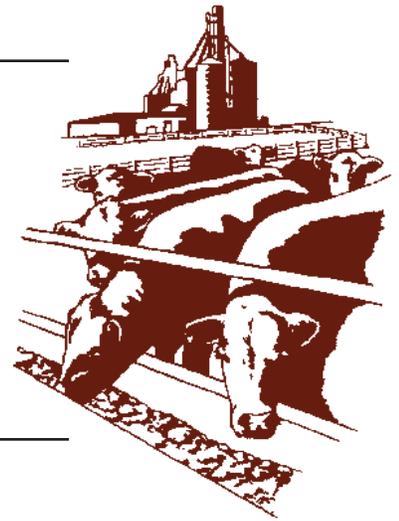


# Beef Cattle Handbook



BCH-3015

Product of Extension Beef Cattle Resource Committee  
Adapted from the Cattle Producer's Library

## Cattle Vaccines and Their Use

Dr. Stuart D. Lincoln, Veterinary Science Department,  
Caine Veterinary Teaching and Research Center, Caldwell, Idaho

What vaccinations should cattle have at various times of the year? This is difficult to answer because management practices, disease prevalence, and nutritional levels vary from region to region or even from ranch to ranch in the same area. Recommendations in this fact sheet are meant to serve as guidelines. You should consult your veterinarian and Cooperative Extension agent to tailor a program to your operation.

Commonly used vaccines and injections are listed here. Sometimes you may need to use all of them. At other times you may need very few. The vaccines and injections are listed starting at calving time and continuing through fall.

A word of caution—at the very best, vaccines and injections are an aid. Good sanitation, management, and nutritional practices are necessary for you to achieve the best results. Read and follow the directions on the product used. Consult your local veterinarian.

### Types of Vaccines

There are two general categories of vaccines—live products and killed products. Modified live IBR, BVD, PI3 and Bangs are examples of live products. These are quite sensitive to light, disinfectants, and heat, so do not use chemical disinfectants in syringes or needles. Boil them. Do not reconstitute these vaccines more than 1 hour before use. Protect them from sunlight. Keep them cool.

Killed vaccine examples are blackleg, malignant edema, redwater, enterotoxemia, black disease, and leptospirosis. These are less sensitive, and you can use chemical disinfectants in your needles and syringes. The vaccines should be kept cool, however, and should be

protected from sunlight.

Vaccines give longer immunity than serums or antitoxins but usually do not protect until about 2 weeks after administration. Live vaccines sometimes give better and longer-lasting immunity than killed products. Serums or antitoxins protect for only about 2 weeks, but do protect as soon as administered.

When using modified-live IBR and BVD vaccines, give them separately (2 weeks apart) to prevent calves from getting sick from the vaccine. (ML-BVD vaccine may be an extra hazard in previously BVD-exposed herds.)

Killed vaccines give different lengths of immunity. Some, such as redwater, need to be repeated each 6 months or more often in severely infected areas. Others need to be repeated each year. Follow the directions and consult your veterinarian on the length of immunity.

No vaccine is 100 percent effective. Effectiveness depends on such things as age of the animal, passive immunity the animal possesses when vaccinated, the stress on the animal, diseases, and other factors we don't understand. Vaccines against some diseases are more effective than others.

When you work out your program, remember to keep records. If you depend on memory, you will make too many mistakes. Good records are well worth the time and expense.

### Recommended Practices for a Vaccination Program in the Cow-Calf Herd

Designing a vaccination program from the multitude of immunization products currently on the market can frustrate anyone who wants to obtain maximum protection

at a reasonable cost. The following is a vaccination guideline that will fit most cow-calf operations. Much of this information comes from a management guideline put out as a joint effort between the National Cattlemen's Association (NCA) and the American Association of Bovine Practitioners (AABP), and is modified to meet the needs for a commercial cow-calf operation. Keep in mind that the following are general guidelines. Specific recommendations, particularly those in the optional category, should be made by your veterinarian because some products that may be needed in your herd are not listed (i.e., Redwater vaccine).

It is important to remember that for most diseases the relationship between the infectious agent and the host is sufficiently complicated that vaccination cannot be expected to provide complete protection. The vaccine can increase the animals' resistance to disease, but that resistance to disease can be overwhelmed if good management practices are not followed.

### Weaning Time

If initial and booster shots had been administered as outlined in Programs "A" and "B," no additional immunizations are needed at this time. If the first vaccination series as listed in Program "A" was given but not followed by Program "B" (3 to 4 weeks before weaning), give boosters as listed in Program "B" at weaning time. If calves have not been vaccinated at all before weaning, Program "C" is offered. It must be emphasized that Program "C" is not always an adequate substitute for Programs "A" and "B." A degree of risk is possible when calves receive various vaccinations for the first time at weaning, or worse, after weaning.

### Cow Herd, Replacement Heifers and Bulls

Vaccination and adequate handling of calves are part of, but not a substitute for, a total herd health-management program. An adequate breeding herd vaccination program must be implemented if maximum benefits are expected from vaccinating and/or preconditioning calves. The following recommendations are intended to ensure immunization of the breeding herd against diseases of recognized significance.

### CALVES

#### Program "A"

##### Calf Age

Young calves  
1 to 3 months old

##### Strongly recommended

IBR/PI3: Killed vaccine intramuscularly or intranasal modified live vaccine in herds that do not use this in the cows routinely.

Clostridial diseases:  
Use at least a "4 to 7-way" bacterin.

##### Optional

Leptospirosis

Pasteurella

Hemophilus

- A. Replacement heifers and bulls (generally 10 to 15 months of age). The immunizations outlined below should be boosted annually, no later than 30 days before breeding.
  - 1. Replacement cattle with unknown history status - heifers not pregnant.
    - a. First working
      - 1. Immunization
        - (a) IBR/PI3/ BVD
        - (b) Vibriosis
        - (c) Leptospirosis
        - (d) Clostridial diseases
      - b. Second working (14 to 30 days later)
        - 1. Immunization
          - (a) Leptospirosis booster
          - (b) Vibriosis booster if a second shot is required by some manufacturers
          - (c) Clostridial booster
        - 2. Other treatments
          - (a) Treat for external parasites, depending upon grub development and season
    - 2. Replacement cattle sufficiently immunized by calthood and weaning programs. This is recommended as optimum management, starting after calves are weaned and assuming they have had at least the minimal recommendations suggested for calves.
      - a. Booster vaccinations
        - (1) IBR
        - (2) BVD
        - (3) Leptospirosis
        - (4) Vibriosis
        - (5) Clostridial
      - b. Other treatments
        - (1) Internal and external parasites
  - B. Mature cows and bulls. These immunizations should be boosted annually, either at time of pregnancy examination, or no later than 30 days before rebreeding, or upon advice of your veterinarian, assuming immunizations as calves and/or replacements have been done.
    - 1. Booster vaccinations
      - (a) IBR

---

**Program “B”****Calf age**

Older calves

**Strongly recommended**

IBR/PI3: Booster the vaccination given at 1 to 3 months of age (may use killed vaccine, intranasal vaccine, or live intramuscular vaccine). Do not use modified live vaccine on calves nursing pregnant cows.

Clostridial diseases: A booster is recommended at this time

Brucellosis: Only heifers (consult with your veterinarian).

BVD: Do not give modified live vaccine to stressed or very young calves. Not always recommended in conjunction with live IBR/PI3 vaccine. The killed vaccine is okay at any age of stage of pregnancy in the mother cow but requires a booster.

**Optional**

Leptospirosis

Vibriosis: For heifers and bull calves kept for breeding.

Pasteurella and Hemophilus somnus: Booster shots if given earlier (1 to 3 months old). If given now for the first time, booster is needed 3 to 4 weeks later.

Bovine Respiratory Syncytial Virus (BRSV)

---

**Program “C”****Calf age**

Weaning time

**Strongly recommended**

IBR/PI3: Give intranasal, modified live, or killed vaccine (in muscle).

Clostridial diseases: A “4 to 7-way” bacterin is recommended.

14 to 21 days after weaning

IBR/PI3: If killed vaccine was given at weaning, a second shot of killed vaccine is needed now.

BVD vaccine

Clostridial diseases: A booster is needed now.

Brucellosis: Only heifers (consult with your veterinarian).

**Optional**

Pasteurella and Hemophilus somnus: Give first shot.

BRSV

Leptospirosis bacterin

Vibriosis: For replacements.

Pasteurella and Hemophilus somnus: Give booster.

- (b) BVD
  - (c) Leptospirosis
  - (d) Vibriosis
  - (e) Clostridial
2. Other treatments
- (a) Internal and external parasites
- C. SPECIAL NOTICE: Brucellosis status
- Vaccinate all eligible heifers for Brucellosis.  
Purchase only vaccinated heifers. Consult your veterinarian on specific regulations.

Adapted from CATTLE PRODUCER'S LIBRARY CL605

Authors:  
Dr. Stuart D. Lincoln, Veterinary Science Department,  
Caine Veterinary Teaching and Research Center, Caldwell, Idaho

This publication was prepared in cooperation with the Extension Beef Cattle Resource Committee and its member states and produced in an electronic format by the University of Wisconsin-Extension, Cooperative Extension. Issued in furtherance of Cooperative Extension work, ACTS of May 8 and June 30, 1914.

BCH-3015 Cattle Vaccines and Their Use