

Livestock Health Series

Injection Site Management

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Introduction

As cattle producers, we supply this nation with beef. Today's consumer demands that our product is wholesome and free from blemishes. In order to meet this justified demand, we all need to be diligent in assuring quality in our final product. One very important factor in providing quality in the beef we produce is performing injections properly. This fact sheet will cover a few of the basics.

The beef quality audit that was commissioned by the National Cattlemen's Beef Association (NCBA) shows the importance of maintaining proper injection sites. The results from the 2000 National Beef Quality Audit calculated a loss of \$100.10 per slaughter steer or heifer due to carcass inconsistency. This economic loss was due in part to injection-site lesions on the carcasses such as the one in Figure 1.



Figure 1

These lesions are scar tissue that develops due to irritation from an injection of medication into the muscle of the animal. Both economic losses to

the industry and public perception of consumers substantiate the importance of providing proper injection site management. When administering injections, remember to stay away from expensive cuts of meat on the carcass such as the top butt and round.

Restraint

Before injections can be administered, adequate restraint of the animal must be achieved. Every effort should be made to keep the animal as still as possible while the injection is given. This helps prevent broken needles as well as harm to the animal or to the human giving the injection.

Needle movement during administration of an intramuscular injection can cause muscle damage and could cause a significant portion of the injection to be deposited subcutaneously. Correspondingly, any movement during a subcutaneous injection may lead to a significant portion of the injection ending up intramuscularly. Administration of a product into a site other than where the label recommends may affect absorption of the drug or vaccine, leading to decreased efficacy. Improper administration of a product may also lead to an altered drug withdrawal period.

It is important to handle animals in facilities that allow safe, humane and efficient restraint of your livestock when administering injections.

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Injection Sites

When injecting a medication or vaccine into a beef animal, remember to target the neck region. The landmarks outlining this region are noted in the injection zone triangle shown in Figure 2. Regardless of the animal's age, all intramuscular and subcutaneous injections should be given in the neck region, never in the rump or back leg.

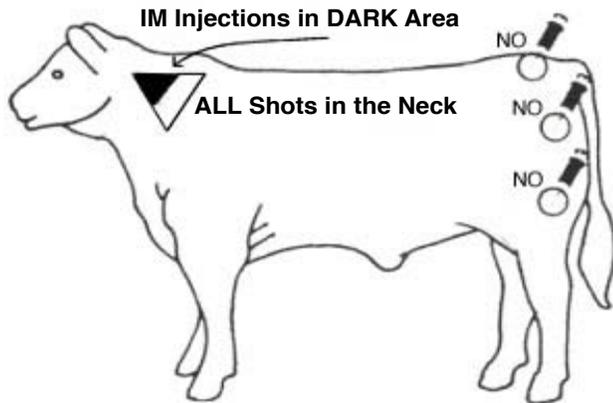


Figure 2

When administering more than one injection on the same side of the neck, remember to place the injection sites at least 4 inches apart (one hand-breadth between the two sites). Spacing injections in this manner allows better absorption and less interaction between products, because moving only 1 to 2 inches between sites essentially creates one big site.

Processing cattle in muddy and wet conditions can increase the chance of injection site contamination. Therefore, make sure injection sites are as clean as possible before administering the product.

Always follow proper volume-per-site instructions. When injecting antibiotics, never exceed more than 10cc per injection site.

Needle Know-How

Needle selection and care are essential to quality assurance. When choosing the proper needle for administering the medication, keep the following facts in mind.

- When possible, use products that can be administered subcutaneously because they cause less damage to the carcass.
- Needle length for subcutaneous injections shouldn't exceed 3/4 inch. Furthermore, many intramuscular injections can be done with a 1-inch needle.

- Always remember that if you feel resistance when the needle penetrates the hide, check for barbs on the tip of the needle. It may be time for a new needle.
- A 16ga. needle is the maximum size for intramuscular injections. An 18ga. needle may be used for administration of some products, but proper restraint becomes more important to avoid bending and possible breakage of these small needles.
- Always discard bent needles, and never straighten and reuse them due to possible breakage.
- When injecting subcutaneously, remember to use the "tenting method" of injection shown in Figure 3. This method ensures that the product is delivered under the skin and keeps it out of the underlying muscle tissue.



Figure 3

- Injection-site swelling can sometimes occur from injecting a subcutaneous product too deep and penetrating part of the first layer of muscles. If this occurs, consider using a "B-bevel" 5/8-inch needle or a short (1/2 or 3/4 inch) regular bevel needle. The injection point on the B-bevel needle is shorter than a regular injection needle (see Figure 4).

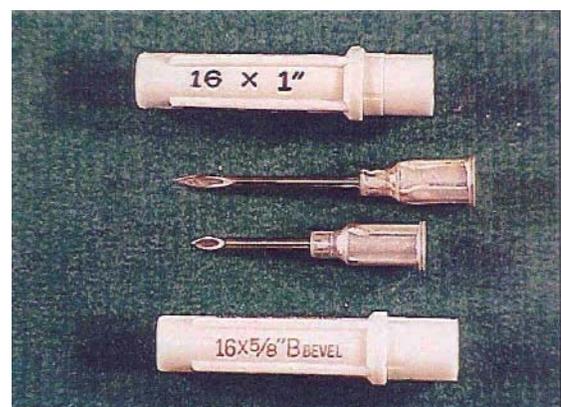


Figure 4

Syringe Care

Inadequate cleaning of pistol-grip style syringes is often the cause of localized infection at the injection site. If the infection becomes severe, the animal may die. If you use multiple-dose syringes, keeping them clean between uses is a must.

To keep the outer surface of the syringe clean, use dish soap, water and a brush. However, never use a detergent soap or a disinfectant on the inside of the syringe barrel. Using detergents or disinfectants will leave a small amount of residue that cannot be rinsed away. The next time the syringe is filled with a modified-live vaccine, the vaccine will be neutralized and will not be effective when injected into the animals. Proper care for the inside components of a multiple-dose syringe requires rinsing with boiling water. This is accomplished by drawing water that is greater than 180°F into the syringe and squirting it out. Distilled water can easily be heated in the microwave to rinse the syringe (see Figure 5). Three to five rinses should be adequate. Remove the water and let the syringe cool before using.



Figure 5

To prevent syringe contamination, it should be stored in a dust-free environment. One sensible place to store your syringe is in the freezer. By placing the syringe in a zip-lock bag and storing it in the freezer, you will avoid the possibility for mold or mildew that could occur inside the syringe. Make sure you let the syringe warm to room temperature before use.

Protecting Product Integrity

Remember to pay close attention to sterility of the product container and to sanitation of syringes and injection systems. Because the rubber stoppers in the product bottles tend to dull needles very quickly, an unused, sterile “filling” needle can be left in the stopper while the product is in use. When pulling up product into a multi-dose syringe, only use the filling needle that has been left in the stopper to fill the syringe. This will ensure the sanitation of the container and alleviate the possibility of contaminating the bottle by a used needle. It will also ensure that you will not be using dulled needles to inject product into the animal. It is important to never mix multiple containers of products into one bottle. Always remember to read the manufacturer’s recommendations for dosage, route of administration, withdrawal period and expiration date.

Arkansas Beef Quality Assurance Program

Arkansas has a Beef Quality Assurance Program that concentrates on many of the above issues for interested producers. The Arkansas BQA Program offers producers two levels of participation.

Level 1 – Voluntary Participation: This level asks producers to participate by reading the BQA Handbook and adopting BQA guidelines. Participation is voluntary and will place the producer on the BQA mailing list for future updates.

Level 2 – BQA Certification: This level requires the producer to take the Arkansas Beef Quality Assurance Producer Certification Exam and sign the BQA Producer Contract. Upon successful completion of the exam and receipt of a signed contract, a producer will be issued a BQA certification number, a BQA certificate and a BQA ID card.

For more information about this injection site management and the Arkansas BQA program, contact your county Extension office.

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