



CHANGE IS COMING

Even though no conclusive evidence shows that the judicious use of antibiotics in beef cattle production causes antimicrobial resistance, challenges abound.

By Sharla Ishmael

While cattlemen have taken great care to set up and follow judicious protocols for the use of antimicrobial products (a category that includes antibiotics) through Beef Quality Assurance programs, there remains a serious threat to the continuing availability of these medicines.

That threat, according to Dr. Elizabeth Parker, NCBA chief veterinarian, stems from misunderstanding and misinformation—misunderstanding by many consumers and decision makers because the issue is complex; and misinformation supplied by groups with anti-beef agendas, as well as more mainstream groups that don't take the time to understand the issue's many complexities.

These two issues have put the animal agriculture industry on the defensive, even though strict adherence to product usage guidelines have led to an almost

zero level of residues in feedyard cattle. And in spite of the science, it seems cattlemen will have to continue playing defense in their efforts to maintain their ability to use antibiotics.

Legislation is pending in some states and potentially (again) on the federal level that would ban the use of antimicrobials in food animals to varying degrees. On the regulatory front, the outlook is similar. For the most part, public health advocates are calling for a ban on non-therapeutic use of antimicrobials, and more veterinary oversight for all antibiotic use, including therapeutic uses. There are also efforts underway to ban all over-the-counter (OTC) antibiotics, making them only available by veterinarian prescription.

Unfortunately, the battle for the hearts and minds of consumers when it comes to these types of issues is an uphill one for agriculture. Too much emotion, added to too little



understanding of a very complex scientific issue, results in knee-jerk reactions that could have devastating consequences for cattle feeders, not to mention the cattle they care for in the first place.

Complex Issue

Dr. Virginia Fajt, clinical assistant professor in the veterinary physiology and pharmacology department at Texas A&M University, put it this way, “It’s complicated. People want it to be black and white, but it’s complicated from a regulatory standpoint; it’s complicated from a pharmacological standpoint; it’s complicated from a microbiology standpoint.

“Deciding whether something is resistant or not is not simple,” she adds. “Every organism, bacteria and drug—and every combination of those things—is different. Every bug acts differently when it sees a drug. People aren’t necessarily willing to have the long conversations that it requires to understand.”

Even among the veterinary community, there is great debate over the resistance issue and what should be done. For example, a task force created by the American Veterinary Medical Association (AVMA) to address veterinarians’ roles in all uses of antimicrobials described members’ differing perspectives in an executive summary:

“The Task Force agrees that the use of antimicrobials can select for altered populations of bacteria and that resistant bacteria can be transmitted from animals to humans in several ways (including via food). Although the use of antimicrobials in humans is the major driver of human antimicrobial resistance, whether or not illness in humans due to resistant bacteria can also be linked to growth promotion or feed efficiency use of antimicrobials in food animals continues to be debated.”

Furthermore, “The members agreed that there is a significant lack of data and a lack of understanding among the veterinary profession as well as the public and other stakeholders regarding the use of antimicrobials in food animal production. These gaps, coupled with inconsistent information from varying sources, clouds the decision-making process.

However, there is a bigger issue that can get lost in the debate. “The single biggest issue is continuing availability,” Fajt points out. “The public has this misperception that we feed antibiotics all the time because these animals are always sick and that we should stop doing that. Perception is reality.”

That perception, of course, is wrong. “It’s important for consumers to know that, by law, no meat sold in the United States is allowed to contain antibiotic residues that violate FDA standards,” Parker says. “And antibiotics for beef cattle must go through a rigorous scientific testing process that must pass both

animal and human health benchmarks before being approved by FDA. This process assures animals remain healthy and the food supply remains safe.”

What’s more, she says, “While FDA conducts a risk-benefit assessment of human antibiotics in which it weighs benefits against risks, there is no consideration of the benefits in the review of antibiotics used in food animals.” This means any animal or human health risks for products under review must be extremely low, since FDA does not consider any benefits to offset the risks.

Beyond that, resistance to all antibiotics used in animal agriculture is monitored through a USDA and FDA program called the National Antimicrobial Resistance Monitoring System. “To date,” Parker says, “there is no conclusive scientific evidence indicating that the judicious use of antibiotics in cattle contributes to antimicrobial resistance in humans.”

And NCBA and TCFA intend to keep it that way. Through NCBA’s Beef Quality Assurance and TCFA’s Beef Safety Quality Assurance Programs, NCBA and TCFA have been training beef producers about the safe and appropriate use of antibiotics for more than two decades.

Beef producers are expected to follow the *Producer Guidelines for Judicious Use of Antimicrobials* (found at www.beefusa.org/udocs/ncba-bqa-judicioususeguidelines-final.pdf), which have been in place since 1987.

Highlights of NCBA’s guidelines include:

- Prevent problems by emphasizing appropriate husbandry and hygiene, routine health examinations and vaccinations.
- Select and use antibiotics carefully. Therapeutic alternatives should be considered prior to using antimicrobial therapy.
- Avoid using as the first antibiotic those medications that are important to treating strategic human or animal infections.
- Treat the fewest number of animals possible and limit antibiotic use to sick or at-risk animals.
- To minimize the potential for bacteria to become resistant to antimicrobials, treat for the recommended time period.
- Subtherapeutic antibiotic use is discouraged.

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Beyond that, NCBA is addressing the issue on other fronts. Domestically, as part of the association’s ongoing efforts to educate Congress and the new Administration about beef production,

NCBA hosted a series of “Beef 101” briefings on Capitol Hill on beef safety and cattle health, including the safe and judicious use of antibiotics. NCBA also coordinated a livestock industry Hill briefing and participates in joint educational efforts by several livestock and animal health company coalitions.

In November 2010, NCBA brought cow-calf and feedyard producers and veterinarians to Washington for a FDA College, where it educated agency officials on the many real-world issues confronting beef production, including antibiotic use.

NCBA also continues to regularly bring producers and experts to Washington to testify at hearings, participate in briefings and have one-on-one meetings with Congress and their staff.

Educational efforts are also directed toward producers and the public. In March 2010, a four-part series focusing on antibiotics aired on *Cattlemen to Cattlemen*, NCBA's television show.

Internationally, NCBA is actively involved as part of the U.S. delegation to multiple committees of the Codex Alimentarius, a United Nations and WTO-recognized international food safety and trade standard setting body.

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NCBA also actively seeks out information from experts around the world to further U.S. beef producers' knowledge and participates in livestock antibiotic/antimicrobial resistance discussions at the international level. NCBA and TCFA support ongoing research efforts into this complex topic. “We need more research and a comprehensive, nonpolitical evaluation of all the peer-reviewed science related to all animal use, human use and industrial use to effectively understand the issue and find solutions,” Parker says.

Challenges Abound

Nonetheless, legislative and regulatory challenges continue. One is PAMTA, an acronym for HR 1549—Preservation of Antibiotics for Medical Treatment Act of 2009—introduced by Rep. Louise Slaughter (D-NY). Slaughter intensified efforts to pass this bill in the last session of Congress by holding a hearing through her role as chairman of the House Rules Committee as well as hosting multiple “briefing” events. PAMPTA was reintroduced in March 2011 as HR 965.

In short, PAMTA seeks to withdraw FDA approval for seven entire classes of antibiotics for so-called non-therapeutic use in food animals or any other drug that FDA wants. Rep. Slaughter, who graduated with a degree in microbiology in the 1950s, claims this legislation would decrease perceived overuse

of antibiotics in farm animals and, presumably, antibiotic resistance issues in human drugs.

Last time around, Slaughter's bill was reportedly endorsed by 350 consumer/public health advocate groups, including the American Medical Association.

In February 2010, NCBA and Dr. Mike Apley, professor of production medicine/clinical pharmacology at the College of Veterinary Medicine at Kansas State University, met with Slaughter and Rep. Leonard Boswell (D-Iowa) to share their concerns with HR 1549. This was NCBA's first opportunity to visit in person with the Congresswoman, along with two representatives of the Pew Charitable Trust, who attended at her request.

Regulatory Efforts

In addition to PAMTA, cattlemen should be aware of pending rulemaking and draft guidance documents from FDA's Center for Veterinary Medicine (CVM). Last June, the CVM released Draft Guidance #209—The Judicious Use of Medically Important Antimicrobial Drugs in Food-Producing Animals.

In it, FDA lays out its current thinking on the topic, which “should be viewed as recommendations.” Anyone who doubts that there is a threat to the availability of some commonly used antimicrobials should read these selected highlights from the report:

- “This framework includes the principles of phasing in such measures as 1) limiting medically important antimicrobial drugs to uses in food-producing animals that are considered necessary for assuring animal health; and 2) limiting such drugs to uses in food-producing animals that included veterinary oversight or consultation.”
- “FDA has reviewed the recommendations provided by the various published reports and, based on this review, believes the overall weight of evidence available to date supports the conclusion that using medically important antimicrobial drugs for production purposes is not in the interest of protecting and promoting public health.”
- “Furthermore, FDA intends to consult with the USDA on such implementation strategies, including the development of a framework for veterinary oversight and consultation requirements.”

In a 2010 response to the FDA, then NCBA President Steve Foglesong reminded the agency of the many efforts that cattlemen have undertaken in the past two decades to use antibiotics appropriately and judiciously and expressed concern that the agency didn't follow its own scientific protocols in developing the draft guidance document.

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“Preventive medicine is the cornerstone of maintaining a healthy U.S. cattle herd,” he wrote. “Preventive medicine has long been a proven and valued part of both human and animal medicine.”

Foglesong encouraged FDA to employ the rigorous scientific analysis and due diligence that taxpayers expect from government agencies. “Peer-reviewed current research should be fully assessed prior to FDA moving forward. FDA’s handful of reports and extremely old documents presented as their justification for the subsequent determinations and recommendations in this draft guidance document is below the agency’s standard for scientific rigor and due diligence the industry and the United States taxpayer expects out of our government.”

Foglesong reminded FDA that other countries, which have made non-science based regulatory decisions regarding AMR (antimicrobial resistance), have learned the hard way that it is detrimental to animal welfare and is bad public policy.

“Failed non-science based public policy experiments in Europe have proven that the total volume of antimicrobials actually goes up because more medications are needed to treat the increased incidence of disease when blanket restrictions are made on preventing disease in livestock,” he said. “Additionally, the European experiment did not result in a demonstrable improvement in AMR patterns in humans. Lastly, recent science-based work in the U.S. has shown that some prevention uses of antimicrobials might actually decrease some resistance selection pressures.”

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So, What Does It Mean?

KSU’s Apley explains, “Probably in the future, we’re looking at needing to have veterinary authorization for all antibiotic use. Also probably somewhere down the line, we’ll see some antibiotics going through a microbial safety review.”

Apley also anticipates a final ruling this year from the CVM on a proposed ban on extra-label use of cephalosporins, a drug widely used in feedyards. CVM previously issued a 90-day rule instituting the ban, but then withdrew it after extensive input from the veterinary community.

As animal agriculture waits to see what happens with regulation and legislation, with TCFA and NCBA leading the fight on your behalf, folks like Dr. H. Morgan Scott, a professor of epidemiology also at the College of Veterinary Medicine at Kansas State, is one of a team of researchers who received a \$2 million grant from USDA last fall to identify, evaluate and implement practical interventions for managing antibiotic resistance in beef and dairy.

Scott and company are studying changes in the microbial ecology of cattle and feedlots, with much of the field work being done at the Texas Tech Research Feedlot with Dr. Guy Loneragan. In laymen’s terms, they are studying the ratio of resistant and susceptible bacteria and how treatment affects that balance at the expense of the susceptible (or helpful) bacteria.

“Bacteria become environmentally adapted. Resident bacteria in a feedyard may be different than resident bacteria in the pasture. Late-production diet changes might also influence the level of resistant bacteria. We want to provide a broad set of tools in a toolbox to manage or control resistance,” Scott explains. “Hopefully, these tools will be cost-effective in the real world. At the very least, we want to know if you have to choose between two management options, which is better.”

EDITOR’S NOTE—Sharla Ishmael is a Fort Worth-based freelance writer.