

HEALTH & HUSBANDRY

Time to wean: vaccination strategies

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Fall is a busy time of year for most operations, with weaning calves often occurring during a busy fall

harvest, when there's less time to spend monitoring the herd or treating sick animals. Calves, however, are experiencing a change in location, nutrition and social structure, as well as potentially an increase in disease challenges.

Prevention is one of the best ways to limit the effects of disease in your herd. Ideal strategies combine minimization of disease exposure with building protective immunity. Vaccinations are a great tool to help build immunity.

Creating the ideal immunization program for your herd is the result of selecting the correct vaccines, administering them at the right time, and appropriately handling and administering these products.

Selecting the correct vaccines

The postweaned calf is susceptible to several diseases.

Bovine respiratory disease (BRD), or pneumonia, is a disease of primary concern. Pneumonia in cattle is a syndrome with contributions by several viral and bacterial components combined with risk factors such as stress, transportation and nutritional changes.

While pneumonia is a major issue, it is not the only disease cattle face after weaning. The disease challenges vary by geographic region and management scheme. Therefore, no single vaccination plan will fit all operations. Work with your local animal health provider to determine the best vaccines for your operation.

Timing of vaccination

Vaccines build immunity, but increasing the animal's ability to respond to disease takes time. The immune system has several responses to vaccination. While nonspecific immunity can form relatively rapidly, generating a long-term, sustained immune response may take days to weeks depending on the pathogen and type of

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product. Many products also require a booster (or revaccination) to stimulate long-lasting immunity.

Vaccinations are most effective when administered in advance of the potential disease challenge with time to stimulate an adequate, protective immune response. The best timing of vaccination on your operation is dependent on when the calves might face a disease challenge. Read the product label and visit with your veterinarian to determine the timing of vaccinations and the need for boosters on your operation.

Vaccine handling and administration

The act of giving a vaccine to a calf is only valuable if the calf mounts a strong immune response, and the level of immunity generated can be dependent on how the product

is handled and administered. Each product approved for use in cattle has a label with specific directions on product handling and administration, which should be followed to promote the best response. A few areas to focus on:

Vaccine storage: Vaccines have specific storage requirements, often based on temperature and access to sunlight. These products are susceptible to damage with extreme heat or freezing and are often stored in a refrigerated environment away from sunlight. It is important — for both long-term storage and while processing cattle — that the vaccines don't get too warm or sit in direct sunlight for very long prior to administration.

Vaccine use: Vaccinations are often packaged in vials with multiple doses. Use a new, clean needle when drawing vaccine from the multidose

Continued on page 48



vial to avoid potential contamination of the remaining vaccine in the container. Do not mix different products in the same syringe, as this can inactivate both vaccines.

Modified-live virus (MLV) vaccines often come with dry and liquid portions that need to be mixed prior to administration. After mixing, this MLV vaccine has a very limited shelf life and should be used within 60-90 minutes.

Vaccination equipment: The syringes and needles used for each product should be clean and ready for use prior to vaccination. Maintenance should be performed on automatic syringes to prevent leakage or contamination prior to vaccination.

Select the correct needle size for the animal and the site of administration to ensure proper product placement. Change needles frequently — certainly if the needle becomes contaminated with extraneous material, the needle becomes burred or dull, or prior to

drawing vaccines from a multidose container.

Some operations may want to change needles on each animal to prevent the transfer of blood-borne diseases. Consult your veterinarian if this applies to your herd.

Be aware of any specific equipment requirements associated with vaccinations that could limit functionality. For example, MLV vaccines contain virus that will stimulate the immune system in the calf when administered and the virus reproduces. Applying a disinfectant to the syringe or needle can kill the vaccine virus, which limits vaccine efficacy and the ability to stimulate the immune system.

Administration: Vaccines are labeled for administration in a specific manner [intramuscular (IM), subcutaneous (sub-Q), intranasal]. The product should be given in the correct location to promote efficacy in a site on the animal approved by Beef Quality Assurance (BQA) guidelines.

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If given the option of tissue location, choosing the sub-Q route (just under the skin) is preferred to IM. Placement of the vaccine in the animal should be done in a location to minimize potential effects on the carcass. Approved BQA locations are in front of the shoulder.

For people and cattle, facilities need to be designed to safely allow access to the neck injection site area.

Selection of the appropriate needle size influences the ability to properly administer the vaccination. Needle size varies by route of administration, animal size and location of the injection.

More details on selection of appropriate vaccine handling and administration can be found through the BQA program (www.bqa.org).

Conclusions

Vaccinations are a valuable tool to build immunity to protect calves from disease challenges postweaning. Work with your veterinarian to determine the optimum vaccines and administration plan for your herd. Follow label directions related to administration. Work to be sure that the cattle are vaccinated in a manner to promote optimum immunity. |

Editor's note: "Health & Husbandry" is a regular *Angus Beef Bulletin* column devoted to the care and well-being of the herd. Author Brad White is on faculty at Kansas State University College of Veterinary Medicine and serves as director of the Beef Cattle Institute. Tune in to the weekly BCI *Cattle Chat* podcast available at KSUBCI.org.