

# CATTLE VACCINATION DECISION GUIDE

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A successful herd health program includes, but is not limited to, proper herd immunization (vaccination) to prevent and/or control a variety of infectious diseases. However, selecting the proper vaccines for your herd can be a challenging task because of the multiple vaccines that are available. Therefore, consider the following things when developing a vaccination program for your herd:

- Determine the goals of your vaccination program (e.g., what diseases do you want to prevent and/or control, and in what type/age of animal?). Different herds will have different goals and, therefore, different vaccination protocols.
- Discuss these goals with your herd health veterinarian and/or UT Extension agent.
- Understand a vaccine's expected level of protection.
- Understand a vaccine's duration of immunity.
- Never underestimate the importance of low-stress cattle management and nutrition with respect to an animal's ability to properly respond to a vaccination.

The following information describes the key factors in determining what vaccines are most appropriate for a particular operation. Please use this information as a general guideline in developing an effective vaccination program.

Vaccines are categorized as killed vaccines (KV), toxoids, modified live vaccines (MLV) or chemically altered vaccines. Each category has advantages and disadvantages.

## Killed Vaccines (KV) and Toxoids

### Advantages:

- Available for many diseases
- No risk of the vaccine organism spreading among animals
- Minimal risk of causing abortion
- No on-farm mixing required

### Disadvantages:

- More likely to cause allergic reactions and post-vaccination lumps
- Two initial doses required
- Slower onset of immunity
- Immunity is usually not as strong or long-lasting when compared to MLV products.
- Usually more expensive than MLV products

## Modified Live Vaccines (MLV)

### Advantages:

- One initial dose may be sufficient, but boosters are sometimes required.
- Stimulate more rapid, stronger and longer-lasting immunity than KV products
- Less likely to cause allergic reactions and post-vaccination lumps
- Usually less expensive than KV products

### Disadvantages:

- They risk causing abortion or transient infertility; therefore, they should be administered six to eight weeks before the breeding season.
- Must be mixed on-farm and used within about 30 minutes to one hour

## Chemically Altered Vaccines

### Advantages:

- Share many of the advantages of MLV products
- Safety is similar to KV products
- Minimal risk of causing abortion

### Disadvantages:

- Two initial doses required
- Slower onset of immunity than MLV products
- Immunity is usually not as strong or long-lasting when compared to MLV products.
- Usually more expensive than MLV products
- Must be mixed on-farm and used within about 30 minutes

Vaccines are available for many diseases. However, not all diseases are a routine threat to many beef herds, and some vaccines are not sufficiently effective to justify their use. Therefore, every cattle operation will have unique vaccination requirements based on individual herd goals. The following guidelines for vaccinating cattle may not be applicable in all situations. The best use of these guidelines is as a starting point to develop an effective vaccination protocol with your herd health veterinarian and/or UT Extension agent. Your veterinarian may recommend a killed vaccine in a closed herd, whereas it may be recommended to use a modified live vaccine in a herd where new additions arrive on a regular basis. When appropriate, ensure products are safe for pregnant animals and for calves nursing pregnant cows. Properly store and administer vaccines according to label directions, adhere to designated meat withdrawal times, and follow all other Beef Quality Assurance (BQA) guidelines. Pay close attention to lot and serial numbers and expiration dates.

### Nursing calves:

- Seven-way clostridial (blackleg)
- IBR/BVD/PI3/BRSV
- IBR = infectious bovine rhinotracheitis
- BVD = bovine viral diarrhea
- PI3 = parainfluenza3
- BRSV = bovine respiratory syncytial virus
- Calfhood vaccination for brucellosis if recommended by herd veterinarian
- Consider a leptospirosis five-way vaccine for future replacement heifers and bulls.

### Preconditioned feeder calves and stocker calves:

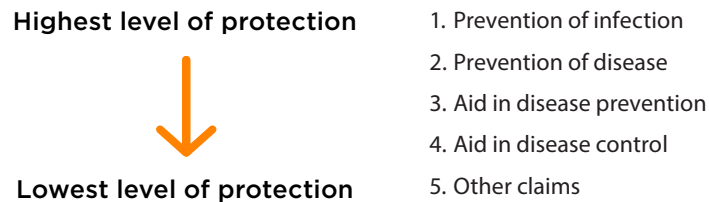
- IBR/BVD/PI3/BRSV
- Seven-way clostridial (blackleg)
- Mannheimia haemolytica
- Pasteurella multocida

Breeding animals: (Replacement heifers, cows and bulls should be vaccinated six to eight weeks before the breeding season so immunity is high during the breeding season.)

- IBR/BVD/PI3/BRSV
- Leptospirosis five-way
- Vibriosis (Campylobacter fetus)
- Trichomoniasis (Trichomonas foetus)

## Understanding Protection Claims on Vaccine Labels

The Center for Veterinary Biologics (CVB), which is part of the Animal and Plant Health Inspection Service (APHIS) of the USDA, is the agency that grants the appropriate protection claims for vaccines based on a thorough analysis of supporting efficacy and safety data. Protection claims are available on all vaccine labels or product inserts. Understanding label claims is one way to evaluate the expected efficacy of a vaccine but remember that these claims apply only when products are administered according to label directions. The USDA can grant one of five levels of protection statements:



What do these label claims mean?

1. **Prevention of infection** – The vaccine prevents all colonization or replication of the challenge organism. A label statement that reads “for the prevention of infection with [specific microorganism]” may be used. This claim is rarely granted.
2. **Prevention of disease** – The vaccine is highly effective in preventing clinical disease. A label statement that reads “for the prevention of disease due to [specific microorganism]” may be used.
3. **Aid in disease prevention** – The vaccine aids in preventing disease by a clinically significant amount. A label statement that reads “as an aid in the prevention of disease due to [specific microorganism]” may be used.
4. **Aid in disease control** – The vaccine aids in the reduction of disease severity, duration or onset. A label statement that reads “as an aid in the control of disease due to [specific microorganism]” or a similar one stating the product’s particular action may be used.
5. **Other claims** – Products with beneficial effects other than direct disease control, such as the control of infectiousness through the reduction of pathogen shedding, may make such claims if the size of the effect is clinically significant and well-supported by appropriate data.

Selection of the vaccine that applies to your operation can be challenging, so work with your veterinarian and/or UT Extension agent to determine a vaccine protocol that fits the needs and goals of your farm. If you have any questions, please feel free to contact me at lstrick5@utk.edu or at 865-974-3538.

## Resources

USDA, APHIS, Veterinary Services Memorandum No. 800.202, June 14, 2002.



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