Antimicrobial Stewardship for Cow-Calf Producers

by Myriah D. Johnson, Ph.D., economics program leader and agricultural economics consultant | mdjohnson@noble.org

What is antimicrobial stewardship? Is it different from antibiotic stewardship, or judicious use of antibiotics? All of these words seem to be popping up frequently in the media, but what do they actually mean to us as cow-calf producers?

ABOUT ANTIMICROBIALS
An antimicrobial is something that destroys or inhibits the growth of microorganisms but causes little or no damage to the host. The term “antimicrobial” is broad and encompasses microbes such as bacteria, parasites, viruses and fungi.

A major concern is that most microorganisms have the ability to adapt, making the antimicrobial designed to kill them ineffective. Once these infectious organisms become resistant to treatments, they can cause many issues, including increased length or severity of sickness and potentially death.

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ANTIMICROBIAL STEWARDSHIP

Being good stewards of, or judiciously using, antimicrobials is one way to ensure the drugs currently being used remain effective.

More broadly, the most define antimicrobial stewardship with elements including:

- Appropriate use.
- Improving patient outcomes.
- Reducing or slowing the spread of antimicrobial-resistant organisms (because some level of resistance will occur).
- Decreasing environmental contamination and exposure to antimicrobial waste in the environment.

Decreasing environmental contamination and exposure is important because resistance genes can pass from one infectious organism to another. For instance, a resistant respiratory organism can potentially contribute to resistant salmonella or E. coli, which has a much greater threat to human health.

LOOKING FOR SCIENCE-BASED SOLUTIONS

In June 2018, I was fortunate to attend a meeting at Hy-Plains Feedyard in Montezuma, Kansas, on science-based solutions to reduce antibiotic resistance in food animal production.

Dawn Sievert, Ph.D., with the Centers for Disease Control and Prevention, shared that in the U.S., 2 million people get infected with antibiotic-resistant bacteria each year and 23,000 die.

—Dawn Sievert, Ph.D., with the Centers for Disease Control and Prevention

USE ALL TOOLS AVAILABLE TO PREVENT SICKNESS

We learned from Mike Apley, D.V.M., Ph.D., Kansas State University production medicine professor, that any new antibiotic is probably a remix of an old antibiotic. The last new group was added in 1978, and it is unlikely that any new group of antibiotic (if approved) would become available for food animals. To me, this says we have to be good stewards of what we have, and we need to use all the tools possible in preventing sickness in our animals.

MANAGEMENT PRACTICES MATTER

Randall Spare, D.V.M., noted that only 1.5 percent of antibiotic use in beef production is in the cow-calf sector. Based on that, it’s easy to shrug off antimicrobial resistance and say, “We’re not the issue.” But we learned from these specialists that animal waste is an issue, even from healthy animals. So, if 60 percent of organisms are zoonotic and antibiotic resistance is expected to grow and eclipse cancer as a cause of death. It was also noted that human and companion animal misuse is part of the problem, and they are working on that as well.

Ingrid Trevino-Garrison, D.V.M., state public health veterinarian for the Kansas Department of Health and Environment, related that 60 percent of the roughly 1,400 species of organisms are zoonotic, or are able to spread between animals and humans. So, what we do as cattle producers impacts not only our animals but our fellow human beings.

APPLY WASTE TO THE SOIL

Tim LaPara, Ph.D., University of Minnesota BioTechnology Institute associate professor, shared that shared that fecal material is often rich with antibiotic-resistant organisms and even fecal matter from healthy humans and animals is a concern. LaPara said we need to hunt and kill the places where antibiotic resistance exists, and an easy target is animal waste and municipal wastewater. As producers, one of the best things we can do is apply animal waste to the soil rather than let it accumulate or run off. Resistance declines over time when the waste is applied to soil. So, consider cleaning your weaning lots and rotating pastures.

COLLABORATION NEEDED TO UNDERSTAND ISSUES

As cattle producers, everything we do is influential in the life of each of our animals. That’s why it is critical to have a management plan in place and to follow best management practices. It’s our responsibility to do all we can to reduce our animals’ need for antibiotics on our ranches and beyond. However, even when best management practices are applied, animals still get sick, begging the question, “Why?” As producers we need to understand what we can tweak and how we can continue to improve our management.

Addressing this issue will require collaboration among cow-calf producers, stocker producers, feedlots and the rest of the beef cattle industry. We will have to follow animals through the entirety of their lives in a commercial setting to begin to understand these issues better. Here at Noble, we are keen on being involved in these conversations and hope you are too.

Yes, there are things that other sectors can do better, and they are working on it — but we must do our part, too. So, the next time you use an antibiotic, think about if it is the proper dose, the best antibiotic to use, or if it’s just what you have on hand. Antimicrobial stewardship matters to us all, and it’s our responsibility to tackle it. 

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