

BEST MANAGEMENT PRACTICES WHEN VACCINATING CATTLE

Calving season this year has been relatively easy. We always seem to have a few difficulties, but most producers have benefitted from the mild winter and drier conditions. Now crews are branding, vaccinating, castrating, and in some cases dehorning calves before cows and calves are sent to grazing. I was on such a crew a few days ago. I find I'm not as helpful and quick as I once was.

Some livestock handling facilities were well designed and the cattle move through very nicely. In other cases, both facilities and handlers are marginal. Instruction at our recent farm safety course reminded us that well designed and maintained facilities are essential if we are to prevent injury to animals or humans. An injury quickly takes the fun out of the process and usually becomes quite costly. Repairing facilities before working cattle is time well spent. With high cattle prices, now is the time to repair or replace what has been neglected in the past.

Another concern has to do with using best management practices when administering vaccines. Many of us make serious mistakes here. It is easy to get careless when busy with demanding duties and bawling cattle. If vaccines are not properly used some animals' immune systems will fail to create the proper immunity.

Studies from University of Nevada, University of Idaho, and University of Arkansas indicate that veterinarian vaccine product efficacy is at risk due to improper handling and storage. The studies showed that sometimes the problem was with vaccine retailers and often with livestock handlers. Testing showed that 25% to 76% of refrigerators failed to maintain vaccine temperatures within the recommended range of 35-45 ° F. The problem was compounded even more when vaccines were exposed to sunlight and warmer temperatures at chute-side when working cattle.

Two common types of vaccine are "killed" and "modified-live". Killed vaccines are made by growing an organism in a growth medium. The organism is then inactivated or killed by utilizing chemicals or heat. Adjuvants are added to killed or inactivated vaccines that help stimulate immunity and hold the organism at the injection site to strengthen the immune response. Killed vaccines often require two separate inoculations over 2 to 4 weeks to obtain a full immunity response. It is very important to administer both inoculations, but the studies showed this does not always happen.

Modified-live vaccines (MLV) are made with a virus or bacterium that is weakened so the organism will not cause disease in most healthy animals, but will stimulate immunity. These types of vaccine are not stable in solution so the isolates are freeze-dried to a "cake" in a vaccine bottle. To use a MLV, a sterile liquid is added to the cake to make a vaccine solution ready for injection. MLV's are very unstable and have a short efficacy life. Once activated, MLV's should be used within 1 to 2 hours and kept cool at temperatures between 35-45 ° F. To accomplish this while vaccinating animals, livestock producers must keep vaccine in a cooler next to the chute and use the vaccine almost immediately.

Storing animal health products at temperatures below 35 ° F is damaging to killed vaccine products. Refrigerators that get too cold and freeze vaccine are the worst because frozen killed vaccines may have

deadly consequences due to the release of bound toxins from the adjuvant. Cattle producers should always take precautions to avoid freezing vaccines and also monitor their expiration dates.

For MLV's, temperatures below 35 ° F or above 45° F do not necessarily destroy the active ingredient. In the "cake", or dried state, these vaccines are remarkably stable. However, repeated cycles above or below the recommended holding temperatures will inactivate MLV's. High ambient temperatures, above 75 ° F, will reduce the efficacy of MLV's, even in the dried state. After MLV's have been activated, variations in temperature are extremely destructive to their efficacy.

Researchers recommend that refrigerator temperatures be carefully monitored through the use of minimum/maximum thermometers. The referenced University studies demonstrated that the age, type and location of the refrigerator had a substantial impact on how efficiently the refrigerator operates. For example, a fridge kept in a non-insulated metal building, in a drafty barn, or on the front porch may be adversely impacted by extremes in high and low ambient temperatures. Monitoring refrigerator temperature on a weekly or even daily basis will help users know if the refrigerator is functioning properly.

Additional mistakes identified in the studies included negligence in following label instructions, the use of the same vaccine gun for different vaccines, improper injection sites, failure to remove air from syringes prior to injecting vaccines, repeated use of needles, and the use of expired vaccines.

Fortunately, the authors of the studies report significant improvement in our protocols from earlier years, but we still have the need to get better.

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