



Beef Cattle Handbook



BCH-3001

Product of Extension Beef Cattle Resource Committee

A Guide to Wholesome Beef Production

NCA Guide Sheet

Today's society is more health-conscious than ever before. Consumers are concerned about cholesterol, drug residues in meat and milk, pesticide use on produce, and other food safety issues. In addition, consumers must sort out conflicting information about the healthfulness of red meat.

Cattle producers are no longer just in the business of raising cattle—they're in the business of producing food. To survive and prosper in this consumer-driven industry, and to sustain consumer demand for beef, producers must take every step possible to assure that our beef supply remains safe, appealing, and wholesome. The consumer will not accept anything less.

Using Animal Health Products Properly

A primary component of a wholesome beef production program is the proper use of animal health products including selection, preparation, administration, and storage. Wholesome beef begins with healthy animals. Used properly, animal health products—including vaccines, dewormers, and antibiotics - play a vital role in reducing the toll that disease and parasites can take on cattle. Cattle producers should consider the following:

1. Select the Right Product

Select products that are federally licensed and approved, with full company support behind them. Raising cattle and keeping them healthy can be expensive. With an initial investment alone of some \$500 to \$700 per animal, it doesn't make economic sense to save a few pennies by using nonlicensed products.

2. Read the Label

Products work most effectively when used as specified on the label, or on the package insert or "infill." To achieve a better immune response, reduce the chance of reactions, and minimize the risk of residues, check these instructions:

- Dosage (for example, 2 ml)
- Timing (2 doses, 2 to 4 weeks apart)
- Route of administration (IM, SubQ, IV, Intranasal)
- Warnings or indications (Not for use in pregnant animals)
- Withdrawal period, if any (Do not use within 21 days before shipping animal for processing.)
- Storage (Store at 2' to 7'C)
- Disposal (Burn container and all unused contents)
- Shelf life (expiration date)

The package insert also contains valuable disease information, safety and efficacy data, and directions on how to reconstitute the product, if necessary.

3. Off-Label Drug Use

Using animal health products in ways not specified on the label—at higher doses or in different species, for example— is called "extra-label" or "off-label" drug use. Off-label drug use requires a veterinarian's prescription. In addition, these criteria set by the Food and Drug Administration must be met:

- A valid veterinarian/client/patient relationship must be established. The veterinarian agrees to take responsibility for making judgments regarding the

health of the animals; the client agrees to follow the veterinarian's instructions.

- A determination must be made that there is no approved drug labeled to treat the condition, or that treatment at the recommended dosage would not be effective.
- A record of any animal given extra-label treatment must be maintained.
- The withdrawal time before marketing the animal for processing must be significantly extended, as determined by the veterinarian.
- Extra-label drug use for production purposes such as weight gain, feed efficiency, or milk production, is inappropriate. Extra-label use of drugs in animal feeds is not permitted.

4. Don't Combine Vaccines

Never combine vaccines. Mixing blackleg vaccine with a respiratory vaccine, for example, doesn't give you a product that protects against both. In fact, mixing unlike products could destroy the effectiveness, and the value, of both of products. Use only approved combinations. If the combination you want is not available, give separate injections.

5. Use Transfer Needles

If a product needs to be reconstituted, use transfer needles to make the process easier and more sanitary. Place one end of the needle into the sterile liquid or diluent. The other end goes into the freeze-dried cake of vaccine or bacterin. There should be a vacuum in the freeze-dried portion that immediately pulls the diluent down. If not, discard the vaccine as it may be contaminated.

6. Don't Mix Too Much

Vaccine begins to degrade, or lose effectiveness, after about an hour. Direct sunlight can also degrade the product. Many producers keep syringes and vaccines in an insulated cooler while working with their cattle. In cold weather, this can also keep vaccine at the right temperature.

For maximum effectiveness, mix enough vaccine for only 1 hour or less. Don't save leftover vaccine. It will not be effective for later use, and could be contaminated. Properly dispose of vaccine bottles and equipment.

7. Keep Mixing

When using large, multi-dose sizes of vaccine, such as 200-dose bottles, mix thoroughly at first. Then stop from time to time and shake the bottle again. If you don't, the vaccine may settle, giving an inconsistent amount of antigen in each injection.

8. Mark and Separate Syringes

To maintain effectiveness of products, use different syringes for modified live vaccines and for bacterins or killed products. It helps to mark the modified live syringes (use red paint, or tape) and keep them separate. If traces of bacterin are left in a syringe that is later used

for a modified live product, the bacterin could destroy the modified live vaccine.

9. Don't Use Disinfectants with MLV

Use only hot water only for cleaning modified live virus syringes. Don't use disinfectants. They can destroy modified live vaccines that you later put in the same syringe. A mild disinfectant can be used for cleaning bacterin syringes—but be sure to rinse thoroughly.

10 Get the Air Out

To help get the right dose of vaccine into the animal, remove any air that may be trapped in the syringe by pumping the grip slightly before filling. After filling, pump it enough to move the vaccine up to the needle tip so there is no trapped air that might be injected with the vaccine.

11. Restrain Animals Properly

Proper restraint is important. Bruising alone costs the cattle industry some \$22 million per year. In addition, the crew handling the animals are at risk of injury when an animal is not properly restrained.

12. Select the Best Route

The two most common routes of administration are intramuscular (IM), which means injecting into the muscle; and subcutaneous (SubQ), which means injecting just under the skin. Some products offer a choice, others must be given in a specific way. Check the label to be certain.

Generally, bacterins or killed products can be given SubQ. Modified live virus products are usually given intramuscularly, because this allows the virus to reproduce and reach the lymphatic system more easily. Whenever possible, however, and if it's allowed on the label, use the subcutaneous route.

13. Choose the Best Site

The best injection site is not necessarily the one that's fastest and easiest to get to. It's the site where the product will be the most effective, with the least possible risk of damage to valuable cuts of meat. It's best to keep all injections ahead of the shoulder. Never inject into the top butt, or top of the rump.

Different sites may be preferable depending on the product being given. For vaccines, both SubQ and IM injections should be given in the triangular mass of neck muscle. A second choice for SubQ injections is the area just behind the shoulder blade.

For injections of antibiotics, the neck area is again the preferred site for both IM and SubQ injections. A secondary site for IM injections is the back of the thigh. Inject straight in—not from the side.

14. Choose the Correct Needle

The correct size and length of needle will help ensure that vaccine gets into the animal's system properly, with the least possible risk of tissue damage. For a subcuta-

neous injection, use a 16 or 18-gauge needle, 1/2 to 3/4 inch in length. For an IM injection, a 16 or 18-gauge needle, 1 to 1-1/2 inches long, is recommended. A 14-gauge needle is not recommended—it is twice the diameter of a 16-gauge, which increases the risk of leakback and tissue damage.

15. Use Proper Injection Technique

If the label calls for SubQ administration, try “tenting” the skin 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 skin. Another technique is to 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 into the skin and deep into the muscle. A 1-1/2 inch needle may be needed for larger animals.

When giving multiple injections, keep injection sites several inches apart. Don’t put more than 10 cc of product into any one site. If a product must be given several times over a period of a few days (an antibiotic, for example), vary the injection site from day to day.

16. Sanitation Is Essential

When working with animals, sanitation is essential. Good sanitation practices can reduce the risk of spreading infection from one animal to another, reduce the chance of contaminating the vaccine, and reduce injection site reactions. Here are some basic tips:

- Don’t go back into the vaccine bottle with the same needle you use to vaccinate. This can contaminate the vaccine.
- Change needles frequently—at least every 10 to 15 uses, or every syringeful of vaccine.
- If a needle develops a bend or buff, from being bumped against the chute for example, discard it immediately as it will tear tissue.
- Disposable needles are an economical way to ensure sanitation.
- When using killed vaccines, keep a saucer or sponge of alcohol or disinfectant nearby and wipe off the needle after each use. Do not disinfect needles between injections when using a modified live vaccine, as the disinfectant can destroy the vaccine.
- Make sure the injection site is clean. Injecting into a spot that is damp, muddy, or covered with manure greatly increases the risk of infection.

Place Implants Properly

Implanting cattle can provide an economic advantage in the production of leaner beef, but it is essential that implants be placed correctly. The correct placement is on the back side of the ear, between the skin and cartilage in the middle third of the ear. Improperly placed implants can result in additional trim loss, consumer concern, and regulatory liability.

A Commitment to Wholesome Beef Production

Every producer can play a role in sustaining consumer demand for beef. Regardless of where you are in the food production chain, your role begins with a commitment to wholesome beef production. Take advantage of the resources available to you in developing your own quality assurance program: your veterinarian and animal health supplier; state and national cattlemen’s associations; Cooperative Extension System and other educational programs; and animal health companies. By making this commitment, we can all help ensure the continued economic success of the cattle industry.

A Mutual Responsibility

The responsibility for producing wholesome beef rests with every segment of the cattle industry. Cattle producers must provide a top quality carcass, unadulterated by antibiotic or other drug residues, and free from bruising, injection site reactions, and tissue damage. This is the responsibility of every segment of the industry—not just the feedlot. Packers are beginning to bill back for bruises and tissue damage that reduce the amount of marketable beef on a carcass. That affects the feedlot primarily, but cow-calf operations, stockers, and feeders are also involved. And, as recordkeeping becomes more sophisticated, it will be more common to reach back beyond the feedlot to determine liability for these losses.

Veterinary and nutritional consultants who design herd health programs and recommend the use of animal health products must establish a strong veterinarian/client/patient relationship based on their experience and expertise in disease prevention and control, nutrition, and individual evaluation of the client’s needs.

Animal health companies must provide quality products backed by extensive testing for safety and efficacy; products that have met all licensing requirements of the USDA/APHIS and FDA; products with full company support behind them, including strong technical support and knowledgeable sales representatives; and information on how to use products safely and effectively.

To ensure both a whole food supply and a prosperous business environment, it is essential that we work together as partners in wholesome beef production.

Managing for Better Herd Health

A good overall herd health plan involves several management practices. First, work with your veterinarian to design a program based on the unique combination of factors present in your operation - disease history, weather, management practices, origin of cattle, and other factors - not what works for your neighbor, or what your family always used.

Pay attention to the nutritional needs of animals under your care. Good nutrition includes both the proper amount of food and the proper balance of nutrients.

Train the crew working with the animals in the proper use of animal health products, handling procedures, and recordkeeping. The way they handle products, equipment, and animals has a direct impact on the level

of disease protection achieved and the quality of beef produced.

Excellent recordkeeping is essential. To maintain the cattle industry's exemplary record of residue-free beef, be sure animals are identified as permanently as possible. Record the name, date, amount, and route of administration of any animal health product used—including serial numbers. Pay extra attention to chronic and high-risk cattle to avoid shipping an animal to be processed before medication has cleared its system. medication has cleared its system.

Handling facilities should be well maintained and properly designed for the type of health care and handling being done. The chance of costly bruising, overly stressed animals, and ineffective disease control increases when outmoded or poorly maintained equipment is used.

Take the time to do the job right. It's natural to want to move cattle through the care process as quickly as possible. But it's far more cost effective to take a few extra seconds to make sure a procedure is done right, than to have to go back later and treat sick animals.

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