

Vaccination and Medication Procedures for Cattle

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For producers with winter or spring calving seasons, weaning time is upon us. Certainly it is timely to be reminded of correct procedures. Vaccines, dewormers, antibiotics and other medications, used properly, play a key role in profitability of a cattle enterprise. To be effective, they must be selected, stored, mixed and used properly.

A pre-weaning vaccination program may be hard to work into your management system, but it is valuable because it "primes" the immune system of the calf and allows the calf to still be "mothered and comforted" during stressful periods of vaccinations. Postweaning vaccination then boosts the immune system.

Remember, vaccination doesn't guarantee protection. A number of factors, including stress, nutrition, weather and age can hinder a normal immune response. However, a good vaccination program takes these into account and can be used like an insurance program. Your best advice comes from a veterinarian familiar with your locale and your farm. Your veterinarian is a key player in a profitable beef enterprise. He will generally save you a lot more dollars than he will charge.

Rules for proper vaccine use

- Only purchase vaccine or other drugs from reputable sources.
- Be sure products you buy are federally licensed and approved for the intended use.
- Don't buy "second hand" or "bargain basement" products.
- Read label instructions.
- Products work effectively only when used as specified on the label.
- Instructions are given to get maximum immune response, reduce chance of side effects and reduce risk of residues.
- Always check these items:
 - proper dosage
 - proper timing (interval between dosages & frequency)
 - product approval for pregnant cows or very young calves
 - recommended route of administration
 - warnings or indications
 - withdrawal period
 - how to reconstitute
 - storage requirements (if package says to refrigerate, keep cold but don't freeze; keep vaccines on ice in cooler while using and protect from sunlight as much as possible)
 - shelf life or expiration date
- Don't mix vaccines unless specifically told to do so. Look for combination vaccines specifically designed to be used for types of protection you need. Many vaccines will be inactivated (made useless) by mixing. If a combination you want is not available - give separate injections.
 - **If label specifically instructs you to mix vaccine, or when reconstituting a modified live vaccine, don't mix more than you can use in 30 minutes.**
 - Large, multi-dose bottles may be false economy.
 - Make sure mixing is thorough and shake bottle occasionally to keep it mixed.
 - Don't keep leftover reconstituted vaccine. It is probably contaminated with all sorts of bacteria and will not be effective.

- Be extra clean and sanitary. Put a new needle in bottle and use only that needle to withdraw vaccine. Never stick a needle you have stuck into an animal into a bottle.
- **Use the following guidelines:**
 - change needles every 10 to 15 injections.
 - change burred, bent or dropped needles immediately.
 - keep separate syringes (label with masking tape or marker) for each product.
 - don't mix or alternate products in same syringe.
 - use disposable syringes or sterilize properly.
 - do not use disinfectant with syringes or needles used to give modified live virus vaccines - boil in water only.
- Use correctly sized syringes and needles of appropriate gauge and length. Be sure syringes are calibrated to deliver the desired dose. Be sure all air is expelled from syringe. Air alters the dose delivered and causes leakage of vaccine from the needle and the injection site.
- A proper sized needle will reduce wastage and ensure delivery to the expected site. Use only 18- or 16-gauge needles. Use 1/2" or 3/4" for administering SubQ (under the skin) and 1" or 1-1/2" for administering IM (in the muscle). Base your choice of needle on product, equipment and size of animal.

Routes for administration of vaccines and drugs

Methods of administration are important because they affect the speed a vaccine enters the animal's system. Using the wrong route may not give required response, and in fact, may result in no response.

- **Oral**
 - Administration of boluses, tablets, liquids, or pastes through the mouth.
 - For boluses and tablets, a balling gun is used with entry through the side of the mouth and over the top of the tongue to the back of the throat, where the trigger mechanism of the balling gun releases the bolus or tablet.
 - The animal will usually swallow at this point, assuring consumption.
 - Watch the throat area to determine if the material was swallowed.
 - Caution should be used because rough handling with a balling gun can produce tender areas in the mouth, making the animal go off feed or causing problems of a more serious nature.
 - Liquids and pastes can be administered with a dose syringe.
 - The tip of the dose syringe should be inserted into the side of the mouth between the teeth and over the tongue and directed into the back part of the throat.
 - The liquid should then be dispensed at a moderate rate so that the animal has time to swallow the material, rather than causing an overload, which could cause fluids to be aspirated into the lungs.
 - Another problem with dose syringes is that, in careless hands, severe damage can be inflicted to the roof of the mouth when the tip of the syringe is gouged rather than gently placed in the back of the throat.
- **Intranasal**
- This is a relatively rare system used to create local resistance to disease affecting the respiratory tract.
 - Most of the antibody protection will be in an animal's general system and vaccine must be in small amounts to permit absorption into the respiratory system.
- **Intramuscular - IM**
 - Injection deep into the meaty area of the neck muscle, not in the round or loin or hip.
 - This may be difficult until you are familiar with this technique.
 - However, we must all work to keep scar tissue (gristle) out of our consumer's T-Bone and Round steaks!
 - Absorption is rapid due to good blood supply.
 - A 1-1/2" long needle should be used, allowing complete penetration of skin and fat and partial penetration of muscle.
 - Volume of injection should never be more than 10 ml.
- **Subcutaneous - SubQ**
- Injection under the skin.
- This route gives a slow but sustained absorption due to small blood supply.
- Injection site is where the skin is loose in the neck area.
- Loose skin is gathered and needle inserted through gathered area.
- A 1/2" to 3/4" long needle can be used.
- SubQ is always the preferred route of administration when label gives a choice between IM and SubQ.
- **Intravenous - IV**

- This route is used when you need a quick response.
- Drugs are rapidly available to animal's system in larger volume and tissue irritation is avoided.
- Best site is jugular vein, located between the neck muscles and throat on the side of the neck (ideal site is approximately one-third of the distance between jaw and chest).
- Site should be wet with alcohol, 1-1/2" to 2" long needle should be inserted at a 30 degree angle pointing toward the body.
- Slight suction on the syringe should produce blood in the fluid and injection should be slow and steady.
- **Implanting**
 - The proper technique is to insert the needle approximately midway between the tip and base of the ear, avoiding cartilage ribs and blood vessels.
 - Once needle is inserted up to the hilt, withdraw needle one-half way and deposit implant.
 - You should be able to feel pellets under the skin.
 - Improper implantation can lead to poor absorption, usually caused by
 - gouging of the cartilage of the ear
 - intradermal rather than subcutaneous implantation
 - severing one of the veins of the ear, causing hemorrhage.
 - **Observe the "Thumb Rule" when implanting.**
 - Always place implants at least a thumb's width away from ear tags, ear notches, old implant sites, etc., to avoid lack of proper absorption of implant material.

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