

Chapter 1

Beef Cattle Production

Gerald L. Stokka, DVM, MS, Associate Professor,
Extension Beef Veterinarian, Kansas State University

The goal of this chapter is to assist cattle producers in the production of safe, wholesome and healthy beef and to ensure that cattle produced have met certain standards. To accomplish this goal, standards of production will be emphasized along with record keeping. Hands on training may be necessary to achieve the goals. Although extensive discussion deals with proper record keeping and the use of pesticides and medications, the producer with a small herd may be able to use alternative methods to control illness and insects.

This chapter will cover the following areas:

- 1. Feedstuffs and Water Sources.** Are water sources and feedstuff storage facilities protected from contamination and inspected regularly? Are records kept on all incoming and raised feedstuffs and water sources?
- 2. Animal Health Products.** Are all products recorded when used? Are written vaccination and treatment schedules followed on the advice of a veterinarian?

Why should you be willing to make changes to your beef operation?

The demand for safe, wholesome and healthy food is greater than ever. Supplying this demand as beef producers is not difficult, but requires good information, sound decision making and minimal record keeping. This chapter is a guide to help you better understand the condition of your beef operation and how to produce quality animals that meet current demands. Easy-to-understand assessment tables help identify situations and practices that are safe as well as ones that may require prompt attention. Additional information may be obtained from your veterinarian and your county K-State Research and Extension offices.



PART 1—Feedstuffs and Water Sources

- The water source is protected and checked yearly for contamination. The pasture is protected within reason from chemical, bacterial and viral contamination. The operator maintains a record of any pesticide or herbicide use that could cause a violative residue in grazing cattle or feedlot cattle.
- Operator maintains a quality control program for water sources and incoming feed ingredients. The program should attempt to eliminate contamination resulting from molds, mycotoxins (*poisons produced by fungi*), and chemical contamination such as pesticides and herbicides.

If feed additives and medications are used the following applies:

- Only FDA approved medicated feed additives are used in rations.
- All medicated feed additives are used in accordance with the FDA approved label. Extra-label (over-dosing) use of feed additives is strictly prohibited.
- Operator assures that all additives are withdrawn at the proper time *in accordance with the label* to avoid violative residues.
- If the beef operation formulates medicated rations, a formula record of all medicated feed rations produced is kept. Likewise, production records on all batches of feed produced (which contain medicated feed additives), including date run, ration name or number, and amount produced are recorded. *Check with your supplier of the medicated ration for specific information. Don't forget to clean/flush equipment between medicated rations and unmedicated feed.*
- All records are kept for a minimum of two years from the date of transfer or sale of the cattle, and have the capability of trace-back if necessary.

ASSESSMENT 1—Feedstuffs and Water Sources

Use the table below to rate your risks. For each question, indicate your risk level in the right-hand column. Although some choices may not correspond exactly to your situation, choose the response that best fits. Refer to Part 1 if you need more information to complete the table. Transfer medium-high and high risks to the Action Check list at the end of the chapter on Page 6.

	LOW RISK	LOW-MED RISK	MED-HIGH RISK	HIGH RISK	YOUR RISK
Water Sources (Ponds or streams)	Water source is protected or fenced off and checked quarterly for contamination.	Water source is level with or uphill from most pollution sources. (No surface water runoff reaches well.)	Water source is downhill from most pollution sources. Some surface contaminated water runoff may reach well or watering pond.	Water source is directly exposed to runoff from livestock operations or municipal wastewater.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Water well	Well uphill from contaminants, properly constructed, protected, and tested quarterly.	Well uphill from contaminants, properly constructed, protected, and tested yearly.	Well level with contaminants, properly constructed, protected, and tested yearly.	Well downhill from contaminants, open to run-off, and untested.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Feeding facilities	Feed storage is protected from the environment and animal life and is cleaned & inspected for contamination before receiving new loads of feed or feed ingredients.	Feed storage is protected from weather and animal life. No inspection is performed, but cleaning is performed on a regular basis.	Feed storage is in open-fronted commodity sheds with some protection from the weather. No inspection or cleaning is performed.	Feed storage is exposed to the environment and animal life. In addition, herbicides and insecticides are stored in the same area.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Forage storage	Enclosed building storage, fed in order of storage (first in, first out).	Covered (tarp) storage, fed in order of storage; moldy material not fed.	Top covered storage, moldy material not fed.	Unprotected from weather; not checking for mold.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Pasture contamination	No chemicals applied by self or adjoining landowners.	No chemicals applied by self; adjoining landowners down hill occasional apply chemicals.	Occasionally apply chemical, usually in accordance with label.	Chemical application routine or ignore label instructions.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Feed ingredients, additives and Medications (if used)	All feeds are subject to testing for feed quality, microbial, chemical and mycotoxin contamination. Only approved FDA/ USDA/EPA products are used.	Minimal testing for quality only. Only approved products used in production.	No testing of ingredients. Most of products used are approved. Minimal supervision of product selection.	No testing of feed ingredients; products are used without approval or supervision.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High

PART 2—Animal Health

It is important to make sure that new animals are free from illness before introduction to the herd. Quarantine or isolation may be useful in smaller operations with adequate space. Water and feed sources must also be separate during this time. Producers wishing to raise animals without medications or artificial pesticides will find that extra care initially will prevent illness and decrease the need for treatment. Consult with your veterinarian about standard practices for quarantine and observation, and create a written plan addressing animal health. *If using alternative, nonmedical/nonchemical methods, the producer and his/her veterinarian must develop and follow a written protocol.*

Insect control can sometimes be achieved by eliminating breeding habitat or changing pastures. The first step in insect control is identification. Your county agent has access to identification services and can consult with you regarding the best ways to decrease insect numbers around your operation.

Individual Treatments

K-State Research and Extension offers a program to train producers in the proper use and techniques in administering injections. This program is offered upon demand. Contact your county agent to inquire about participating.



Products and Injections

(Includes hormones, antibiotics, pesticides, etc.)

- Strictly follow all FDA/USDA/EPA guidelines for product selection.
- All products labeled for subcutaneous (SQ) use must be administered SQ in the neck or shoulder region.
- All products labeled for IM (intra-muscular) use must be administered in the neck region only. No injections shall be given in locations other than the neck region, regardless of calf age.
- Products that cause tissue damage are unacceptable and should be avoided.
- Products cleared for SQ, IV and oral administration are recommended.

- Products will never be administered with more than 10 cc per site.
- Products with low dosage are recommended over those requiring a larger dose.
- Tag or otherwise identify treated animals so they may be handled properly at sale.

Treatment and Product Use Records

Although sample record forms are shown at the end of this chapter, a complete set of suggested forms are available in the *Beef Quality Assurance Study Manual* as adopted by the Kansas Livestock Association. Contact your county extension office for copies.

- Treatment regimes shall comply with label directions unless otherwise prescribed by a veterinarian; *this includes dips, boluses and drenches.*
- Extra-label (dosed more than label directions) drug use shall be kept to a minimum and used only when prescribed by a veterinarian with a valid veterinarian-client-patient relationship.
- All cattle treated with medications administered extra-label shall comply with prescribed extended withdrawal times that have been set by the veterinarian under the guidelines of a valid veterinarian-client-patient relationship. *Always discuss such changes with your veterinarian.*

Individual Treatments

All animals treated individually for unique problems to the animal shall be recorded individually, include the drug administered, dosage used, approximate weight of animal, route and location of administration, and earliest date the animal could clear the withdrawal period.

Group Processing or Mass Treatments

All animals treated as part of a group (processing or mass medicated) will be group or lot identified, and the treatment information recorded. Identification may be as group or pen, name or lot number, or individual animal identification if available. Reference should be made in the record to the animal lot or group identification, product used, serial/lot number of the product, date treated, dose and withdrawal information assigned to the entire pen. *Recording animals under this system assumes that every animal in the lot or group received the treatment.* All animals treated individually shall be recorded individually, except those mentioned in the next paragraph.

Administering Several Individual Treatments Within a Group Prior to Weaning

- a. If several animals within a group of calves are treated with the same drug within a reasonable amount of time, these treatments can be recorded as a group and identification of the individual is not required. This only applies to calves still on the mother cow, prior to any weaning activities. This guideline excludes the need for individual identification while the calf is still on the cow.
- b. All such treatments shall be recorded, stating the drug administered, dosage used, approximate weight of the cattle, route and location of administration, and earliest date the entire group of cattle could clear the withdrawal period. An example would be when several calves break with scours and numerous calves are treated within a 10-day period. The entire group of calves would receive a withdrawal date based on the last date of administration of the product with the longest withdrawal period.
- c. Animals must be identified individually *when treated after weaning* has taken place.

Withdrawal Prior to Slaughter

- a. All cattle shipped to slaughter will be checked to assure that treated animals meet or exceed label or prescription withdrawal times for all products administered.
- b. A release slip will be signed and dated by the person who checked the records before animals can be sold into the marketplace or taken to slaughter. The records examination will include processing records, feeding, and hospital notes. *If no products have been administered, a statement to that effect should be provided.*
- c. All cattle sold that are not typical of the herd, (medicated culled cows and realizer/salvaged feeder cattle) shall be subject to verification of drug withdrawal. Should there be any question about withdrawal periods being met, the veterinarian will evaluate the treatment history against information provided by the **Food Animal Residue Avoidance Databank (FARAD)**, and the animal will be subject to pass a residue screening test such as the **Live Animal Swab Test (LAST)**. Residue screening shall be performed under the supervision of a veterinarian. The results of such testing will determine the appropriateness for releasing for shipment. Negative results from residue screening cannot be used to shorten the labeled withdrawal time. The beef operation will collect random urine samples for residue testing from animals that have received extra-label drugs as directed by their veterinarian and sold for non-performance.

- d. The beef producer assures that all pesticides are used according to FDA/EPA label directions. The operation will record all pesticide use such as pour-ons or injectables including product ID, lot/serial, date used, amount used, and withdrawal time.

Record Keeping

- a. By law, all records must be kept for a period of two years from the release of the cattle from the operation.
- b. A copy of the appropriate records will move with the cattle as they are transferred from one beef operation to another. This paper trail includes:



- all treatment records, individual and group
 - all processing and vaccination records
 - other information as deemed appropriate
- c. Should unacceptable levels of residues be found in any of the cattle shipped for slaughter, the beef operation will make applicable records available to **Food Safety Inspection Service (FSIS)** and FDA personnel and to veterinary personnel to determine the source and cause of the violative residue, and corrective action taken to prevent reoccurrence of such violation.
 - d. Records can be kept on a computer or in written form, as long as they include the medications/pesticides used and the dates administered to the animal(s), and allow for verification of actions taken. Existing records will do, if all aforementioned qualifications are met.

Carcass Quality

The beef operation will strive to prevent bruising during animal handling. When possible, bruising rates will be monitored at the packing plant.

Cattle Origin

- a. All cattle enrolled in the program shall have complete records. This includes the ranch at which the cattle were born, any facility such as a back grounding operation at which the cattle were kept prior to a finishing feedlot, as well as the feedlot that feeds the cattle for slaughter. No operation that houses the cattle for more than two days shall be exempt from this requirement.

- b. For participants in the program, all operations that house cattle for less than two days, but administer a product (vaccine, medication, medicated feed, pesticide, etc.), which requires withdrawal, will be required to complete appropriate records and be certified.
- c. For participants, a signed copy of the records developed at the ranch and backgrounding facility shall be forwarded to the feedlot at the time of delivery. In essence, these records shall stay with the cattle from birth to slaughter.

- d. Complete records offer documentation for designation as “organic” or “natural” in the case of a producer marketing such products.

ASSESSMENT 2—Animal Health

Use the table below to rate your risks. For each question, indicate your risk level in the right-hand column. Although some choices may not correspond exactly to your situation, choose the response that best fits. Refer to Part 2 if you need more information to complete the table. Transfer medium-high and high risks to the Action Check list at the end of the chapter on Page 6.

	LOW RISK	LOW-MED RISK	MED-HIGH RISK	HIGH RISK	YOUR RISK
Cattle handling & facilities	Inspected prior to use for potential repairs and proper design. Cattle and human safety are of paramount importance.	Facilities are tested on the day of need. Emphasis is on smooth flow of cattle.	Facilities are only inspected when in need of repair. Minimal expense and getting the job done is the only consideration.	Facilities are non-existent. Cattle handling becomes a dangerous chore.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Cattle health products	Use of all vaccines, antibiotics and other health products on a herd basis are recorded and individual animal treatment records are maintained. A veterinarian is consulted for all of these decisions and a strict schedule is followed.	A veterinarian is consulted for decisions related to health issues, but no written schedule is kept. Individual animal treatment records are kept.	Health products are purchased and used according to information from sales reps, feed dealers and neighbors. No written schedule or individual animal treatment records are kept.	No records of any animal health products are maintained. No information on any animal is available on possible residue withdrawal times.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Animal injections	All injections are given as per label and when given a choice only subcutaneous injections are used. Injections are only given when absolutely necessary.	All injections are given as per label. Some injections may not be necessary.	Injections are mostly given in the neck region, unless this is inconvenient. Injections are often unnecessary.	Label instructions are not followed. Injections are given in the top butt without consideration of carcass quality. Injections are given without veterinary advice.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Sanitation	All facilities including pens, housing, chutes and feeding facilities are kept clean and disinfected routinely. All procedures including injections or veterinary procedures are done using sanitary practices.	Facilities are cleaned regularly. Sanitary procedures for veterinary procedures are followed.	Minimal cleaning of facilities is followed. Sanitary practices for veterinary procedures are minimal.	Facilities are not cleaned at all, buildup of manure and filth makes sanitation impossible. Sanitary practices are not followed for veterinary procedures.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High

ACTION CHECKLIST

When you finish the assessment tables, go back over the questions to ensure that every high and medium-high risk you identified is recorded in the checklist below. For each risk, write down the improvements you plan to make. Use recommenda-

tions from this chapter and from resources elsewhere. Pick a target date that will keep you on schedule for making the changes. You do not have to do everything at once, but try to eliminate the most serious risks as soon as you can. Often it helps to start with inexpensive actions.

ACTION CHECKLIST—Beef Cattle Production

Write all high and medium-high risks below.	What can you do to reduce the risk?	Set a target date for action.
<i>Sample:</i> Incomplete records on immunizations.	Identify each animal, set up a record chart, and add treatments/immunizations as they occur.	Begin today

Additional information

Websites:

<http://www.oznet.ksu.edu/> Kansas State University Research and Extension; most publications are available through this site.

Beef quality assurance information site maintained by the University of Nebraska at Lincoln:
<http://www.bqa.org/ncbqa.htm>

These websites are maintained by North Carolina State University and are environmental risk assessments that relate to the topic indicated. All materials can be downloaded.

Grazing www.soil.ncsu.edu/publications/farmassist/Grazing

Natural resource protection www.soil.ncsu.edu/publications/farmassist/NatResources

Integrated Pest Management
www.soil.ncsu.edu/publications/farmassist/IPM

Free Livestock Yards Management Software

A free livestock yards management software program is available on the Internet. The program provides an overview of manure types and proper management systems for different animals including cattle, swine, sheep, poultry, and horses. Users can evaluate their own risk through the interactive questionnaire, and receive suggestions for reducing the threat to their water supply. To download this program, go to the following URL:

<http://www.epa.gov/seahome/yards.html>

Kansas State Research and Extension Bulletins:

C-735 *Beef Cow Nutrition Guide*

AF-150 *Beef Records: The Key to Profitability*

MF-185 *Field Record Book*

SB-638 *Growing Cattle on Grass* (electronic only)

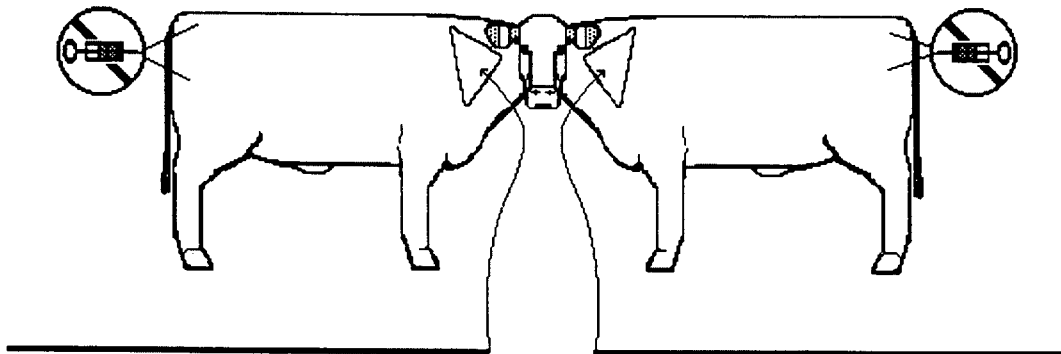
C-733 *Questions and Answers for Beef Cattle Nutrition*

Cattle Health and Information Transfer Record

Name: _____, Address: _____

City: _____, State: _____, Zip: _____ Ph: _____

Identify Brand and Indicate Location



List "Procedure Number" on the line above which corresponds to the side of the cattle the injection was given. Give all injections within the Injection Triangle.

When possible select SubQ products, and never give injections in rear leg or top butt.

List of Common Procedures:

Respiratory virals, Clostridials, Pasteurella, H.somnus, Brucella,
 Internal Parasites, Coccidiostat, External Parasites, Implants, Antibiotics,
 Creep/Bunk Broke, Micro-Nutrients, Medicated Feed

Circle procedure performed and list on numbered line in table below **AND** list number on line above that corresponds to the side of the cattle the injection was given.

NOTE: Use the Injection Triangle for all shots.

Procedure / Procedure #	Lot or Serial #	Company	Date Given	Date Withdrawal	Route Admin	Dose	Booster N/Y-when	Crew Initials
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Number of Cattle: _____ Date Weaned: _____, Dehorned (Yes / No)

Bulls _____, Steers _____ (method _____), Heifers _____ (Spayed: No/Yes = method _____),

ID: Right Ear or Left Ear/Group color and number: _____ /Individual (as appropriate): _____

Description / Comments: _____

Owner Signature: _____ Date: _____

Veterinarians Signature: _____ Phone: _____

Processing Map

When possible select SubQ products,
never give injections in the rear leg or top butt.

Date: _____ **Time:** _____ **Air Temperature:** _____

In Weight (Average/Variation): _____ / _____ **Breed:** _____

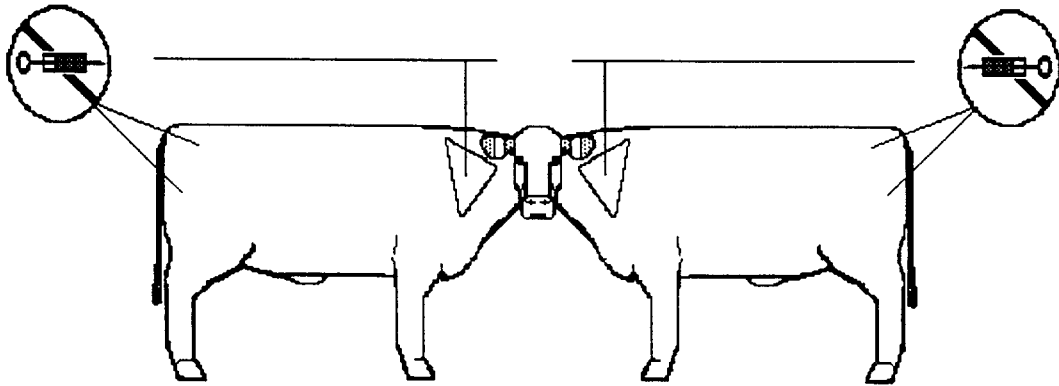
Frame: S, M, ML, L

Muscle: 1, 2, 3

Sex: S, H, B

ID: Right Ear or Left Ear/Group color and number: _____ /Individual: _____

List "Treatment" Number on line connecting Injection Triangle & indicate ear implanted



Identify Brand and Indicate Location

Implant: R/L _____ Serial #: _____ Crew: _____

External Parasite control _____ Dose: _____ Serial #: _____ Crew: _____ WD: _____

Internal Parasite control _____ Dose: _____ Serial #: _____ Crew: _____ WD: _____

R1: _____ Dose: _____ Serial #: _____ Crew: _____ WD: _____

L1: _____ Dose: _____ Serial #: _____ Crew: _____ WD: _____

R2: _____ Dose: _____ Serial #: _____ Crew: _____ WD: _____

L2: _____ Dose: _____ Serial #: _____ Crew: _____ WD: _____

Comments: _____

Signature: _____