



Healthy Cows Have Healthy Calves

A good disease management program will help ensure your cattle stay healthy and perform to their potential.

by *Stephanie Veldman*

Reproductive diseases are estimated to cost producers \$13-\$15 per cow per year, according to a 2002 study evaluating the economic effect of bovine viral diarrhoea (BVD) in beef herds.¹ The good news is that protecting herds through good biosecurity practices and vaccination programs will help limit those economic losses.

Viral and bacterial diseases affecting reproduction include BVD, infectious bovine rhinotracheitis (IBR), *Leptospira hardjo-bovis* (lepto) and *Campylobacter fetus* (vibrio). Protecting the cow from these diseases prior to breeding and through the entire gestation period translates to reducing exposure for the calf — before and after birth — by lowering incidence in the herd, protecting the calf in utero and enhancing the calf's own immunity through colostrum antibodies. Ultimately, you will produce a healthier calf.

Reproductive performance has remained at unacceptably low levels in the United States during the past several decades. In fact, the average percent weaned calf crop based on cows exposed is in the low 80th percentile. But, progress can be made in improving reproduction.²

"That calf needs to be born in a healthy herd to a healthy cow, managed in a healthy, biosecure environment," says Dee Griffin, beef production veterinarian, Great Plains Research Veterinary Education Center, Clay Center, Neb. "Every time we poke that calf with some sort of insult — whether it is physical, mental, environmental, nutritional — whatever it is, we take away from the potential that animal has in its genetic makeup to perform.

"In our industry, we sell performance. Therefore, we are robbing ourselves of the potential full economic value of that calf," Griffin stresses.

Disease control starts before conception using a plan that was written for your operation by you and your veterinarian.

The most important area producers need to look at improving is the concept of biosecurity and biocontainment at the farm or ranch level. Dale Grotelueschen, veterinarian with Pfizer Animal Health, highlights the three fundamentals involved with these concepts:

- ▶ eliminate disease agents;

- ▶ increase immunity of the animal/herd; and
- ▶ prevent transmission due to animal contact.

Defining biosecurity and biocontainment

According to Grotelueschen, complete herd health programs should include management strategies to reduce risk of exposing your herd to disease, as well as attention to immunity against those more common diseases endemic to your operation.

"The terms biosecurity and biocontainment are frequently associated with the control of foreign animal disease (FAD), but they are very applicable to disease conditions we deal with frequently in our beef operations," Grotelueschen says. Biosecurity involves preventing introduction of disease into the cow-calf operation; while biocontainment is controlling a disease agent already present in the operation.

Good biosecurity programs include plans for new herd introductions that include quarantine or separation from resident animals for a period of time, tests for BVD persistent infection (PI) status, and other diseases of importance to the operation, while making sure those animals are also properly vaccinated to protect their health status.

A specific example of biocontainment would be identifying an animal persistently infected with BVD virus, Grotelueschen says. "PI animals shed a lot of the virus, and their elimination from the herd reduces or eliminates the remaining animals' exposure to the BVD virus."

"Many infectious agents are already present in herds, meaning exposure is likely to occur on some level," Grotelueschen says. "There are management practices, including good vaccination programs that can be implemented that influence levels of exposure, which can be very helpful in controlling disease."

Angus producer Bill Rishel says the goal on his operation is prevention — not treatment — of disease. The North Platte, Neb., producer, who calves 300 cows per year, says he works to prevent introduction of new diseases and to build immunity to those that might exist by incorporating a good vaccination and herd health program.

"We use a complete vaccination program," Rishel says. "We vaccinate with a seven-way clostridial, including blackleg, using One Shot Ultra® 7; and all the viral diseases — including BVD, IBR, BRSV (bovine respiratory syncytial virus) and parainfluenza-3 (PI₃) with Resvac® 4/Somubac®. The diseases we vaccinate for are preventable if we use the right management practices."

Eliminate disease agents

Eliminating common disease agents like BVD from the herd is becoming more of a reality, as producers realize the economic effect the disease has on their herds and move to eradicate it.

A 2001 study screened 128 beef herds for BVD PI animals.³ Researchers found that the herds with at least one PI-positive calf had 5% lower pregnancy rates than herds that were PI-negative. Economic effects of those reduced pregnancy rates averaged \$11-\$19 per cow per year.

In addition, studies conducted at West Texas A&M in 2002 discovered an additional 10% of the calf crop could be lost due to the introduction of PI animals into susceptible herds, with a 0.5% reduction in weaning weights.⁴

“The economic effects of reduced pregnancy rates, increased preweaning mortality and decreased weaning weights is costing an estimated \$15-\$25 per cow per year in herds with PI calves present,” Grotelueschen says.

“Elimination of disease agents, such as BVD, is becoming more practical as better understanding is gained about some diseases and as tools, such as diagnostic tests, are developed,” Grotelueschen says.

In-herd immunity important

A good firewall for prevention of disease is in-herd immunity. Diseases like IBR, vibriosis and leptospirosis cause abortions, stillbirths and possible infertility in the infected cow. BVD also causes calves to be born undersized and weak, and works to suppress the immune response, inviting other infectious diseases. Protecting the fetus to prevent abortion and deformities is the key to delivery of a live calf and improving overall production of the herd.

“Vaccination is used most commonly to increase immunity in individual animals as well as populations of animals,” Grotelueschen says. “It’s an extremely effective disease-prevention practice, but it is not foolproof.”

For example, Grotelueschen says the primary role for the BVD vaccine is to prevent the birth of PI BVD calves. But, PI BVD calves can be born to vaccinated cattle if they are infected at about 1½ to 4 months of gestation — the critical exposure period for BVD. It is important to read the label to ensure the vaccine protects the fetus throughout the entire gestation period.

“The issue of fetal protection is extremely important,” Griffin says. “Not all modified-live virus (MLV) vaccines will provide fetal protection. If it doesn’t have a fetal protection claim on the label, it may not get the job done.”

Currently, Pfizer’s Bovi-Shield GOLD® FP®, according to the company, is the only MLV vaccine labeled to help deliver 365 days of fetal protection against both BVD types 1 and 2 PI infections as well as abortion caused by IBR.

It also is important that immunity within the herd be high enough to withstand exposure to disease, should it occur. The goal, Grotelueschen says, is to properly manage nutrition, limit stress and select/administer vaccines to shift that in-herd level of immunity to optimum levels such that exposure to disease pathogens doesn’t create a widespread outbreak and become detrimental to herd health.

“Our vaccination program and herd health program are all about vaccinating these cattle early in life and keeping immunity levels to certain diseases high in the herd,” Rishel adds.

Prevent transmission

Rishel says that his relationship with several area feedyards has made him aware of how important it is for animals to be healthy and disease-free.

“I’ve become aware of problems calves can have when they are nonvaccinated, stressed and commingled,” Rishel says. “Many feedyard calves come out of environments where they might not have received a good vaccination program, and sometimes these cattle break in the feedlots. When this happens, there are substantial costs — both in loss of livestock and in treatments.”

“If your calves are on a vaccination program that uses a good modified-live viral vaccine, you’ll eliminate most problems occurring with BVD,” Rishel adds.

To ensure his cattle remain healthy, Rishel also conducts an annual test of his entire herd for BVD, bovine leukosis virus (BLV) and Johne’s disease. He began testing four years ago due to concern for BVD.

He sells the animals as tested for those diseases, adding that his biggest concern was selling a bull that was possibly PI-positive. While the service package they provide to customers includes genetics, it also includes ensuring those bulls aren’t carriers of BVD, Rishel says.

Testing new herd additions is important, because animal-to-animal contact is the fastest way to spread disease through a herd. Griffin warns that replacement animals coming into the herd also need careful attention to make sure they are disease-free and protected before being introduced. Replacement animals that haven’t been properly quarantined, tested for disease and vaccinated are the most likely disease carriers.

“If you are going to bring animals in, you need to first make sure your animals are protected using an effective vaccine that is

labeled to help prevent IBR abortion and BVD PIs,” Griffin says. “I’d like to have all replacement animals be properly vaccinated for all the diseases that are highly contagious, such as viral diseases, and any disease that might cause cattle to die, such as clostridial diseases.”

Rishel adds that another defense against introducing disease to your herd is to use virgin bulls. “Bulls that have already been exposed at some other point in their life can be carriers of reproductive diseases and create great losses in a cow-calf program,” he says. “We sell virgin bulls that have never been exposed to cows. They haven’t been leased out to run on another producer’s cows. I think that is another important part of disease control and management.”

Careful planning always should precede new-herd introductions. Your entire herd should be vaccinated, with time for the immune system to develop immunity before commingling new animals.

Grotelueschen says that following a few simple rules will help decrease the health risk when introducing new cattle:

- ▶ Quarantine new arrivals for at least three weeks.
- ▶ Ensure no new introductions are made during calving season.
- ▶ Follow a veterinarian-recommended vaccine program for both newly-arrived cattle and your existing herd.
- ▶ Test new arrivals for BVD (including offspring of pregnant animals) and other diseases recommended by your veterinarian.

“I wouldn’t dream of bringing in a breeding animal that didn’t test negative for the BVD virus,” Griffin says. “It seems silly to bring in an animal with a highly contagious disease and expose your animals to it. Even if your cows have been vaccinated, there is still a chance they could be exposed to BVD and their calves born PI.”

He adds, “Don’t bring disease on your farm. That’s Biosecurity 101. If you don’t have it, don’t go get it.” **AJ**

Footnotes

¹Larson, R.L., et al. *Economic evaluation of beef cow herd screening for cattle persistently infected with bovine viral diarrhea virus*. The Bovine Practitioner, 36(2):106-112, 2002.

²Short, S.D. *Characteristics and Production Costs of U.S. Cow-Calf Operations*. USDA, Statistical Bulletin #974-3, November 2001.

³Wittum, et al. *Persistent bovine viral diarrhea virus infection in U.S. beef herds*, Preventive Veterinary Medicine, 49:83-94, 2001.

⁴McGrann, J.M., Kasari, T., et al. *Economics of preventative health procedures in beef herds with considerations for BVD infection*. Pfizer Animal Health Bovine Veterinary Symposium, Scottsdale, AZ, March 1-3, 2002.

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