

# Health First

## Pre-weaning strategies maximize calf health.

by **Heather Smith Thomas**

**P**reparing calves to successfully navigate the inherent stress associated with weaning revolves around managing key factors that impact calf health.

For instance, vaccinating calves at least 2 to 3 weeks prior to weaning gives calves time to build some immunity to the most common and devastating illnesses they might encounter. If calves are vaccinated at branding age, the vaccines they receive just ahead of weaning can act as a booster and provide maximum protection. But calves must be able to respond to the vaccines.

“If the animal is not set up right, (healthy, nutritionally, not stressed, etc.) it doesn’t matter what you vaccinate with; it won’t work as well,” says Chris Chase, DVM, South Dakota State University (SDSU) Department of Veterinary and Biomedical Sciences professor. The healthier and the stronger the immune system in that animal, the better the response. Producers must begin by making sure these animals are in the proper condition to respond.

Since stress suppresses the immune system, anything you do to minimize calf stress and help calves build immunity is helpful. This might include familiarizing calves with the conditions they’ll face at weaning. Putting cow-calf pairs in the weaning pen or pasture a few days ahead of time allows the calves to locate their water source and learn to eat out of bunks alongside their dams before weaning.

### **Nutrition is the foundation**

Balanced nutrition is essential for effective vaccine response, Chase says. Calves need energy to mount an immune response. Calves still on their mothers are usually receiving adequate energy by nursing. But if cattle have been raised in an area affected by drought, those calves might not respond as well to the vaccinations if they are not in good body condition or are losing weight.

“This can be an issue, especially with minerals and also with vitamins, if they’ve come off dry pastures,” Chase says.

Trace minerals and certain vitamins are crucial for the ruminant’s immune system, such as vitamin A. “We had some issues last year in young calves because cows didn’t have enough vitamin A. On a dry year, with less green grass, it often pays to use injectable vitamins. Vitamin A and vitamin D are essential for immune health and function,” Chase says.

Giving an injection of these vitamins ahead of vaccinating would be best if the calves are lacking the needed vitamins, but many producers don’t have the opportunity to handle the cattle that many times. This added handling also adds stress. If they’re needed, though, giving calves injectable vitamins at weaning is still better than not supplementing these essential nutrients.

An adequate mineral program can also help provide the minerals needed to bolster calves’ immune systems. “This is something you could talk about with your veterinarian. Trace minerals like copper, zinc and selenium are crucial for the immune system,” Chase says.



## Check the weather

Weather is another factor that can influence calves' immune response to pre-weaning vaccinations. Administering vaccinations on a hot day may reduce effectiveness of some vaccines, especially intranasal vaccines that can be sensitive to temperature, like the infectious bovine rhinotracheitis (IBR) vaccine.

"If you give those vaccines on a hot day, the IBR portion of the vaccine doesn't grow like it's supposed to in the nasal cavity," Chase explains. "The virus won't grow if the nasal cavity is above 98 degrees, but on a cool day the virus will grow just fine. When the ambient temperature and humidity are high, however, the nasal cavity will be hotter than usual. In this situation it would be better to use an injectable vaccine."

This is one reason Chase normally opts for injectable vaccines in calves 3 months of age or older, but the weather can impact more than just intranasal products. Proper vaccine administration and handling is paramount to the efficacy of the products, especially in warm weather.

"If temperatures are warm when we vaccinate, we must think about that," says, Warren Rusche, Ph.D., SDSU assistant professor and Extension specialist. "In hot weather, body temperature is warmer and there may be more stress; cattle might not respond to the vaccine as well. We know that how we handle vaccines is important in warm weather, in terms of storage, mixing time, etc., but there are also some things that affect how those vaccines perform within the animal."

Rusche points out effective vaccination affects the immunity of calves sold and retained, such as replacements. Consider your procedures and how to optimize effectiveness of what you are doing — how you handle and administer the products, what time of day you start processing when the weather is hot, etc.

## Professional protocol

Rusche works with many cow-calf producers through his Extension role, and he is often asked about the best pre-weaning vaccination protocol.

"I am not a veterinarian so I don't try to make recommendations regarding which vaccines should be used, or whether they should be killed

or modified-live. These questions should be answered by your own veterinarian and what the calf buyers want them to have. Most buyers would like to see a modified-live virus vaccine given at some point prior to the calf leaving the ranch. The buyer may expect certain protocols," Rusche says. He notes that pre-weaning vaccination for calves usually involves a viral and a clostridial product (blackleg, redwater, etc.) and sometimes a *Pasteurella* depending on local conditions and veterinarian advice.

From Chase's perspective as a veterinary professor, pre-weaning vaccines usually consist of a 4-way viral and Mannheimia, plus the clostridial vaccines, but he cautions producers about stacking too many gram-negative vaccinations.

"Be aware that giving too many gram-negatives at once can cause endotoxin stacking, which results in more vaccine reactions in the calves and a poorer vaccine response from gram-negatives. For example, giving a Mannheimia and Histophilus vaccine at the same time could cause problems unless they are a combination product that is licensed to be given as a multi-antigen vaccine. If you are giving two different vaccines at the same time, you don't know what their interaction might be," Chase says.

Both Chase and Rusche encourage producers to consult their veterinarian when constructing a pre-weaning vaccination protocol to choose the products that will be the most effective with the least chance of harmful side effects.

In addition to consulting their veterinarian when designing the pre-weaning vaccination protocol, Rusche notes producers should ensure their vaccination programs meet any demands of potential buyers or value-added programs. The health of any calves marketed from a program will affect the buyer's bottom line down the road (see Premium for Prioritizing Health).

"All those little things make a difference; sometimes it's easy to forget because we haven't given vaccinations for several months. It may pay to use a checklist or to know whether you gave a *Pasteurella* vaccine the same time you gave modified-live vaccine," Rusche says. **BA**

**Editor's note:** Heather Smith Thomas and her husband, Lynn, have ranched near Salmon, Idaho, for more than four decades. She also writes cattle articles that appear in numerous U.S. and Canadian cattle publications, including *Baldy Advantage*. She is the author of numerous books, including "The Cattle Health Handbook."

## Premium for Prioritizing Health

Buyers and feedlot operators tend to pay a premium for calves from operations with a history of good health and solid pre-weaning protocols. If buyers have a wreck with a set of calves, or even a few that don't perform well, they may be reluctant to purchase from that producer again. It pays to make sure every calf has a clean bill of health.

Idaho rancher Bruce McConnell opts to leave any calf that was treated — whether for scours or pneumonia — off the truck and at home to market another way. When sending calves through a University of Idaho feedlot program he learned any calves doctored at home didn't perform as well and sometimes had repeated illness.

"This is where preventing sickness — vaccinating the cow herd, vaccinating calves properly, giving boosters, etc. — is worth more than having to treat the calves. We had an instance a few years ago with a calf I doctored twice for pneumonia — at 1 month of age and again at about 3 months of age. He didn't get sick again, but he was poor-doing and got cut from the bunch when we shipped our calves that fall. We kept him with the yearlings, but he never did well. We butchered him as a 2-year-old and discovered a big abscess on one leg and ended up throwing that hindquarter away. If a calf gets sick and we doctor him at home, it's better to not take a chance on it going to a feedlot," McConnell says. "Even with something that seems minor, some of those calves never bounce back completely."

If there was lung damage from pneumonia, for instance, scarring may diminish lung capacity, and that calf may crash later when he outgrows his air supply. Some of these calves do poorly or end up dying just about the time they are ready to be harvested. **BA**