

Beef Quality Assurance Injection Sites and Techniques

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Cattlemen have a responsibility to assure that only beef of the highest quality reach the consumer. The National Cattlemen's Association has maintained a very strong position on beef safety and quality assurance for several years. The public has been assured that the beef at the retail counter is a very safe product for human consumption. The safety of the product is still a major concern, while emphasis has shifted to reduction of injection site lesions.

Injections Have Equaled Lesions

As more and more portion-controlled retail cuts of the most expensive beef, primarily steaks, are produced by centralized processors, it has become evident that injections can result in lesions. The lesions must be trimmed and discarded, often condemning two or more steaks to the tubs labeled "Nonedible." The costs of trimming the lesions can be as much as \$40.00 per head.

Initially, it was thought that feedlots were the primary source of the lesions; that the lesions resulted from injections given when the cattle were processed at time of entry into the feedlot. It is now known that lesions resulting from injection of calves will persist until slaughter. In fact, the \$40.00 per head loss at slaughter resulted from administering black leg vaccine in the rear leg of calves at branding time.

The severity of the lesion varies among products injected intramuscularly. Black leg bacterin/toxins and related clostridial products have long been known to cause visible injection site reactions if given under the skin. The subcutaneous reactions caused swellings, the size of half a golf ball or larger, that persisted until slaughter. Cattlemen found the unsightly lesions unacceptable and stopped using the subcutaneous route of injection. Alternatively, intramuscular injections were used and the resulting lesions were not found as the carcass was processed into box beef. The loss due to trimming was passed through to the cutting rooms of the retail markets, where management had little choice but to pass the cost on to the consumer.

The selection of a vaccine, proper handling of the biologics, and the care and use of syringes and needles have been emphasized when making decisions to vaccinate cattle.

The selection of a drug, the dose and duration of treatment, and drug withdrawal times prior to slaughter have been emphasized when discussing drug administration. The choice of route for administration of injections has been left to the discretion of the cattleman.

An option for intramuscular injection generally appeared on the label of most products. Intramuscular injections are easier to give than subcutaneous or intradermal injections; thus, intramuscular injections were most frequently selected. It followed that the large muscle masses of the rear quarters provided a good target. The syringe did not have to be carefully guided to hit targets on the rear leg or the gluteal muscles adjacent to the tail head. The animal did not need to be carefully restrained since it was not necessary to inject in a precise location. Generations of cattlemen have taken pride in their ability to successfully inject the moving target of the poorly restrained calf.

Recent research has shown that any vaccine or drug injected intramuscularly may produce a longlasting lesion. Even products like penicillin, that have been considered almost innocuous when injected intramuscularly, may produce lesions that persist for at least 30 days. The results of the research also indicated that injecting more than 10 ml of any product in a site could produce lesions, as could needles larger than 16 gauge.

How Concerned Should Cattlemen Be?

Cattlemen should be deeply concerned and initiate positive remedial action. "Excel to Institute Traceback System" was reported in the June 1991 BEEF. Excel plans to have a carcass-tracking system on line in six months that will trace carcass problems back to the feedyard. Most feedyards maintain records of the source of the cattle on feed and already discount feeders coming from sources with health problems. The same records will help the feedyards identify sources of feeder cattle with injection site lesions, probably not to an individual cow-calf operation, but to a market or order buyer.

Recommendations

The current recommendations to assure beef quality include:

- All products that are labeled for subcutaneous injection should be given subcutaneously, i.e., under the skin.
- All injections should be given in front of the shoulders of the animal.
- The clostridial bacterin/toxoids should not be repeated. Under previous management procedures, these products may have been given to individual animals as many as four to five times.
- No more than 10 ml should be injected into a given site. This means that some of the products administered in large volumes will require several injections.
- Needles should be no larger than 16 gauge and sharp. Both the larger needles and dull needles traumatize tissue that can produce residual lesions.
- Records of vaccination should be kept and maintained with the cattle as they move through trade channels. Such records would preclude unnecessary repeated injection of vaccines.

Effects on the Cattle Industry

All segments of the industry from the cow/calf operations to the feedyards must become responsible for beef quality assurance.

Cattlemen will have to provide better restraint to properly administer subcutaneous injections in the neck. The proper and recommended technique for giving injections requires lifting a fold of skin with one hand, forming a vee or "tent." The needle is inserted through the skin into the space under the "tent." The lifting of the "tent" is necessary to assure that the injection will be subcutaneous. Injecting through the skin with a short needle often invades the underlying muscle. Obviously, good restraint will be essential not only to properly administer the injection, but also for protection of the cattleman handling the syringe.

Record keeping is at the very heart of reducing the number of times various products are administered. As cattle move through trade channels, everyone needs to know the history of the cattle to avoid unneeded injections. The minimal record would include the age of the animal, date of administration, name of product, and injection sites.

More and more of the costs of trimming injection site lesions from expensive cuts of meat are going to be passed back to the feedyard. The feedyard will either pass the cost of trimming directly back to a known previous owner of the cattle or indirectly, when a previous owner is not known, by discounting future purchases from sources known to supply problem cattle. Alternatively, the costs may be passed back by refusal to purchase feeder cattle from given areas or states. Cow/calf producers have a real need to adopt and practice the recommendations mentioned above to protect a healthy, competitive demand for their calves.

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Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may be similar. Persons using such products assume responsibility for their use in accordance with current label directions of the manufacturer.

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