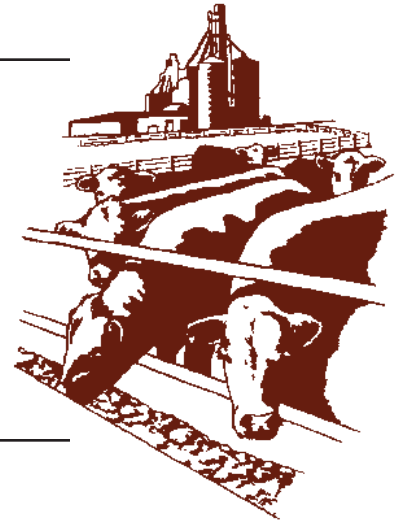


Beef Cattle Handbook



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Product of Extension Beef Cattle Resource Committee
Adapted from the Cattle Producer's Library

Quality Beef Begins with You

The cattle industry in America has a long tradition of producing top quality beef for the consumer. Beef has earned an enviable reputation as a “premium” food, valued for its taste and wholesomeness.

To maintain both the tradition of our industry and reputation of our product, we must accept several concepts:

- Cattle producers are part of the food industry.
- The food industry is driven by consumers.
- A loss of consumer confidence in beef could spell economic disaster for the cattle industry
- Consumer confidence depends on delivering a product of consistently high quality. There can be no question of its wholesomeness.

A Commitment to Quality

Sustaining consumer demand for beef requires a commitment to quality beef production—not just at the packing plant or feedlot, but in every segment of the cattle industry. This commitment must start at the ranch or farm where the calf is born. The way a calf is handled and treated there has a lasting impact on the quality of beef provided to the consumer.

Unfortunately, “quality defects” are already taking money out of cattle producers’ pockets. The National Cattlemen’s Association Beef Quality Audit, conducted in 1991, found that producers lose an average of \$27 per head to management-related quality problems such as injection-site blemishes, hide damage, bruises, and liver condemnations. That equals an annual loss to the industry of nearly \$700 million. But that loss doesn’t begin to compare to the financial disaster that could occur if con-

sumers believe that beef is not wholesome. It could happen if drug residues start showing up in beef, or if animals continue to be shipped for processing with injection-site damage, hide damage, and bruises.

Many of these costly defects occur at the feedlot, just before shipping, or at the packing plant. But some are long-term problems that can be traced back to the cow-calf ranch or the stocker-backgrounder. Eventually, the costs of these defects will be passed back as well.

Trusted Suppliers

Producers who consistently sell calves that have been properly handled and cared for provide a service to their customers that can mean increased demand for their calves, higher prices on sale day, and fewer discounts. They become trusted suppliers—and that’s reflected in the bottom line.

On the other hand, cow-calf producers and backgrounders who continue to sell cattle with problems that result in carcass “trim out” or discounts will bear an increasing share of billbacks from the packer. Or, worse yet, find themselves without a market for their calves.

Here are a few steps to help prevent quality problems that rob profits and potentially reduce consumer demand for beef:

- Keep facilities and equipment in good condition. Watch for nails, loose boards, and other hazards that could tear the hide or cause injuries that invite infection. Corrals, pens, and chutes should be the proper size for the number of animals and the type of care being provided.

- Make sure chutes have solid sides to prevent the animals from agitation by outside distractions. A curved chute is recommended because it prevents the animal from seeing the handling area or squeeze chute. It also takes advantage of the cow's natural tendency to circle around the handler.
- Keep the animals' environment clean and well-ventilated. Be sure there is good drainage to avoid standing water and excess manure. This is especially important in calving areas.
- Keep equipment clean and in good repair.
- Treat animals with care. Use whips or canes only when necessary, and limit the use of electric prods.
- When working cattle, take the time to do the job right. Racing through health care procedures can lead to bruises, injection-site damage, injuries, and incorrect records. Working cattle too quickly also stresses the animal, which can make vaccination programs less effective, and increase sickness and treatment costs. Cattle can actually be worked more efficiently, and with fewer people, if they are handled gently.
- Make sure cattle are properly restrained to avoid injuries to them and to your crew. The National Cattlemen's Association's Beef Quality Audit found that bruising alone costs the producer an average of \$1 a head—a loss to the industry of some \$25 million per year.
- Train work crews and family members how to handle animals, products, and equipment. Vaccination is one of the most important jobs you have and it shouldn't be left to the least experienced workers. Incorrect vaccination wastes vaccine and can jeopardize animal health and performance, causing costly scarring or tissue damage. Be sure workers understand how to mix the product correctly, and how and where an injection should be given.
- Good recordkeeping is essential. Identify animals as permanently as possible. Develop a system to record all animal health products used, including the product name; serial number; date; route and site of injection; dose; and initials of the person who gives the product.
- When selling calves that have been treated, provide copies of treatment records to the new owner. If treated calves are sold without records, they could end up being processed before drugs have adequately cleared their system. If possible, don't sell calves that are still under treatment.

The biggest risk of drug residues comes from cows and bulls that are culled due to old age, illness, or reproductive failures. A problem often occurs when cows receive some kind of treatment just before pregnancy checking. When open cows are then culled, drug withdrawal time periods may not have passed. Be sure these animals are treated with products that are labeled for beef cattle, that they are held for the proper length of time, and that you keep adequate records.

There are many resources available to help you set up a beef quality program. Work with your veterinarian, nutritionist, Cooperative Extension System, and animal health supplier to develop an overall herd health program based on the unique needs of your operation—instead of just doing what you've always done, or what works for your neighbor. And, use the excellent quality assurance programs and materials available through your state and national Cattlemen's Associations.

Opportunities for Quality Assurance

There are four main opportunities that put your quality assurance program to work at the ranch: 1) calving, 2) branding, 3) pre-weaning, and 4) shipping.

1) Calving

The first opportunity comes at calving, when calves should get a hefty dose of colostrum for disease protection. This is the number one health factor in the early part of the calf's life. Calving is also the time to ID calves and treat navels. It's also an excellent time to dehorn and castrate to avoid later problems with bruising and stress.

2) Branding

The next natural opportunity comes at branding, usually the first time calves are worked. If they weren't dehorned or castrated at birth, now is the time to do so. Ranchers should dehorn all calves. Horned cattle will have twice as many bruises as dehorned or polled cattle. Branding is also the time when the calf receives those important first vaccinations to begin building immunity.

Branding should be done in a way that minimizes costly hide damage. The hide is the single most valuable byproduct of a fed animal. Here's a checklist of ways to reduce damage from branding:

- Placement of brand: Place brands on the back of the hip or upper thigh, rather than on the rib cage or top butt— unless local regulations require a specific placement.
- Brand size - Use a brand that is as small as functionally possible. Avoid multiple brands.
- Hot-iron branding - Don't overheat the iron, it doesn't need to be glowing red-hot. Use one steady application, rather than a rocking motion that can wear through all layers of hide and cause scarring.
- Clean site - A clean branding site free of dust and debris can help minimize infection.
- Alternatives - Consider freeze-branding, where this is practical, or other identification techniques to avoid the stress of hot-iron branding.
- Implanting - Calves are usually first implanted at branding. For implants to be effective, they must be placed correctly—on the back side and cartilage in the middle third of the ear. Improperly placed implants can mean additional trim loss, consumer concern, and regulatory liability.

3) Pre-Weaning/Weaning

The next opportunity is just before or at weaning. This is when most calves are reimplanted and vaccinated. This is also an ideal time to treat for internal and external parasites, to make the most of the upcoming feeding or growing phase, and to reduce parasite damage to the hide. Because weaning is naturally a stressful time for most calves, careful handling is especially important to avoid illness.

4) Pre-shipment/Shipping/Receiving

For most calf producers, the last opportunity to have an effect on the quality of the beef produced is at shipping. Shipping is stressful on calves, and can be a major contributing factor to respiratory disease. Both the shipper and the receiver can take steps to reduce this risk. For example, calves vaccinated at the ranch 2 to 3 weeks before they're shipped usually develop a better immune response than those that are vaccinated on arrival, when they're more stressed. These preworked calves are more valuable to the industry from a health standpoint.

The way cattle are handled going on and off the trucks is another factor. Use livestock haulers who will treat the animals with care. Ramps should not be too steep. If you're receiving calves, be sure they're given fresh water and checked for disease on arrival. Some may need time to recover from the stress of being transported before you provide any further health care or handling.

Proper timing of vaccinations is critical to a good immune response. If you work calves too soon, they may be too stressed to develop a good response. Waiting too long can delay the development of immunity, and result in increased sickness. Many veterinarians recommend that animals arriving in the morning be worked later in the afternoon; those arriving in the afternoon should be worked the next day. This can vary depending on the type of cattle received and how they've been handled before arrival. Your veterinarian can help you determine the optimum time to work calves.

Each of these management opportunities involves the use of animal health products. Using products correctly is another key to producing beef that is wholesome and appealing.

Proper Use of Animal Health Products

Used properly, animal health products can help reduce the toll that disease and parasites take on your cattle. Start by selecting federally-licensed products that have full company support behind them. As expensive as it is to be in the cattle business, it doesn't make sense to save a few pennies by buying lower-quality products.

Read and follow the label directions. That will help ensure a good immune response and reduce the risk of reactions and residues. On the infill (package insert), you'll find valuable disease information, safety and efficiency data, and directions for reconstituting the product if needed.

Never mix your own vaccine combinations. Mixing a blackleg vaccine with a respiratory vaccine, for example,

doesn't create a product that protects against both. In fact, mixing unlike products could destroy their effectiveness. Use only approved combinations.

Use transfer needles to reconstitute vaccines. Place one end of the needle into the sterile liquid, and the other in the bottle containing the freeze-dried cake of vaccine. There should be a vacuum that immediately pulls the liquid down. If not, discard the vaccine, as it may not be effective.

Don't mix too much vaccine at one time. Modified live vaccine begins to degrade, or lose effectiveness, after about an hour. Direct sunlight also degrades the product, so keep vaccines and syringes in a cooler when working cattle. In hot or cold weather, this can help keep vaccine at the right temperature. When using large bottles of vaccine, such as 200-dose sizes, mix thoroughly at first. Then shake the bottle from time to time. If you don't, the vaccine can settle, possibly putting too much or too little product into each injection.

Mark syringes and keep them separate; modified live products in one, bacterins or killed products in another. If a trace of bacterin remains in a syringe you later use for modified live vaccine, it could make the vaccine useless.

To get the right dose of vaccine into an animal, first pump the grip to remove any air trapped in the syringe. After filling, pump it again to move the vaccine up to the needle tip so you don't inject air with the vaccine.

Proper Injection Site

Next you will decide how and where to give the injection, and which needle to use. Some products are given orally, intravenously, or intranasally, but the most common routes are:

Subcutaneous, or SubQ, which means injecting under the skin; and intramuscular, or IM, which means in the muscle. Some products can be given either IM or SubQ; others must be given in a certain way. Check the label to be certain. Generally, bacterins or killed products can be given SubQ. Modified live products are usually given IM, because this is a more favorable environment for the virus to reproduce and reach the lymphatic system. Whenever possible, and if it's allowed on the label, use the subcutaneous route.

Next, choose the right injection site. The best site isn't always the one that's easiest to reach—it's the site where the product will be most effective, with the least damage to valuable cuts of meat. Whenever possible, keep injections ahead of the shoulder. Never inject into the top butt, or the top of the rump.

The triangular mass of neck muscle is the preferred site for either SubQ or IM injections of vaccine. A second choice for SubQ injections is just behind the shoulder. When giving antibiotics and other products used to treat rather than prevent disease, the neck is again the preferred site for both IM and SubQ. The long muscles on the back of the thigh can also be used for IM injections if neck sites have already been used heavily.

When giving injections, keep injection sites 3 to 5

inches apart. And don't put more than 10 cc of product into any one site.

Needle Selection

It's important to use the right sized needle. Here are some guidelines that could vary depending on the size of animal being vaccinated, where the injection is given, and the thickness or "syringeability" of the product:

SubQ injections: 16 or 18 gauge, 1/2 to 3/4 inch long.

IM injections: 16 or 18 gauge, 1 to 1-1/2 inches long.

Some people use a 14-gauge needle for products that are more difficult to push through the needle. However, 14-gauge is not recommended. Because it is twice the diameter of a 16-gauge, it can cause tissue damage, and vaccine can leak out of the injection site.

For SubQ injections, use the "tenting" technique to get the product just under the skin and not into the muscle. This involves pulling the skin away from the animal's body and inserting the needle into the fold of the skin. Or, go in at an angle. For products that must be given intramuscularly, be sure the needle is long enough to reach into the muscle, and inject straight in.

Sanitation Is Essential

Once you begin working with the animals, good sanitation can help reduce the risk of infection, contamination, and injection-site reactions. Here are some basic tips:

- Wipe off the top of vaccine bottles before inserting needles.
- Don't put the needle you're using to vaccinate back into the vaccine bottle. This can contaminate the vaccine.
- Change needles every 10 to 15 uses, or every syringe-full of vaccine. Discard any needle with a bend or burr (from being bumped against the chute, for example). Use disposable needles.
- When using killed vaccines, wipe off the needle after each use with a saucer or sponge of disinfectant or alcohol. DO NOT do this when using modified live vaccine. Disinfectant can destroy it.
- Use a clean injection site, free of manure and dirt. Injecting in a wet or dirty site increases the risk of infection or contamination.

- When you're finished for the day, properly dispose of bottles and other packaging. Put needles and any dangerous or sharp equipment in a sealable container with rigid sides. Follow label directions for disposal to avoid contaminating the environment.
- When cleaning up, use only hot water to clean modified live vaccine syringes. Don't use disinfectant—it can destroy modified live products that you later put in the syringe. You can use a mild disinfectant to clean bacterin syringes, but rinse then thoroughly.

BQA: It's Worth the Effort

It's unlikely that producers at any level—cow-calf, stocker-backgrounder, or feedlot—will ever be paid a premium price for cattle that are free of "quality defects." But that doesn't mean that beef quality assurance isn't worth the effort. By making a commitment to producing quality beef, you provide a service to your customers and become a trusted supplier. That can help ensure your success in the cattle industry on an individual level. More importantly, it sets a standard for quality beef production that upholds the tradition of our industry, and enhances the reputation of our product—essential ingredients for the continued economic success of the cattle industry.

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