Prep Calves to Respond

A calf must be able to respond to vaccination in order to experience good immunity.

Story by
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A preventative herd health program, including proper and timely vaccination, is a beef operation's best insurance policy against production losses and disease. But producers still need to do their part to make sure this insurance policy can work to the best of its ability.

"You have to look at vaccines as only part of your health program because an animal can't really respond to the vaccines if they don't have their immune system functioning to respond," explains Charlie Stoltenow, North Dakota State University Extension veterinarian. Thus, vaccination isn't always the same as immunization.

There are a number of reasons why vaccinations may not result in immunity. According to Stoltenow, these include exposure to high levels of disease-causing pathogens, animal or herd stress, age, nutrition, vaccinating against the wrong pathogen, poor-quality vaccine, and poor vaccine handling and administration.

Nutrition and stress can be large contenders for reduced immunity, especially in weaned calves. This veterinarian points out that one has to consider the animals' plane of nutrition, including mineral background, their preconditioning status, and how they were handled. Were they weaned and backgrounded on the ranch; or taken off mama, transported, run through a sale barn and unloaded at a feedlot?

"You can't just look at vaccines," Stoltenow stresses. "You have to look at the whole picture, and vaccines are only a small part of that."

He adds, "We're finding minerals more and more important in reproductive efficiency and immune response — so you can't skimp on those. You need to have calves on a good plane of nutrition."

Furthermore, Carl Dahlen, North Dakota State University Extension beef specialist, points out that a lot of immunity development is related to stress.

"If you have a high-stress situation, you don't have proper immune response," he explains. "And it all involves animal handling."

Stressors such as novelty (something new or unusual such as weaning, livestock trailers, etc.), shrink, inclement weather and lack of rest cause the release of hormones that hinder an animal's immune response. One important hormone is cortisol, which actually turns down the immune system.

Dahlen says that low-stress handling — knowing how to work cattle and carrying it out in a calm, collected

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manner — is extremely important in vaccination protocol for the efficacy of the vaccine and the operator's health and safety.

Principles of good animal husbandry — including clean water, good feed, a comfortable resting place and time to rest — are important for calves. It particularly helps those calves under stress to help clear excessive stress-related hormones from the bloodstream.

"It all makes the immune system work better and vaccines to respond," Stoltenow relays. He comments that immune status might be partially genetic, and says he believes it's important for producers to select offspring out of animals that have proven they can survive and flourish in the respective management system.

"The concept is you have to set them up for success," he says. "Raising cattle is a science, but it is also an art. Those people who can see those things that aren't readily apparent to others, that's what sets them apart. It's a combination of detail after detail that all fits together."

He adds, "The devil's in the details, but that's where the profits are, too."

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Vaccine Tips

For proper vaccine handling and administration, North Dakota State University Extension beef cattle educators Charlie Stoltenow and Carl Dahlen give these tips:

- When you buy vaccine, be sure it is current. Turn the box over and review the expiration date.
- Don't over-purchase vaccine. It can't be reused.
- Handle vaccine appropriately. If using modified-live virus (MLV) vaccines, keep them cool. When you reuse syringes, be careful how they're rinsed. Residue from soaps and disinfectants can kill vaccines. Rinse the inside components of multiple-dose syringes, including tubes and connectors, with distilled or deionized water that is near boiling point. Or consider using disposable syringes to ensure equipment is clean and vaccine alive.
- Be sure to change needles often, as they will dull with use and can then introduce more bacteria. The needle should slide right through the animal's hide.
- Store and refrigerate vaccines properly. Research shows that the freeze-thaw cycle in some refrigerators is tremendously variable. Vaccine is an investment in your herd's health, so store accordingly in an appropriate age and model refrigerator that varies little in temperature setting.
- When vaccinating, be mindful of child safety and development.

On a related vaccine note, Stoltenow says he's often asked at what age children should be allowed to vaccinate cattle. This question often comes up because, in his area, a lot of people use families to help with brandings.

"I am a big proponent that these are family events," he notes. "I don't have an age, but the parents do need to understand the maturity level of the child and what they can handle and do. Also realize what they're using — you're giving them a sharp instrument and what's in that syringe."

Do not let children handle pharmaceuticals such as high-powered antimicrobials and prostaglandins.