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Good Morning. It is August 21. This week's articles focus on preconditioning programs and testing your knowledge of Beef Quality Assurance. Have a great week!! John Paterson, Extension Beef Specialist

Preconditioning Programs: Vaccination, Nutrition, and Management

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Preconditioning, by definition, is a vaccination, nutrition, and management program designed to prepare young cattle to withstand the stress associated with weaning and shipment to a backgrounding yard or feedlot. It is unfortunate that preconditioning is a term that has been loosely applied in the beef industry.

The lack of standardization has led to confusion, and in some cases abuses, by owners, buyers, and veterinarians. Part of the problem lies in a lack of communication between the buyer and seller. For any pre-conditioning program to be effective, the seller must communicate to the buyer what program was followed.

The objective of a preconditioning program is to prepare the calf for entry into a backgrounding yard or feedlot. This is accomplished by exposing the calf to the stresses of weaning, vaccination, and other common processing procedures (castration, dehorning, treatment with systemic parasiticides, and implanting) well in advance of its entry into the backgrounding yard or the feedlot. Preconditioning vaccinations, nutrition, and parasite control are three areas which can help prevent or reduce problems with morbidity and mortality in the backgrounding yard or feedlot.

Vaccinations alone do not constitute a preconditioning program. A beef cattle producer should develop a preconditioning program which encompasses vaccination, nutrition, weaning, and other management items which are essential for the success of any preconditioning program. This publication will offer suggestions and guidelines producers should follow for a successful preconditioning program.

Bovine Respiratory Disease

The main cause of illness in freshly weaned calves is the tremendous exposure to infectious agents and stress associated with weaning, commingling, and transportation. When compared to other ages and classes of cattle, newly weaned beef calves and stocker calves have the highest levels of morbidity (sickness) and mortality (death). Bovine respiratory disease (BRD) accounts for a significant portion of cattle/calf losses in the beef industry. In one study, over 30% of these death losses were attributable to BRD. Although mortality (death) is often the most visible problem, morbidity (sickness) accounts for most production losses. Estimates of the cost of clinical diseases for backgrounded or feedlot cattle are quite variable, but one occurrence of respiratory disease in a feedlot animal costs almost \$90 per head.

Strategies to Keep Calves Healthy

There are three strategies designed to prevent disease from entering or occurring in a backgrounding yard or feedlot:

- Prevent or limit the introduction of infected cattle. Buy calves from verified sources with a proven record of healthy animals.
- Minimize exposure to infectious disease. Maintain records of order buyers and transportation companies that promptly fill and ship orders. Require trucks to be cleaned and disinfected. Keep facilities clean and free of contamination from manure, rodents and other disease vectors.
- Raise overall level of the animal's resistance to infectious disease. Develop sound vaccination programs at the farm or ranch of origin. Reduce environmental stress by providing proper shelter and ensuring that pens and lots are free of mud. Use balanced starter rations which ensure good feed intake and minimize stress during initial handling and processing procedures.

Bacterial and Viral Agents Which Cause Bovine Respiratory Disease

The agents responsible for producing respiratory disease in beef cattle are both viral and bacterial. Viruses rely on the animal's own cells to produce more virus whereas bacteria have all the cellular functions necessary to reproduce without the aid of an animal's cell. Antibiotics can be used for fighting bacterial infections but are ineffective at fighting viral infections. The viral and bacterial agents most commonly associated with BRD are shown in the chart below.

Viral Agents	Bacterial Agents
Infectious bovine rhinotracheitis (IBR)	Pasteurella hemolytica
Bovine viral diarrhea (BVD)	Pasteurella multocida
Bovine respiratory syncytial virus (BRSV)	Hemophilus somnus
Bovine parainfluenza 3 virus (PI ₃)	Mycoplasmaspp
Bovine adenovirus	Chlamydiaspp
Bovine rhinovirus	
Bovine reovirus	
Bovine enterovirus	
Bovine coronavirus	

Of all the viral agents, IBR, BVD, BRSV, and PI₃ are the only viruses which cause acute respiratory disease by themselves. All the other viruses require significant interaction with other pathogens. Of the bacterial pathogens, neither Mycoplasmaspp. nor Chlamydiaspp. are considered primary pathogens in weaned or yearling cattle.

A pathogen causes disease. Rarely is only one pathogen responsible for BRD. Two or more pathogens work in concert with each other to bring about morbidity and mortality. Respiratory viruses compromise the animal's respiratory defense mechanisms to allow bacterial pathogens access to the lower respiratory tract. This is what causes the pneumonia commonly associated with BRD. **Next Week: What to Vaccinate For. If you can't wait, go to <http://www.4statebackgrounding.org/backgrounding/precon.html>**

What is your knowledge of Beef Quality Assurance?

With weaning and shipping just around the corner, take the following exam to test your knowledge of Beef Quality Assurance. To find the answers go to: <http://www.mtbqa.org/>

Beef Certification Exam

1. Government beef inspectors check beef for:

- wholesomeness.
- contaminants.
- proper labeling.
- all of the above.

2. Feeding mammalian protein to cattle

- a. is highly recommended because of the excellent feed:gain ratio.
- b. is an inadequate source of nutrition.
- c. makes the feed unpalatable.
- d. is banned to protect against BSE (bovine spongiform encephalopathy).

3. Injections should be given in the neck

- a. to avoid costly injection site lesions in the rear leg, rump, and loin.
- b. because the vaccine is more effectively delivered throughout the body.
- c. because this is the least painful injection site.
- d. all of the above.

4. If giving an injection of 27 cc

- a. give 5 injections of 5 cc, and one of 2cc.
- b. give 3 injections of 9 cc each.
- c. give it all at once.
- d. give one 15 cc injection and one 12 cc injection.

5. Livestock biosecurity

- a. is a threat posed by terrorists to the livestock industry.
- b. requires that you live in an enclosed, controlled environment.
- c. focuses on disease control and commonsense animal health in your herd.
- d. is a government organization involved in controlling threatening diseases.

6. By using a vaccination program

- a. it takes 10-14 days for the cow's body to respond and protect against disease
- b. you improve the animal's resistance to disease.
- c. you put an "insurance policy" on the productivity of the herd.
- d. all of the above.

7. Quality, when talking about beef, DOES NOT pertain to

- a. an optional grading technique.
- b. consistently satisfying customer expectations for eating and preparation characteristics.
- c. the ratio of lean to fat within a beef carcass.
- d. beef that is safe, wholesome, and correctly labeled and packaged.

8. Yield grades estimate the amount of boneless, closely trimmed retail cuts from the high value parts of the carcass the round, loin, rib, and chuck.

- a. True
- b. False

9. Overly fat cattle

- a. are desirable because they bring in more money.
- b. have higher yield grades because of the greater mass of the carcass.
- c. have high fat thickness and low marbling, resulting in more Yield Grade 4 & 5 carcasses.
- d. are associated with dark cutters.

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