

Proper Injection Techniques in Dairy Cattle

Mario A. Villarino*

It is very important to administer medications to dairy cattle in the proper way. That means using the correct drug, dosage and injection technique; handling animals and vaccines appropriately; and following sanitation guidelines.

Selecting the drug, dosage and injection technique

- Consult a veterinarian and read the medication label and/or package insert before vaccinating animals.
- Administer only drugs labeled for use in dairy cattle. Refer to the vaccine label for this information. Using a vaccine in an animal species for which it is not labeled is illegal.
- Give the proper dosage as indicated on the label.
- Always give an injection in the body area recommended on the product label. Give injections forward of the shoulder when possible. The neck muscle is the best choice.
- Avoid placing more than one injection on the same side of the neck to prevent medicine interactions and severe tissue reaction.
- Don't inject more than 10 cc (ml) in one site. If more medication must be given, use several injection sites.
- Use the recommended route of administration. There are three main routes of administration.
 - **Subcutaneously (SQ).** This injection goes between the skin and muscle, but not into the muscle. Many vaccines and antibiotics can be administered this way. It is the preferred method

*Extension Associate
The Texas A&M University System

for protecting meat quality. Always use this method if it is an option given on the label.

- **Intramuscularly (IM).** This injection goes directly into the muscle. To minimize damage to meat, use the muscles in front of the shoulder.
- **Intravenously (IV).** This injection goes into a vein and directly to the animal's blood stream. It is used for medications that can cause severe muscle damage. In dairy cows, the mammary vein can be used for IV injections. But use this vein only if a veterinarian recommends it and shows you how to do it.
- Give boosters when required.

Selecting equipment

- Use only clean, sharp needles, preferably new ones.
- Use the appropriate needle size for the medication being administered. Needles usually range from 16- to 18-gauge and from 1 to 2 inches long. Use the smallest size needle that will work.

Handling animals

- Restrain animals properly before vaccinating them.

Handling vaccines

- Always note the expiration date and instructions for storage on the medicine label.
- Most vaccines must be refrigerated during storage and use. Keep the refrigerator temperature between 36 degrees F and 46 degrees F.
- When using vaccines, keep them in an insulated cooler with ice packs during the summer. In cold weather, use the same container to keep vaccines from freezing. Freezing makes some vaccines ineffective.
- If vaccines do not require refrigeration, store them out of direct sunlight and in a controlled environment.
- When finished vaccinating for the day, properly dispose of any remaining vaccine. Once a vaccine vial is opened, the expiration date is void.

Using sanitary methods

- Protect needles and medicines from dust. Dust particles injected with a medicine can cause abscesses.
- Use a transfer needle to extract medicine from the bottle and transfer it to another needle used for the injection.
- Never insert a used needle into a medicine bottle. Use a clean needle or a transfer needle.
- Use a clean needle for each animal to prevent the transmission of disease.

- Do not use chemical disinfectants to sterilize needles or syringes. Instead, place them in boiling water for 20 minutes.
- Properly dispose of used needles in a puncture-proof “sharps” container.

Timing injections and observing withdrawal periods

- Avoid vaccinating cows within 2 weeks of calving.
- Pay attention to withdrawal times listed on product labels. The amount of time required after a medicine is administered before the meat and/or milk are safe for consumption is called the withdrawal time. The withdrawal times for meat and milk may be different. It is illegal to sell meat or milk that contains medicine residue and sellers are subject to large fines.
- If there is a withdrawal time on the label of the drug you are using, mark the animal with a leg band or some other identification.

Keeping records

- Develop a record-keeping system for your dairy herd to document individual animals or groups of animals treated. Be sure to record:
 - Date of treatment
 - Name, lot number and serial number of the product used
 - Route of administration

- Also record the success or failure of the treatments and any unusual side effects or reactions observed in animals.

Preventing injection site lesions

When an injection is done improperly or the injection site becomes infected, the result may be tissue damage and abscess. An abscess is an accumulation of dead cells in the tissue. Abscesses reduce carcass quality and the price the producer receives. Injection site scarring also reduces carcass quality. In fact, most quality defects in meat from dairy carcasses are a result of injection site scarring, which can radiate up to 3 inches from the injection site into surrounding muscle tissue. Even very young calves can form injection site lesions, and these lesions may remain until slaughter.

The best way to prevent abscesses and scarring is to administer vaccines subcutaneously whenever possible. When intramuscular injections must be given, be sure to use proper injection techniques.

Conclusion

Producers can reduce the need for vaccinations by establishing preventive herd health programs. There are vaccines for immunizing cattle against a number of diseases. A program of preventive vaccination can eliminate the need for more intensive treatments should diseases develop.

Produced by AgriLife Communications, The Texas A&M University System
Extension publications can be found on the Web at: <http://agrilifebookstore.org>.
Visit Texas AgriLife Extension Service at <http://AgriLifeExtension.tamu.edu>.

Educational programs of the Texas AgriLife Extension Service are open to all people without regard to socioeconomic level, race, color, sex, disability, religion, age, or national origin.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M University System.
New
