K-STATE Research and Extension | Wildcat District

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For more information, contact: Wendie Powell
Livestock Production Agent, Wildcat Extension District
wendiepowell@ksu.edu, (620) 378-2167
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Chute-side cost savings

A strong vaccination program has a sizable impact on a herd, both in dollars spent and on the herd's health. We expect vaccines to protect animals from harmful health problems caused by infectious diseases. Vaccines continue to be one of the most cost-effective herd health tools available to producers. Given the importance of vaccines in an animal health program, proper handling is vital to ensure the product remains effective. Improper handling can render the product useless.

It's important to buy vaccines from a reputable business. A good distributor will maintain a temperature log for their cooler to confirm vaccines are handled properly prior to selling. When buying vaccines locally, ask about storage conditions and use a cooler with ice packs to transport the vaccine home. Shipped purchases should be sent overnight. Upon arrival, check the temperature of the shipping cooler. If the temperature is above 45°F, contact the distributor to arrange replacement of the vaccine.

Vaccines should be stored at temperatures between 35 and 45°F and protected from ultraviolet light. Although killed vaccine products are considered more stable than modified live products, both are susceptible to degradation if exposed to temperatures outside this range. Freezing is most detrimental to killed vaccine products; it will change the structure of the adjuvant, which is the part of the vaccine that presents the antigen to the immune system. Additionally, freezing may release toxins that are normally bound by the adjuvant. Although killed vaccines are fairly tolerant of warmer temperatures, exposure to temperatures above 45°F for more than 1 hour is not recommended. Modified live vaccines are fragile after they have been mixed; they should be kept between 35-45°F and used within two hours. Vaccines that have undergone temperature cycles above or below the recommended storage temperature will have reduced efficacy and may be completely worthless due to deactivation.

Another important factor to consider is the vaccine's expiration date. Vaccines are approved by the USDA to meet an efficacy standard. Over time, the efficacy of a vaccine will decline. The vaccine manufacturer has determined the timeline from the date of production to critical loss of efficacy to establish the expiration date. To reduce the risk of a vaccine becoming outdated, buy only enough vaccine to meet immediate needs.

The final hurdle to keeping a vaccine viable is encountered during its use. The size of an operation will determine how long a vaccine is exposed to environmental conditions. Good planning will ensure the vaccine retains its efficacy and results in immunized livestock. Vaccines should be transported to a working facility in a pre-cooled, rigid-sided cooler. It will take about an hour for a large cooler at room temperature to cool down to 35-45°F. Additionally, a smaller pre-cooled personal cooler should be available to store vaccines during use. Repeatedly opening the large storage cooler can cause temperature fluctuation, which may damage any unused vaccine. If needed, the temperature in a cooler can be adjusted using hot packs to maintain the storage temperature between 35 and 45°F.

When livestock are ready, mix the required amount of vaccine for about an hour; this will depend on the activities being performed. Castrating and dehorning calves takes longer than giving pre-breeding vaccines to cows. Once mixed, a modified live virus (MLV) vaccine will remain viable for 2 hours if properly stored (kept cool and out of direct sunlight). Reducing the time frame to one hour of work ensures the vaccine remains effective, especially if there are any unexpected delays. During use, the open bottle of vaccine should be kept on ice in the small cooler. Additionally, syringes should be stored in a cool, dark place between uses. Lying a syringe on a table or tailgate will warm the vaccine, and UV light can damage it. Coolers with openings or slots to protect vaccine syringes can be purchased or made.

When filling a syringe, always use a clean needle to go into a bottle. Bacteria and debris on the surface of a used needle will be deposited into the bottle, contaminating it and the vaccine. It is important to sanitize syringes following use. Syringes used for the administration of killed vaccines can be cleaned with soap, disinfectant, and hot water, ensuring all residue is rinsed away. Soaps and disinfectants can kill or deactivate the MLV and should be avoided. Instead, syringes used to administer MLV should be cleaned and sanitized using hot or boiling water.

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