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Improving Vaccine Utilization On The Ranch/Farm

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Improving vaccine utilization on the ranch or farm begins with a better understanding of common terms used in discussing products or methods used to enhance the animal's ability to prevent or control disease. The following terms and definitions are presented for that reason.

Antigen - any substance capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, i.e., with specific antibody or specifically sensitized T lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria, viruses and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the antigenic determinant combines with an antibody or a specific receptor on a lymphocyte.

Antibody - an immunoglobulin molecule that reacts with a specific antigen that induced its synthesis and with similar molecules; classified according to mode of action as agglutinin, bacteriolysin, hemolysin, opsonin or precipitin. Antibodies are synthesized by B lymphocytes that have been activated by the binding of an antigen to a cell surface receptor.

Vaccine - a suspension of attenuated or killed microorganisms (viruses, bacteria, or rickettsiae), administered for prevention, amelioration, or treatment of infectious diseases.

Biological - a medicinal preparation made from living organisms and their products, including serums, vaccines, etc.

Bacterin - a vaccine made from killed bacteria.

Toxoid - a toxin treated by heat or chemical agents to destroy its deleterious properties without destroying its ability to stimulate antibody production.

Antitoxin - antibody produced in response to a toxin of bacterial origin (usually an exotoxin) which neutralizes the effects of the toxin.

Attenuated - thinned or weakened by the alteration of virulence of a pathogenic microorganism by passage through another host species decreasing the virulence of the organism for the native host.

MLV - modified live virus - a descriptive term used with viral vaccines indicating attenuation.

Subunit - a type of vaccine in which the more specific protein(s) have been identified from the pathogenic organism to develop the vaccine. The capability reduces the amount of unnecessary foreign protein used in a vaccine.

Reconstitute - adding a fluid medium to a dehydrated or lyophilized product.

Interferon - class of small, soluble proteins produced and released by cells invaded by viruses, which induce in noninfected cells the formation of an antiviral protein that inhibits viral multiplication.

Recrudescence - recurrence of clinical signs after temporary abatement.

Effective utilization of any vaccine or product to enhance immunity can be influenced by the following. The list is by no means complete and likely will change in the future as newer products are developed. Documentation (written record) of the items listed may be additionally useful should one attempt to describe "vaccine failure".

1. **Observe any and all product withdrawal statements as listed on the label for quality assurance purposes.** This is particularly important as one plans any procedural processing on food animals. For example, if one is pregnancy checking in the fall, one should not administer vaccines that have a listed withdrawal period before slaughter to open females if those females are to be shipped immediately (less than the recommended withdrawal period) following processing.
2. Store the product in accordance with label directions. Pay particular attention to the temperature requirement as suggested on the label. This includes chute-side use as well.
3. Inject all products subcutaneously if the label provides for that route of administration. This should be done using the "tenting technique" in the neck region if possible.
4. Avoid using 7-way clostridial vaccines if possible. Using the 4-way and 3-way (overeating) vaccines separately is preferred to reduce the marked increase in tissue reactions currently observed with 7-way clostridial vaccines.
5. Avoid using antibiotics for 48-72 hours preceding and after the administration of Brucella Strain 19 vaccine. Antibiotics used in this time period will lessen the effectiveness of the product and the animals so treated are technically not Official Calfhood Vaccines (OCV). Remember that humans can be infected with the vaccine if inadvertently injected. All product, containers, syringes and needles

should be kept separate and disposed of properly.

6. Do not mix vaccines that do not have label approval to do so.
7. If multiple vaccines are to be given, it is recommended to administer these in separate sites on the body. Consider **both** sides of the animal when thinking of the neck, shoulder, elbow, flank and hip regions.
8. Once a product is reconstituted, use the product entirely. Check the label for storage and length of use following reconstitution. Remember to maintain temperature storage requirements while using the product.
9. It is advisable to have written records of the product used, date, description and identification number of the animals administered, serial number, and expiration date of all products used. This can be useful not only for describing potential disease outbreaks, but for potential marketing purposes such as "organic beef".
10. Do not use products beyond the expiration date listed on the label.

Please remember that vaccines assist in controlling or preventing disease. They are not 100%. Using vaccines is only one method to assist in the management of disease.