



BUL 923

Cattle Processing and Injection Site Management

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Key Points

Optimize processing by:

- handling cattle calmly and quietly, keeping them in a normal state of mind;
- using proper restraint prior to giving an injection;
- changing needles often, at least every 10 to 15 head;
- using the correct needle size based on route of administration, size of animal, and thickness of material being injected;
- giving injections at appropriate site locations, with at least four-inch spacing between injection sites;
- always protecting vaccine from freezing, overheating, and sunlight; and
- keeping detailed records to guarantee product safety and quality.



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Idaho Beef
Quality
Assurance

Introduction

SUCCESSFUL BEEF PRODUCERS understand that beef quality assurance requires an effective herd health program. A successful herd health program includes the routine administration of vaccines and, as needed, injectable antibiotics. This production event, often referred to as processing, requires greater consideration than a menial task to be checked off a “to-do” list. Such considerations as proper cattle handling, product storage, needle size, needle changes, appropriate injection sites, and thorough recordkeeping need to be top priorities for all personnel, before and during a cattle processing event. Failure to pay adequate attention to these considerations may negatively affect herd health and impair beef quality.

Processing

It is widely accepted that ensuring beef quality involves keeping cattle healthy throughout their lives. Since cattle are susceptible to illness and disease, preventing and treating disease is vital to increase producer income and make sure that public perceptions of animal welfare are positive. Therefore, processing cattle to administer vaccines and antibiotics should be a part of a holistic animal health program that boosts cattle’s immunities and protects them against the various diseases to which they are susceptible.

Cattle handling

Vaccinating and treatment procedures are most helpful when correct animal handling techniques are followed. Most importantly, cattle should be handled in a way that allows them to remain in a normal state of mind (i.e., not overly excited or agitated). Handlers should strive to bring them into the corral and chute in a quiet and calm manner. This will help in the application of proper restraint to the animal, prior to administering an injection. When cattle are suitably restrained, injections can be given with greater precision and accuracy, keeping injection site blemishes to a minimum.

Needle changes

Minimizing injection site blemishes is one more way that producers can ensure a quality beef product. Changing needles every 10 to 15 head helps to prevent abscesses at the injection site. Bent needles should be replaced immediately to avoid breaking them off inside the animal. In the rare event a needle does break off in an animal, the assistance of a veterinarian may be required to remove the needle. If the needle cannot be removed, the animal should be tracked until harvested, at which time the meat processing plant can remove and discard the needle. Needles that become damaged or develop a burr on the end should also be replaced. Do not allow needles to become dull before changing. If a known blood borne infectious disease is present, needles must be changed between each animal.

The appropriate needle size varies with the size of the animal, with the viscosity of the product, and whether it is being given subcutaneously (SQ), intramuscularly (IM), or intravenously (IV). Table 1 should be used as a guide for selecting the appropriate needle size.

Storage and handling of vaccines and other animal health products

Vaccines and other animal health products must be stored and cared for appropriately to increase the likelihood of achieving disease protection. Unless otherwise stated on the product label, animal health products should be stored under refrigeration at a temperature of 35-45°F. If temperatures fall below or rise above this temperature range, the integrity of the

animal health products may be compromised, and they will likely be rendered ineffective. Therefore, refrigerators should be monitored daily to be sure the appropriate temperature is maintained.

When processing in remote locations, it is imperative to have a good plan to handle vaccines during transport and processing. Temperatures in these environments can often be far outside the safe temperature range listed on the product label. Use a good cooler and cold packs to maintain the required temperature. Keep vaccines, especially modified live vaccines (MLV), out of direct sunlight, as ultraviolet light will destroy the needed microorganisms in these vaccines. This is equally important once the product has been drawn up into the syringe.

Modified live vaccines should be mixed using a transfer needle. Do not shake too vigorously when mixing; this too will harm the vaccine. Once the MLV is activated, it should be used in under two hours. Dispose of any unused, activated MLV as well as all animal health products that have expired.

Injection sites

Administering injections at the correct location is an excellent way to maintain the quality of expensive cuts and to guarantee beef quality. Without exception, all injections should be given in front of the shoulder. When possible, strive to use animal health products that can be administered subcutaneously (SQ). Avoid injecting more than 10 cc per injection site when using a product requiring an intramuscular (IM) injection. This will minimize tissue damage around the injection site. The base of the ear, or where the ear connects to the head is another excellent location for SQ injections.

Table 1. Needle selection guidelines. (Reprinted with permission from the National BQA Manual.)

	Route of Administration								
	Subcutaneous (SQ) (needle: 1/2– 3/4 inch)			Intravenous (IV) (needle: 1 ½ inch)			Intramuscular (IM) (needle: 1 – 1 ½ inch)		
	Cattle Weight (lbs)			Cattle Weight (lbs)			Cattle Weight (lbs)		
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. Use the smallest practical size without bending.

All IM injections must be given in an area known as “the injection zone triangle.” This triangle is located in the neck region, as depicted by green in Figure 1. Be sure all injections are spaced at least four inches apart.

When properly applied, growth-stimulating implants have been shown to increase weaning weights. Implants are given in the back of the ear. Be sure

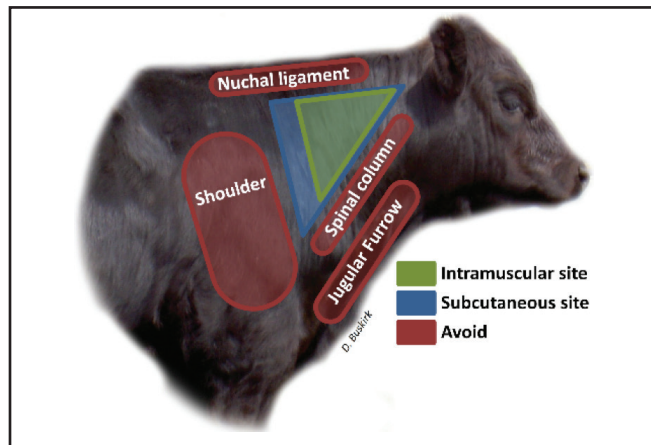


Figure 1. Injection zone diagram. (Courtesy of Dr. Dan Buskirk, Michigan State University.)

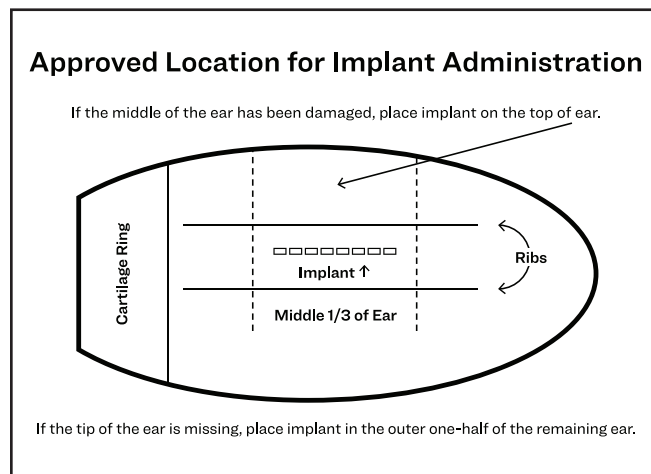


Figure 2. Relative implant location. (Adapted from the National BQA Manual.)

to place the implant in the middle third of the ear (Figure 2). It is also important to remember to disinfect the implant needle between each injection to help to prevent infection at the injection site.

Recordkeeping

Records provide the information needed to indicate correct and timely completion of processing procedures. For this reason, recordkeeping is critical for improving consumer perceptions and confidence in the beef industry. It also strengthens marketing capabilities. Treatment records should include identification and approximate weight of the animal being treated, date, name and serial number of product used, dose, injection location, route of administration, and name of the person administering the drug. It should also include the prescribed withdrawal period. All treatment records should be kept for three years.

Conclusion

The Beef Quality Assurance program encourages beef cattle producers to implement cattle processing procedures that will aid them in successfully producing a high-quality beef product. This can be achieved when strict attention is paid to effective cattle handling practices, correct needle selection and change intervals, acceptable injection sites, proper storage and care of animal health products, and maintenance of in-depth records.

Reference

National BQA Manual. n.d. Beef Quality Assurance Program. Accessed January 16, 2018. <https://www.bqa.org/Media/BQA/Docs/nationalmanual.pdf>

The Idaho Beef Quality Assurance Program is a partnership between University of Idaho Extension and Idaho Beef Council.

The BQA Mission

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

BQA Certification

Certification requirements can be achieved by participating in a training session and completing the BQA quiz and personal contract. Certification is valid for three years. Learn more about BQA certification in Idaho, here: <http://extension.uidaho.edu/bqa/certification/>.

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