices
d) all the above

10)____ Under KS-BQA guidelines, records should be maintained for a minimum of: (Page 6-7,14)
a) three years b) two years c) one year d) until the cattle have been transferred

11)____ True or False. Over-the-counter (OTC) drug dosage can be adjusted by a veterinarian within the context of a valid veterinary-client-patient relationship. (Page 10)

12)____ The federal mammalian protein ban prohibits the use of which by-products in formulating ruminant feed products:
a) blood and blood by-products b) meat and bone meal c) gelatin d) tallow (Page 8)

Contract

KANSAS BEEF QUALITY ASSURANCE PROGRAM
BQA Checklist and Contract

I am committed to producing beef cattle that are safe, wholesome, high quality, consistent and produced in an environmentally sound manner. To do this, I will strive for the following:

Feedstuffs/Feed Additives
- ✔ A feed quality control program will be maintained for all incoming feed ingredients.
- ✔ Only FDA-approved medicated feed additives will be used in rations.
- ✔ Proper withdrawal time for all additives and pesticide/herbicide use will be observed to avoid violative residues.
- ✔ Ruminant-derived protein sources will not be fed.

Processing/Treatment and Records
- ✔ Extra-label drug use will be used only when prescribed by a veterinarian with a valid veterinarian-client-patient relationship.
- ✔ Records will be maintained for all treatments (individual or group) following BQA-suggested record keeping guidelines and will be kept for a minimum of three years.
- ✔ When requested, all processing and treatment records will be transferred with the cattle to the next production level.

Injectable Animal Health Products
- ✔ All injections will be administered in the neck region only. This includes both subcutaneous and intramuscular injections.
- ✔ All individual treatments will strictly follow only FDA/USDA/EPA guidelines, and products which cause tissue damage will be avoided.

Care and Husbandry Practices
- ✔ Cattle management will follow animal care and well-being guidelines that conform to good veterinary and husbandry practices to avoid bruising, stress, or injury.
- ✔ Biosecurity practices will be implemented and regularly evaluated.

Signature: _____ Date: _____

Name: _____ Business Name: _____

Address: _____City: _____ ST: ____ Zip:_____

E-mail:_____Phone: _____Fax: _____

Check those that apply to your busines: ☐ Feedlot ☐ Cow-Calf ☐ Seedstock ☐ Stocker ☐ Other

Employees, please list employer's name and address:

_____

Appendix

Web sites For More Information:

Kansas Livestock Association	www.kla.org
NCBA – National Cattlemen's Beef Association	www.beef.org
Kansas State University Dept. of Animal Science	www.oznet.ksu.edu/dp_ansi/
Kansas Animal Health Department	accesskansas.org/kahd/
Great Plains Veterinary Educational Center	www.gpvec.unl.edu
Biosecurity Information	www.biosecuritycenter.org
Centers for Disease Control	www.cdc.org
FDA – Food and Drug Administration	www.fda.org
USDA – United States Department of Agriculture	www.usda.gov

Glossary:

Additive: An ingredient or substance added to a basic feed mix, usually in small quantities, for the purpose of fortifying it with certain nutrients, stimulants and/or medications.

Antibiotic: A class of drugs, such as penicillin, used to control or cure disease.

BQA: Beef Quality Assurance

Cutability: An estimate of the percentage of salable meat (muscle) from the round, rib and chuck vs. percentage of waste fat.

EPA: Environmental Protection Agency

Extra-label usage: Administering a drug or other substance in a manner not specified on the label.

FSIS: Food Safety and Inspection Service

HACCP (Hazard Analysis And Critical Control Points): A systematic, science-based approach to ensuring the production of safe food. The USDA Food Safety and Inspection Service requires all U.S. meat and poultry processing facilities to implement the system.

Immunity: The ability of an animal to resist or overcome an infection to which most members of its species are susceptible.

Immunization: The process and procedures involved in creating immunity in an animal. Vaccination is a form of immunization.

Intramuscular injection (IM): An injection into the muscle.

Intravenous injection (IV): Injection of a drug or other substance directly into a vein.

Medicated feed: Any feed that contains drug ingredients intended or represented for the cure, mitigation, treatment or prevention of diseases of animals.

OTC: Drugs and other substances that can be bought by anyone over the counter because adequate instructions for layman use can be printed on the label.

Pesticides: Broad class of crop protection compounds used to combat insects, fungus and rodents.

Residues: Remnants of compounds in drugs and other substances found in fluid, tissues and feeds.

Route of Administration: the method by which a drug or other substance is given to an animal (oral, subcutaneous, intramuscular, topical, etc.).

Rx (prescription drugs): Drugs that must be prescribed by a licensed veterinarian.

Subcutaneous (SQ): An injection under the skin.

Vaccination: An injection of vaccine, bacterin, antiserum, or antitoxin to produce immunity or tolerance to disease.

Vaccine: A preparation containing microorganisms controlled in such a way as to create a response by the recipient animal's body that results in increased protective immunity.

Zero-Tolerance: The standard to which U.S. beef processors must adhere when it comes to fecal and ingesta carcass contamination. In layman's terms, no visible contamination is allowed on beef carcasses.



Producer Code of Cattle Care

Beef cattle producers take pride in their responsibility to properly care for cattle on their farms and ranches. The following are general recommendations for producers to consider in raising and handling cattle:

- Provide necessary food, water and care to protect the health and well-being of animals.
- Provide disease prevention practices to protect herd health, including access to veterinary care.
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of livestock.
- Use appropriate methods to euthanize sick or injured livestock and dispose of them properly.
- Provide personnel with training experiences to properly handle and care for cattle.
- Make timely observations of livestock to ensure basic needs are being met.
- Minimize stress when transporting cattle.
- Keep updated on advancements and changes in the industry to make decisions based on sound production practices and consideration to animal well-being.
- Persons who willfully mistreat animals will not be tolerated.

Kansas Beef Quality Assurance Program

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