

Vaccination Program

Producers may benefit from individually designed vaccination protocols.

Story by
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Plenty of producers know someone like him. He considers himself a veteran of the cow business and claims to have seen just about everything. A prolific source of unsolicited advice on management of land and livestock, he scoffs at the neighbors who routinely run their cattle through a chute for vaccinations against disease.

"Look at my herd. I've never had any disease problems, and I've never done anything more than vaccinate calves for blackleg," he brags. "Poking all that extra stuff into cattle is a waste of time and money."

Many producers also know someone whose luck finally ran out. It might have happened when a viral infection spread through his cow herd, causing abortions and weak calves. It probably cost him a lot of time and money.

According to veterinarian Mel Pence, producers should weigh the costs before adopting any management protocol. Pence, who practiced privately for 23 years before joining the University of Georgia (UG) staff, believes there are two reasons why producers adopt herd vaccination programs. Both represent the pursuit of an economic advantage.

"The first reason is to have some insurance against loss. A producer has to decide if they can afford a disease outbreak, or if they will vaccinate to reduce the risk," Pence offers. "Secondly, vaccination can be used as a marketing tool. Producers may be able to claim a premium for cattle they sell, or avoid a discount, because they followed certain vaccination protocols."

Texas hill-country veterinarian Laird Laurence agrees. Laurence practices in the Fredericksburg area, but also consults for animal health product companies, including Intervet and Bayer. Traveling from border to border and from New York to Hawaii, he has met with producers representing a wide variety of operations and environments. Their health program needs also vary.

"It's pretty hard to make blanket recommendations. Producers need to visit with their own veterinarians to develop a plan for herd immunization," Laurence states. He and Pence urge producers to ask their local practitioners about appropriate products and scheduling of vaccinations for various classes of



Picking potential replacement heifers before weaning can help a producer get an early start on immunization against reproductive diseases. IBR and BVD are viral diseases that can cause abortions and infertility, while vibrio and leptos are common bacterial infections that threaten reproductive performance. (PHOTOS BY CORINNE PATTERSON)

cattle. However, they advise producers to become familiar with the diseases that commonly challenge beef herds.

Consider vaccines

On many operations, calves will receive their first vaccinations at "branding time," or when they are 2-3 months old. According to Pence, vaccinating calves against clostridial diseases (seven-way blackleg) is almost always recommended. He also advises producers to consider a four-way viral vaccination against respiratory diseases, including infectious bovine rhinotracheitis (IBR), parainfluenza-3 virus (PI₃), bovine viral diarrhea (BVD) and bovine respiratory syncytial virus (BRSV).

"In our area, where 40-degree fluctuations in temperature are common, we fight a lot of pasteurilla infections. In areas where the daily temperature varies a lot, I'd vaccinate for pasteurilla, too," Laurence adds. "If working calves in the spring prior to going to summer pasture, pinkeye is another consideration. It works best to vaccinate before fly season, since flies irritate the animal's eyes and spread the infection. Vaccinate at least a month before pinkeye traditionally becomes a problem."

Veterinarians generally recommend administering

vaccinations two to four weeks prior to weaning. In most cases this will include use of a seven-way clostridial supplement with pasteurilla and a four-way viral combination.

"Preweaning can be a good time to deworm calves, too," Pence notes. "Parasite burdens can diminish an animal's immune response. If treated for parasites at the same time preweaning vaccinations are given, the calves will be clean (free of worms) when they are weaned and booster vaccinations are given. If the

calves have a heavy parasite load, it might be better to clean them up a month prior to giving preweaning shots."

Since calves are returned to their mothers after receiving preweaning vaccinations, the type of product used is important. Viral diseases, such as BVD, may cause abortion in pregnant females. Therefore, calves that received doses of modified-live virus (MLV) vaccine may actually shed the live virus, presenting a risk to the cow herd. According to Pence, the safest products to use preweaning are those containing a "killed" virus.

Vaccination timing

Timing of preweaning vaccinations is an important consideration. Maximum immune response to a viral vaccine requires two injections, administered two to four weeks apart. Pence urges producers to schedule preweaning vaccinations so that repeat injections can be delivered at weaning.

Generally, recommended vaccinations at weaning will include IBR, BVD, PI₃ and BRSV. Another shot of seven-way blackleg may not be necessary if calves were immunized as babies and at preweaning. If the second vaccination was given after calves had reached 6 months of age, additional vaccination against clostridial diseases may not be cost-effective.

Laurence recommends consultation with a veterinarian about the timing of immunization against pasteurilla. He prefers to avoid administering pasteurilla at



"No vaccination program will be very effective unless producers provide adequate nutrition, treatment to remove parasites and management to minimize stress," says veterinarian Mel Pence.

Basics

times when calves are under severe stress, such as weaning.

“The less stress, the better, when using pasteurella. I urge producers to include it in preweaning vaccinations, but not at weaning,” Laurence explains.

If calves did not receive any preweaning injections, Laurence’s basic weaning protocol calls for vaccination for clostridial infections and the aforementioned viral respiratory diseases. A product containing pasteurella is used two to four weeks later, when respiratory virus protection should be boosted.

Replacement heifers

Weaning time may be when replacement heifer candidates are selected. Picking potential keepers at preweaning might be better, in order to get an early start on immunization against reproductive diseases. IBR and BVD are viral diseases that can cause abortions and infertility, while campylobacteriosis (vibriosis) and leptospirosis (lepto) are common bacterial infections that threaten reproductive performance.

There are five strains of lepto. According to Pence, many experts believe that the “hardjo” strain of lepto is host-adapted. The organism may take up residence in the kidneys, where it is shielded from disease-fighting antibodies. When the host animal urinates, it sheds bacteria that may infect other animals.

“To reduce the number of carrier heifers,” Pence adds, “some veterinarians recommend vaccinating heifers early, probably preweaning, using a five-way lepto product.”

Most manufacturers offer combination products offering protection against five strains of lepto, plus vibriosis. Whether administered preweaning and again at weaning, or at weaning with a booster shot given two to four weeks later, veterinarians frequently recommend replacement heifers be vaccinated twice as calves. Lepto-vibrio vaccinations should also be given with prebreeding immunizations for IBR and BVD, given 30 to 60 days prior to the breeding season.

Many veterinarians and producers emphasize immunizing heifers against brucellosis (Bang’s disease). The threat posed by this reproductive disease varies by region, depending on the status of state-enforced control and eradication programs. In most cases, Pence says, vaccinating for brucellosis provides a marketing advantage for producers who merchandise breeding females across state lines.

Another sexually transmitted disease affecting reproductive performance, trichomoniasis (trich), is of consequence in some regions or areas. Producers should consult their local veterinarian for



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advice regarding the need for immunization.

Both Pence and Laurence recommend annual vaccination of the cow herd prior to the breeding season for IBR, BVD, vibriosis and lepto. Trich vaccines should be included in areas where it is a problem. To prevent bulls from becoming carriers of disease, both veterinarians recommend herd sires receive the same vaccinations that are given to cows.

“Some situations can call for more frequent vaccination [of the breeding herd] against lepto,” Laurence adds. “Climates that are wet and warm can pose an increased challenge of reinfection, so lepto injections should be repeated every six months.”

In herds experiencing calf scours attributed to rotavirus or coronavirus infections, *E. coli*, or clostridial enteritis, vaccination of pregnant cows may be recommended. The need for scours vaccination usually is specific to certain areas or to certain operations. When called for, initial immunization requires vaccination of cows at six weeks prior to calving, with a follow-up vaccination at two weeks prior to calving. Thereafter, a single booster shot is administered annually.

“When it comes to a complete herd health program, the authority for your area and your operation is your local veterinarian,” Pence stresses. “And no vaccination program will be very effective unless producers provide adequate nutrition, treatment to remove parasites and management to minimize stress.”

Unless it is part of a total management program, vaccination may not provide adequate disease protection. It might even be a waste of time and money.