



PHOTO BY CALEB MEHLHOFF FROM THE 2015 NJAA/ANGUS JOURNAL PHOTO CONTEST

# Managing High-risk Calves

*The industry can take steps to improve welfare of cattle mismanaged prior to arrival at the feedlot.*

by **SHELBY METTLEN**,  
former assistant editor

Very young calves can, in fact, be effectively vaccinated against bovine respiratory disease (BRD), says Amelia Woolums, professor of pathobiology and population medicine at Mississippi State University.

The results have been seen in both dairy calves and preweaning beef calves, she says. “If you inject something into them, they can mount an immune response to it as early as the first day of life.”

Here’s the catch: If calves have high concentrations of maternal antibodies from colostrum, that high concentration of antibodies on the first day of life can block the vaccination.

Of course, maternal antibodies are vital to a calf’s first few hours of life, “so if we’re trying to vaccinate very early in life, it can be difficult,” Woolums explains. “While we know that we can sometimes induce appropriate responses with vaccination early in life, it isn’t as reliable as when we vaccinate them later in life.”

Research conducted by Woolums

and her colleagues suggests evidence that vaccinating calves in the 60- to 90-day age range can induce a beneficial immune response. The practice seems particularly beneficial on ranches where summer pneumonia or preweaning pneumonia is a problem, about a month before signs of the disease would be expected.

“So, that may need to be a little bit earlier for some ranches,” she adds. The practice seems to be associated with declining prevalence of summer pneumonia, she says, but more research is needed to confirm the link.

## Vaccinating at feedlot

High-risk stocker cattle are often vaccinated on arrival at the feedyard, Woolums points out. “There’s some new information out from different sources suggesting that they may not necessarily need that vaccination at arrival, or there may not be a big difference between vaccination at arrival and vaccination later on,” she says.

There’s also evidence suggesting vaccination on arrival can impose a negative response.

“Right now there’s ongoing research

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to try to determine how best to use vaccines in high-risk stocker cattle and how to keep them healthy,” she says.

Woolums encourages producers and feedlot managers dealing with both situations to consult their veterinarians to implement an animal-health protocol that best suits their operations.

## BRD’s big concern

*Mannheimia haemolytica* is the principal bacterium isolated from the BRD virus in feedlot cattle and a major component of pneumonia in calves. Woolums suggests there is evidence that vaccines can help prevent disease due to the bacteria.

The problem, she explains, is the cost. Producers need to consult with their veterinarians to determine whether or not vaccinating for

*M. haemolytica* is cost-effective in their herds.

Woolums points out that there appears to be an increasing prevalence of shedding of the bacterium in high-risk stocker cattle that are resistant to many different antibiotics.

“We don’t know yet if that is an important factor in terms of health in stocker cattle, but we are seeing increasing rates of antimicrobial resistance in *Mannheimia haemolytica*, so we will be continuing to work on the question of whether or not that affects cattle negatively and how we can try to prevent it,” she says.

## Welfare is a priority

Managing and alleviating stress to mismanaged calves when they arrive in the feedyard is important, explains Dan



Thomson, Jones professor of production medicine and epidemiology at Kansas State University. That includes cattle that have been abruptly weaned, have not been vaccinated, don't know what a feedbunk or water tank is, have been commingled at an auction market, and then hauled.

"Some of the things we focus on are cattle comfort, nutrition and preventative medicine," Thomson says.

The first thing cattle want to do after a long haul is rest, he says. Calves should be provided with a dry, shaded pen upon arrival.

"For every hour they've been on the truck, we let them rest," he continues. "If they've been on a truck for 24 hours, we let them rest for a day."

Thomson adds that the other part of cattle comfort is human/animal interaction and making sure to use low-stress handling to acclimate cattle on arrival.

Nutrition is important to managing calves upon arrival at the feedlot.

"The first few days we want to make sure we have ample amounts of long-stem hay, so those calves have something they're comfortable with and they recognize," he says. It might be top-dressed with a receiving ration to get fermentation started, and ample water should be provided.

Thomson advocates for low-stress cattle handling, good facilities and working with a veterinarian to develop a high-risk-calf processing protocol.

### Group effort

Industry-wide, Thomson says as much as 25%-30% of cattle arriving at the feedlot were mismanaged — not backgrounded or preconditioned — prior to arrival. He suggests developing a feeder-calf report that reports the number of high-risk calves so the industry can show consistent improvement and create positive change.

"We, as an industry, have to understand that the sustainability of our industry means all of us working together," Thomson says. "The cow-calf segment can't be separated from the feedlot segment or the packer segment or the retailer or even the consumer. What we have to understand is for sustainability for all segments, we're all going to have to work together to make improvements in welfare [and] cattle health."

Steps can be taken to improve measuring animal welfare in the feedyard, he says. The industry has been successful at establishing input standards, but could improve outcome assessment.

"I think so many times we look at cattle welfare as just being, 'Did we use a hot shot or not?' — just cattle handling — and that is very important to cattle health and well-being," he says, "but understanding that every day we're measuring animal welfare through morbidity rates, mortality rates, and how many cattle are castrated or dehorned on arrival, all these different things can be constant measures to help us determine whether or not what we're doing management-wise are the right things."

If the industry doesn't assess measurable outcomes, it can't keep track of year-to-year variation and improvements, he says. "We don't know if the management changes we make are lasting or even temporary."

### Educate everyone

Thomson suggests developing stewardship platforms for welfare.

"Someone within your cattle-feeding facility should have the responsibility of animal welfare," he says. "I think the other thing is we need to figure out what we're going to do to measure animal welfare. Once we figure out who's responsible for it and how we're going to measure it, we then can

develop the index or a report that serves constant feedback."

Thomson says it should serve as a "dashboard" for feedlot managers, consumers or packers to see the industry making constant improvement in animal welfare.

"We have to develop the educational platforms for producers, for employees, so that when we find something that we want to implement that shows a positive outcome

change, we can provide the education and make sure we get it out through extension agents, through publications, and make sure it's reported and used by others."



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