Soothing Consumer Concerns

Addressing issues with antibiotics and hormones.

by ***Bridget Beran***

Consumers are increasingly questioning where their food comes from and how that food will affect the overall health of their families. Because of these questions, it is becoming more vital for producers not only to share their story about how they responsibly raise beef that is healthy and delicious but also to help ease consumers' concerns about what goes into their food. For many consumers, antibiotics and hormones are a hot topic issue that they want producers to address.

"Hormones are involved because they can genetically increase efficiency in meat animals," says Mike Apley, Kansas State University College of Veterinary Medicine professor and production medicine and clinical pharmacology specialist. "Antibiotics allow us to protect the health of an animal we raise."

While producers know they use both of these products for the benefit of the animals, consumers want to know that the beef they are purchasing is safe and healthy for their families. Knowing the facts and how to talk about antibiotics and hormones can help farmers and ranchers communicate with consumers to ensure they're getting correct information.

"They have sincere concerns, they may not be legitimate, but they are sincere," says Dee Griffin, University of Nebraska-Lincoln (UNL) Great Plains Veterinary Educational Center feedlot production management veterinarian. "They're not trying to be anti-beef production, they just want to be sure that what they're feeding their families is safe."

Antibiotic issues

The use of antibiotics weighs heavily on the minds of consumers. Rumors are swirling that added antibiotics in meat will contribute to building resistant bacteria and hurt the long-term health of consumers. However, an important thing to point out to consumers is that the antibiotics used in beef production go through an intensive testing process to ensure that their use in beef production won't be harmful to the public.

The U.S. Food and Drug Administration (FDA) requires cattle to go through a withdrawal period to prevent antibiotic residue in beef. Studies by the American Veterinary Medical Association also show that there is little to no evidence that restricting or eliminating the use of antibiotics would improve human health.

"I don't believe in spinning things, so there have been some cases where there have been antibiotic-resistant pathogens, whether from a bacteria just being resistant or from selection pressure but compared to the use of antibiotics in humans, it's pretty minimal," Apley says.

In fact, the antibiotics used in beef production have actually helped to greatly improve the health of the American public. Over the last 10 years, foodborne illnesses have decreased by 20%, according to the Institute of Food Technologists. And producers generally are unable to access antibiotics without maintaining a relationship with their veterinarians.

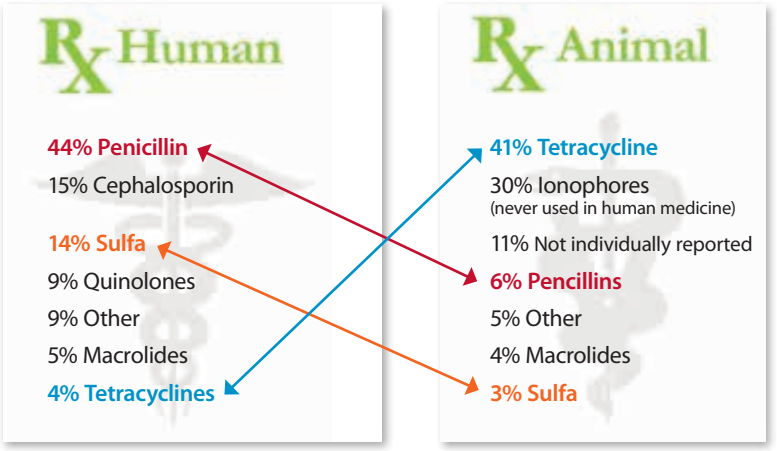
"All of the antibiotics that have been approved for use in cattle since 1988 have required a prescription from a veterinarian," Griffin says. "We can talk until we're blue in the face but actions speak louder than words. Beef producers make the commitment to doing everything they can to reduce and eliminate residues from beef."

It's also important to note that, primarily, the types of antibiotics used in humans have little overlap with the types used for animals. Ionophores, which make up 30% of animal antibiotics, are never used in human medicine; and tetracycline, which makes up 41%, is only 4% of human antibiotics, causing little to no overlap, according to FDA data (See Table 1). Upcoming changes will also affect the ways producers are able to treat their animals.

"In December of 2016, there will be very few antibiotics that producers will have access to without a veterinarian," Apley says, stating that while several injectable antibiotics will still be available over-the-counter, for antibiotics added to feed, producers will need a veterinarian's authorization. Apley also adds that he thinks a veterinarian should be involved in every decision using a medication in a food animal.

However, most of this information is unknown by

Table 1: Comparison of top antibiotic sales in humans and animals



Source: *FDA 2011 reports*

consumers. One great way to soothe concerns is to assure consumers that farmers and ranchers are committed to working with their veterinarians to ensure they're making the right choices for their herds' health. Producers can remind consumers that they use antibiotics, just like people do, to treat illness and to keep animals healthy.

"The ability to treat our animals is a welfare issue as well," Apley says. "To wait to see if they will recover without the assistance of antibiotics before treating is absolutely inhumane."

As producers we know that we have no reason to overuse antibiotics in our herds. Antibiotics can be costly and the FDA also has strict regulations concerning the use of antibiotics. But consumers don't know about these regulations. It's important to let them know that farmers and ranchers use antibiotics to prevent, to control and to treat disease to ensure that beef is safe.

"There is a tremendous amount of data on safety of use," says Galen Erickson, UNL professor of animal science and beef feedlot Extension specialist. "I would also add that microbial resistance to antibiotics is a 'normal' phenomena that happens whenever selection pressure is used. There is no evidence of there ever being a case of antibiotic use leading to a microbial resistance bacteria consumed in food."

Hormone health

Also raising eyebrows for consumers are hormones used in cattle production. Also known as beta-agonists, these feed ingredients go through rigorous testing by the FDA. Used to help improve the conversion of dietary nutrients into muscle, these hormones are very similar to the types of hormones already produced by animals naturally. Hormones are also only used in small doses at specific times in an animal's life. They're also water-soluble, which means they can't remain in the body for a long period of time.

Since ranchers started using growth hormones in the 1950s, they have been heavily studied to ensure that their use is safe for consumers. Each hormone advancement is based on a decision made from a combination of sound science and years of experience raising cattle.

The U.S. Food Safety and Inspection Service also frequently tests meat to check that it meets the FDA's safety requirements. To get the same amount of estrogen that's in one birth control pill, a person would need to consume 3,431 lb. of beef every day.

Also other common foods are naturally much higher in estrogen than implanted beef including eggs and milk. Soybean flour can contain several thousand times the estrogen activity as the same quantity of implanted beef. Shown in Tables 2 and 3 are the estrogen activity of common foods and the natural estrogen production of people.

Erickson says as far as he knows, there is no evidence of exposure through food consumption.

These hormones are used to help boost animal efficiency and, in the long run, to reduce costs for both producers and consumers. Boosting efficiency helps to reduce time spent on feed as well as to decrease the amount of land needed to produce a pound of beef by 67%. For the environmentalist, hormones allow farmers to reduce greenhouse gas emissions by 40%.

"Hormones allow us to be more efficient in the amount of grass and pasture land we need. They help us better protect the environment," Apley says.

Having the conversation

Apley says discussing antibiotics and hormones with consumers can be complex, but everyone should have some key messages on which to focus.

"We do everything we can to avoid using antibiotics," Apley says. "When we do use antibiotics, it's in the best interest of us and our animals to use it correctly. Also, most of the antibiotics used in cattle production are ionophores. Those have absolutely no relation, not even figuratively, to the antibiotics used in humans."

As far as hormones go, Apley says it's important to convey that the benefits of increased efficiency are huge. Also, compared to the hormones made in a person's body, the difference in hormones between a non-implanted steak versus an implanted steak is insignificant.

Consumers want to know that antibiotics and hormones are being used judiciously and that there won't be any harm to them and their families.

"They don't want to feed their children anything that could hurt them," Griffin says. "When they sit down to eat they don't want to worry about whether there are hormones or antibiotics or any extra stuff in their food. They want to eat meat the way God made it. Our responsible actions will ensure that they do not have to worry about that."

For consumers, who are so far removed from the farm and who are being bombarded with messages from anti-agriculture advocacy groups and other media about how antibiotics and hormones are dangerous to them, it's important that producers be proactive in reaching out and sharing their real life experiences on the farm.

"Share how you as a producer take every step to reduce any contaminants that your cattle are exposed to," Griffin says. "A producer should take the stance that we don't want residues in our food either. And our job is to make sure that there isn't any. So we follow the instructions that FDA has provided us for the products we use to the letter."

Griffin says it's important, not only to tell your story as a producer, but also to listen.

"We aren't educating consumers, we're re-educating them," Apley says, referencing a speech he listened to at the International Livestock Congress. Apley stresses that so often consumers get their information from Internet videos and social media.

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"That's where we need to be," Apley says. "We need to reach consumers where they are and help give them accurate information about the beef industry." **HW**

Editor's Note: *For more information, visit* Factsaboutbeef.com.

Table 2. Estrogenic activity of common foods (ng/500g)

Food	Estrogenic Activity
Soy flour (defatted)	755,000,000
Tofu	113,500,000
Pinto beans	900,000
White bread	300,000
Peanuts	100,000
Eggs	555
Butter	310
Milk	32
Beef from implanted steer	7
Beef from non-implanted steer	5

Source: *Hoff man and Eversol (1986), Hartman et al (1998), Shore and Shemesh (2003), USDA-ARS (2002). Units are nanograms of estrone plus estradiol for animal products and isofl avones for plant products per 500 grams of food.*

Table 3: Estrogen production in humans, and potential estrogen intake from implanted beef

Item	Estrogen amount
Pregnant woman	19,600,000 ng/day
Non-pregnant woman	513,000 ng/day
Adult man	136,000 ng/day
Pre-puberal children	41,000 ng/day
500 g of beef from implanted cattle	7 ng

Source: *Hoffman and Eversol (1986)*