Best Management Practices (BMPs)
Beef Quality Assurance: Best Management Practices
(BQA:BMPs)

1.) Feedstuffs and Sources

- Ruminant By-products: Do not use ruminant-derived protein sources in manufacturing ruminant feeds.
- Feed Toxins: Store feedstuffs in a manner to prevent mold formation and avoid feeding moldy feed.
- Maintain a quality control program for incoming feed ingredients in an attempt to eliminate contamination. It is important to keep in mind that mycotoxins can be present in feeds without visible mold growth; conversely, visibly moldy feed may not always contain detectable mycotoxins.
- Feed Contaminants: Maintain a quality control program for incoming feed ingredients in an attempt to eliminate contamination resulting from molds, mycotoxins, chemicals and other contaminants.
- Store feed in a manner that prevents development of molds and mycotoxins and exposure to chemicals and other potential contaminants.
- Prior to usage, submit any feed ingredient suspected of contamination for analysis by a qualified laboratory.
- To avoid accidental livestock exposure, treat all chemicals as potential hazards. Never store chemical products where leakage or breakage can contaminate feed products or where cattle can directly consume a contaminant. For example, don’t store batteries, fuel containers or paint in the same location as feedstuffs.
- Regularly check all feed-handling equipment for fluid leaks.
- Spills should be cleaned up to prevent potential contaminants from causing residues or death in cattle.
- If a feed-related poisoning is suspected, it is critical for the producer or veterinarian to contact a diagnostic laboratory for assistance in confirming the suspicion.
- If purchasing fats and oils, monitor for potential contamination. Letters of guarantee from companies supplying these materials may be requested that state these materials have been tested.

2.) Feed Additives and Medications

- Medicated Feeds: Only FDA-approved medicated feed additives can be used in rations.
- Feed only at recommended rates. Exercise caution when calculating rates for medicated feeds.
- All medicated feed additives will be used in accordance with the FDA-approved label. Extra-label use of feed additives is strictly prohibited by federal law. No one has the authority to adjust the dose as labeled, including veterinarians. All directions for the use of a medicated feed additive will be on the label attached to the bag or will be supplied with a bulk order. Water medications are not considered feed medications; therefore, they can be used under the extra-label drug use guidelines provided by the Center for Veterinary Medicine.
- Ensure that all additives are withdrawn at the proper time to avoid violative residues.
- For operations formulating and mixing rations on site, such as stocker operators, medicated feed additives will be used in accordance with the FDA current Good Manufacturing Practices (cGMPs). These include a formula record of all medicated feed rations produced and production records of all batches of feed produced that contain medicated feed additives. Production records must include additive used, date run, ration name or number, the name of the person adding the additive or responsible for mixing the feed and amount produced. Use separate mixers for mixing medicated feeds and non-medicated feeds, or clean mixers between batches of each.
- Pre-mixed or formulated supplements typically used by many smaller beef operations and most cow-calf operations do not require FDA registration of any type. Larger beef operations that use certain highly concentrated medications may be required to register with the FDA via a FD-1900 permit.
- Identify treated individuals or groups as described in the antibiotic use section.
3.) Animal Treatments and Health Maintenance

- **Broken Needles:** Restrain animals properly and adhere to injection site management.
- Do not straighten a bent needle and use it again. Replace immediately and dispose of properly.
- Develop a standard operating procedure for dealing with needles broken off in cattle.
  - If the needle remains in the animal, mark the location where the needle was inserted.
  - If a broken needle cannot be removed at the ranch, contact a veterinarian immediately to have the needle surgically removed.
  - If a broken needle cannot be extracted from the tissue, record the animal's ID to ensure that it is never sold or leaves the ranch. At the end of its productive life, the animal should be euthanatized and disposed of properly.
- **Antibiotic Use:** Strictly follow all recommendations and guidelines from your veterinarian for selection of products.
- Follow label directions for use of product. Use product at recommended dosage for required time period. Treatment regimens must comply with label directions unless otherwise prescribed by a veterinarian. If drugs are to be used in an extra-label manner, that must be done under the prescription or direct supervision of a licensed veterinarian. (The requirements for a veterinarian-client-patient relationship (VCPR) are covered in the Appendix, page xyz [page tbd].) All cattle treated in an extra-label manner must comply with prescribed withdrawal times, which have been set by your veterinarian under the guidelines of a VCPR. The BQA program does not support/recommend extra-label drug use (ELDU) for injectable aminoglycosides (such as neomycin, gentamicin or kanamycin) because of the potential violative residues related to extremely long withdrawal times. Some studies have shown withdrawal times on these types of products could be as long as 18 months.
- Accurately calculate dose requirements based on the animal’s weight and the specific health problem being treated. Providing the same drug simultaneously by injection, feed or water may result in overdosing and, thereby, create a residue problem.
- Never administer more than 10 cc per injection site. Exceeding this amount will increase tissue damage, alter withdrawal time and may require testing before cattle are marketed for consumption.
- Do not mix products prior to administration. This practice of using “Bloody Mary” mixes is compounding use and will result in undetermined withdrawal periods.
- All animals treated for problems unique to the individual animal should be recorded by the animal’s ID, treatment date, drug and dose administered product serial/lot number, approximate weight of animal, route and location of administration, and the earliest date the animal would clear the prescribed or labeled withdrawal period. (See page xyz [page tbd] for sample treatment records). You can record treatments either by individually identifying each animal in your herd and/or individually identifying each animal when or if they are treated. The ID number should be unique to that animal and tie it to the group from which it came.
- All animals treated as part of a group will be identified by group or lot with treatment information recorded. Records should include the animal lot or group identification, processing/treatment date, product serial/lot number, product and dose administered, route and location of administration and withdrawal information. Recording animals under this system assumes that every animal in the lot or group received the treatment.
- All cattle marketed from the ranch can potentially go directly to slaughter. Therefore, records for any cattle to be marketed should be checked by ranch personnel to ensure that treated animals will meet or exceed label withdrawal times for all products administered. A release slip should be signed and dated by the person who checks records prior to shipping cattle from the operation. The examination should include processing records, feeding records, treatment records and all other records that may apply.
Extended withdrawal times should be expected for emaciated or severely debilitated animals. All cattle sold that are not typical of the herd (medicated cull cows and realizer cattle) may be subject to verification of drug withdrawal. (Realizers are animals with a health problem that are culled because they never recover.) Should there be any question about withdrawal period, the veterinarian will evaluate the treatment history against information provided by the Food Animal Residue Avoidance Databank (FARAD), and the animal may have to pass a residue screening test, such as the Live Animal Swab Test (LAST), which tests for antibiotic residues. Residue screening will be performed by qualified personnel under the supervision of a veterinarian. The results will determine whether the animals can be released for shipment, but cannot be used to shorten the labeled withdrawal time. Attempting to salvage sick animals by treatment and prompt slaughter requires an accurate diagnosis and careful selection of drugs.

Make sure that all employees are aware of the proper use and administration of antibiotics and withdrawal times, and they have the ability to check appropriate withdrawal restrictions before moving cattle to market. For example, you can provide your employees with charts or software to help them track withdrawal dates.

4.) Prevention and Processing

- Management: Handle cattle gently to minimize bruises.
- Don’t use chemical disinfectants while using a modified live virus product as efficacy will be decreased or even eliminated.
- Use the needle size proper for the situation. Use the smallest needle possible to complete the injection, but large enough to prevent breaking off in the muscle. More information is available later in this section of the manual.
- Provide proper restraint to avoid breaking needles in animal tissue.
- Purchase high quality needles, change needles often and discard damaged needles.
- All injections must be administered in front of the shoulders, no exceptions. Select the injection site carefully. Packers report a high incidence of fabrication trim in the top butt and round. Changing the injection site to the neck prevents the loss of expensive cuts and reduces the potential for market docks.
- Administer less than 10 cc per intramuscular (IM) injection site. The volume of medication injected at one site will directly influence tissue damage, scar tissue and potential abscesses.
- Always use subcutaneous (SQ) or intravenous (IV) routes of administration when permitted by the product’s label. Check product labels closely and administer the product as specified on the label. Select products that have SQ as an approved route of administration. Ask suppliers to find products that have SQ, IV or oral routes of administration rather than IM.
- Properly place implants to reduce trim loss. Implants placed too close to the ear base or into the base tissue can result in excess trim. Improperly placed implants will place regulatory liability on the feedyard. More information on administration of implants is available later in this section of the manual.
- During bad weather take extra care to see that the injection site is free of manure and dirt and that syringes and needles are clean and disinfected. Injecting cattle during wet weather increases the potential for carrying a contaminant into the injection site.
- Wetting the area around the chute will reduce the chance of contamination from dust and other foreign material in injection sites and open incisions.
- Overall sanitation of equipment, working area and the cleanliness of your employees and co-workers will reduce injection site defects. A sound educational effort directed toward sick pen and processing crews offers great potential for helping eliminate these problems.

5.) Pesticides

- Chemical Residues: 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.
- Follow label directions and observe grazing restrictions on pastures, rangeland and crops treated with pesticides.
- Prevent accidental exposure to agricultural chemicals by proper storage and disposal of containers. Do not use the same sprayer to apply agricultural chemicals to pasture or rangeland that you use to apply livestock pesticides directly to cattle.
Only use products approved for control of internal and external parasites of cattle. Caution should be exercised when using petrochemicals, such as motor oil or diesel fuel, in backrubbers or other self-treatment devices for control of external parasites. These compounds are routinely screened at harvest and overexposure can result in a violative residue.

Apply topical, oral and/or injectable livestock pesticides at label dose rate. Overdosing constitutes extra-label usage with unknown withdrawal times. Individual animal weights can help determine appropriate calculation of doses.

Document usage and observe all appropriate withdrawal times before marketing cattle. Remember that residue problems occur more frequently with cull cows/bulls and realizer cattle than for healthy calves or yearlings.

Prevent consumption of hazardous chemicals and heavy metals by proper storage and disposal of paint, batteries, chemical containers, used petrochemical products and other materials, and make sure cattle don’t have access to petrochemical production sites.

Prevent contamination of feedstuffs by chemical compounds through proper storage of chemicals and proper treatment of stored feed products with insecticides and fungicides. These should not be stored in the same location as approved animal-use products.

Record dates of application, areas, animals and/or feedstuffs treated, products used, product serial and lot numbers, appropriate withdrawal periods, etc. Producers may request a letter of guarantee from the feed supplier that the feed is below violative levels for residues and mycotoxins.

6.) Recordkeeping and Inventory control

Animal Treatment Records: Keep all records for at least three years from the date of transfer or sale of the cattle. In case a problem arises later, your records will help you track the treatment history of an animal when it was in your possession.
  - The treatment record should contain the following information:
    - 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, etc.)
    - Location of injection(s)
    - Name of person who administered the drug
  - A copy of the appropriate records should be made available to the buyer of your cattle or as they are transferred from one unit of your ranch to another. Records should include all individual and group treatment/processing history and other information as deemed appropriate.

Feed Records: Keep all feed records for at least two years (an industry standard) from the date of transfer or sale of the cattle. In case of a problem, you will have documents to prove what you have or have not fed your cattle.
  - It’s a best management practice to require that all feed products be accompanied by an invoice that includes the date, amount, lot/batch number and signatures of both the person who delivered the product and the person receiving the product.

Chemical Records: If you are a licensed pesticide applicator (required for purchasing restricted-use chemicals), your state Department of Agriculture already requires you to keep records on your use of these chemicals. These records are sufficient. An additional set of records should be maintained for non-restricted pesticides. Records should record the date and time used, product name, name of applicator and EPA product number. Additional information may be required to be recorded.
7.) Action in Case of a Violation

- If an unacceptable residue is found by FSIS, it is preferable for a joint assessment by the beef operation, the veterinarian, the nutritionist, FSIS, FDA and BQA Program personnel. Adjustment in the BMP and corrective action taken to prevent reoccurrence of such violation. All violations should be reported to the BQA Technical Advisory Committee for review and potential adjustment or updating of BQA Guidelines.

8.) Cattle Handling

- Using their natural flight zone, cattle can be moved quietly. To move forward, move toward their rear past their point of balance (shoulder). To stop or back up in chute, move forward past their point of balance.
- Handling facilities should ideally have curved chutes and round crowding pens.
- Use two or more sorting pens in front of the squeeze chute.
- Never fill a crowding pen more than three-quarters full; cattle need room to turn around.
- Cattle should move easily up the chute. If not, hanging chains, shadows, backstops, noises, dogs or people could be preventing movement.
- Cover the sides of the squeeze chute, especially the back three-quarters, to reduce balking as they enter the chute.
- Minimize your use of cattle prods (electric and others that bruise). Instead, wave sticks with plastic streamers on the end.
- Reducing stress on the animal will reduce animal injuries and sickness, employee injury and increase overall efficiency.

9.) Culling Management

- Do not market cull animals that pose a public health threat.
- Be certain that ALL animals shipped to market have cleared proper withdrawal times.
- Do not market cull animals that have a terminal condition.
- Do not send cull animals to market that are disabled.
- Market cull animals BEFORE they become severely emaciated.
- Do not market cull animals with advanced eye lesions.

10.) Carcass Quality

- The beef operation will strive to prevent bruising during animal handling.
- When possible, bruising rates will be monitored at the packing/harvest plant.
- Other carcass quality concerns at the packer level include buckshot and injection site damage.

11. Care, Husbandry and Other Considerations

- Vaccinations: Determine target pathogens.
- Select the most effective vaccine.
- Prevent exposure of vaccine to heat and UV light.
- Draw from bottle with sterile needle.
- Use quality syringes/needles.
- Inspect and maintain all working components.
- Administer proper dose.
- Use proper needle size.
- Administer recommended route (IM or SQ).
- Administer in recommended site (neck region).
- Change needles often to reduce tissue irritation.
- Always follow label directions.
- Booster all vaccines when label requires it.
- Always read directions before starting.
12. Contamination/Adulteration

- Microbial contamination - Evaluate ways to prevent fecal contamination of cattle feed or oral cavity.
- Avoid high-risk feed sources and protect feed supplies from fecal contamination.
- Observe septic leach fields and fix any broken pipes.
- Educate workers about the importance of personal hygiene near feedstuffs or feed bunks, water tanks or even pens where cattle could come in contact with tapeworm segments or eggs spread by infected humans.
- Birdshot/Buckshot: Never use a shotgun to gather cattle. Develop alternative methods to control and capture animals. If an unruly animal cannot be trapped or gathered by some other means when it reaches the end of its productive life, the animal should be euthanatized on the premise and disposed of properly (in other words, when you would normally cull the animal).
- Work with hunters to prevent shooting cattle with any weapon. Educate hunters to the potential safety concerns associated with adulterated carcasses. Remove cattle from hunting areas when possible to avoid accidental shootings.