

**Are Consumers Well Informed About Antibiotic-free Meat?**

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**Abstract**

Non-GMO, natural, organic, hormone free and pesticide free are among the many label claims used by meat producers to convey a higher degree of healthiness offered to consumers (PR Newswire 2016). The latest additions consumers must consider are *antibiotic-free* and *raised without antibiotics*. Reports of antibiotic resistant super bugs (NRDC, 2015) and antibiotic residues in meats have stoked fears among consumers. Seizing on this as an opportunity, producers such as Tyson Foods and Perdue Farms Inc., retailers Wal-Mart Stores Inc. and BJ's Wholesale Club Inc., and the fast food chain Chick-fil-A have jumped on the antibiotic-free bandwagon. (Kesmodel, Bunge and McKay, 2014). This paper will examine several facets of this movement: the feasibility and sustainability of raising livestock in an antibiotic-free environment sufficient in number to feed an ever-growing population of meat eaters, what this means in terms of the added cost to consumers and if *antibiotic-free* really means antibiotic-free.

### ***The Challenge: Raising Healthy Food Producing Animals***

*The Wall Street Journal* recently described the monumental task facing meat producers in the world in light of man's ever increasing demand for meat:

At current consumption rates, the world would need to generate 455 million metric tons of meat annually by 2050, when the global population is expected to reach 9.7 billion, from 7.3 billion today. Given today's agricultural productivity, growing the crops to feed all of that poultry, beef and other livestock would require every acre of the planet's cropland, according to research firm FarmEcon LLC—leaving no room for raising the grains, fruits and vegetables that humans also need. (Bunge, Jacob 2015)

Along with this anticipated strain on the world's grain producers, of necessity, food animals which have had to be raised in close proximity to one another are going to have to continue being raised in close proximity to one another if this demand is ever to be met. And in such confined quarters, disease is a real problem that, if not contained, can wipe out a huge number of animals very quickly. Since the 1950s, antibiotics have been used routinely in the feed and drinking water of livestock raised for human consumption. This practice has resulted in animals being in better health overall as well as weighing more at the time of slaughter, an obvious financial benefit to the livestock farmer. The mechanism of this weight gain is not completely understood but it is believed that continuously administering low-level dosages of antibiotics results in better nutrient absorption.

Due to increasing concerns over antibiotic resistant super bugs in humans despite there being little evidence that antibiotic use in rearing food animals is the cause (Cervantes, 2015), and the possibility of antibiotic residues in meat, (Apley, Griffith, 2011), despite the fact that since the 1950's the U.S. Food and Drug Administration has banned antibiotic residues in meat (PR Newswire, 2016), there

has been a growing clamor from consumer groups to eliminate the use of antibiotics used in rearing livestock for human consumption.

In an industry white paper entitled “Antibiotic Use in Food Animals,” (NIA, October, 2011) the authors state:

If antibiotics are administered to cure a sick animal, the animal itself — in the case of meat production — or animal products — such as milk — are not allowed to enter the food supply until the withdrawal period has passed and the medicine has sufficiently cleared the animal’s system. The required periods for withdrawing medication are specific for each drug and species and are approved by the FDA based on research studies of residues in edible tissues.

***FDA Guidance Directives #209 and #213 Establish a Voluntary Industry Policy***

These growing concerns came to a head when in December 2013, the FDA published voluntary guidelines calling on the industry to observe more prudent use of antibiotics and to work towards their complete withdrawal at the growth promotion level. In a Zoetis Animal Health news release dated December 11, 2013 the company came out in support of these two finalized FDA Guidance directives (#209 and #213) which “establish the procedures for voluntarily phasing out growth promotion indications for medically important antibiotics.” Guidance #209, published in 2012, specifically states two voluntary principles:

The use of medically important antimicrobial drugs in food-producing animals should be limited to uses that are considered necessary for assuring animal health and the use of medically important antimicrobial drugs in food-producing animals should include veterinary oversight or consultation.

Guidance #213 was more specific to the elimination of antibiotics used in animal feeds:

Guidance #213 provides the procedures for voluntarily phasing out growth promotion indications and establishing therapeutic treatment indications for the use of medically important antimicrobial drugs in food producing animals.

### ***Current Practice Down on the Farm***

It is important to note that there are different dosage levels of antibiotics used in rearing livestock; growth promotion, disease prevention and disease treatment. It is the FDA's plan to seek to phase out growth promotion use while preserving therapeutic use under the oversight of veterinarians (AHI, Bimeda, 2014). This is critical for the overall health of the animals, which are often raised in close quarters in order to meet, in a cost efficient manner, the demands of American's ever increasing appetite for meat.

But even if every animal health pharmaceutical manufacturer were to end the production of antibiotic containing feeds for growth promotion, antibiotic use could continue for disease prevention and treatment under the guidance of a veterinarian (AHI, Bimeda 2014). And since the use of antibiotics is driven by many factors like weather and disease outbreaks it is unlikely that overall [antibiotic] use would be greatly affected (AHI, Bimeda 2014).

This distinction was clearly made in Zoetis Animal Health's November, 2013 press release:

Zoetis expects to complete and implement plans to remove growth promotion uses of medically important antibiotics once the Veterinary Feed Directive (VFD) regulation is finalized. We are committed to supporting our veterinary and livestock producer customers to make a successful transition to the new procedures outlined in the VFD. As the new policies move forward, we remain committed to researching and developing new therapeutic products and strategies to help veterinarians treat illness in livestock animals and to help farmers protect the health and wellness of livestock animals. With the removal of growth promotion indications, use of

medically important antibiotics in animals is intended for therapeutic purposes at therapeutic doses and under the supervision of a veterinarian.

### ***Coccidiosis Control in Poultry***

Coccidiosis is a parasitic disease affecting poultry. Originally treated with chemicals such as nicarbazine, resistance to chemical treatment was common calling for a constant rotation of the various chemical moieties used to treat the disease. In 1974 a new class of antimicrobial drugs called ionophores was discovered that prevented and controlled the disease. Ionophores are the most widely used drugs for coccidiosis prevention in broilers (chickens raised for their meat as opposed to egg production). There are several different molecules among the general class, each having different modes of action. By rotating their use, no significant drug resistance has developed. (Cervantes, Hector, October, 2008).

### ***When Is an Antibiotic Not an Antibiotic?***

Adding to the disconnect between consumer perception of antibiotic-free and actual antibiotic practice on the farm is the characterization of antibiotics themselves. The FDA lists 18 different categories of antimicrobials (FDA 2014 Summary Report, December, 2015). Among them is a class of antimicrobials called ionophores; including laidlomycin, lasalocid, monensin, narasin and salinomycin. Although not strictly characterized as antibiotics, ionophores are nonetheless antimicrobials, i.e. drug substances whose function is to kill microorganisms; bacteria and protozoans. Among the 18 classes of antimicrobials, ionophores are the second largest class approved for use in food-producing animals by total kilograms. The latest statistics available show that in 2014, 4,718,650 Kg. were actively marketed, surpassed by tetracyclines at 6,600,849 Kg. (FDA 2014 Summary Report, December 2015). Given the problems with the potential for coccidiosis outbreaks from raising poultry in confined conditions, the lack of an effective, year-round treatment of the disease with chemicals and the risks from necrotic enteritis (Cervantes, 2015) from the use of live coccidiosis vaccines, the poultry farmer is left with only

one alternative in the face of an outbreak threatening the entire flock where a vaccine has not been effective: the use of ionophores, antibiotics or both in the animal's feed or drinking water.

### ***The Cost to the Consumer***

Writing in *The Journal of Applied Poultry Research*, Cervantes explains:

There is little convincing scientific evidence that the use of antibiotics in food-producing animals is contributing to the antibiotic resistance issues that are relevant to human medicine. However, public perception in first world countries suggests that consumers believe this to be true.

According to the U.S. Organic Trade Association, sales of antibiotic-free (ABF) organic foods have grown at a rate of 20% per year since 1990. This is in spite of wider recognition that antibiotic resistance in humans is caused by antibiotic use in humans and not in food producing animals.

Notwithstanding, this message seems to be falling on deaf ears. Last year *The Wall Street Journal* reported that the sale of antibiotic free beef, while only 5% of the total beef market, has been growing at a pace exceeding the overall market. During the period 2011 – 2014, when retail beef sales were up 12.1%, natural beef grew at a 38.9% rate and organic beef at an astounding 324.1% rate. This despite a 30-80% increase in the costs of raising natural, grass fed and organic beef, (raised without the use of antibiotics), that is ultimately passed along to consumers. (Kesmodal, David, September 15, 2015). In the same vein, five months earlier, *The Wall Street Journal* reported that poultry producer Pilgrim's Pride Corp, the second largest US poultry producer announced plans to eliminate all antibiotics from a quarter of its chicken production by 2019 (Bunge, Jacob, April 20, 2015).

### ***Conclusions***

Raising healthy livestock, given the ever-increasing demand for high quality, value priced meat without the use of antimicrobials during an animal's life is a challenge. Farmers, faced with the

juxtaposed demands of quality and affordability will necessarily have to continue to practice the judicious use of antimicrobials to treat or prevent diseases in order to maintain a healthy population of animals while following the FDA's recommended withdrawal times to prevent antibiotic residues.

Despite the lack of evidence that bacterial resistance to antibiotics in farm animals jeopardizes human health through the creation of super bugs, consumer pressure seems to be winning out.



### *References*

Apley, Mike and Griffith, Gary, November 4, 2011, Chlortetracycline, Oxytetracycline, Tetracycline and Bacitracin Tissue Residue Studies in Swine Conducted in Reference to Foreign Export Markets, NPB #09-257, *The National Pork Board*

Bunge, Jacob, April 15, 2015, Pilgrim's Expects 25% of Its Chicken Will Be Antibiotic-Free by 2019, *The Wall Street Journal*

Bunge, Jacob, December 2015, How to Satisfy the World's Surging Appetite for Meat, *The Wall Street Journal*

Cervantes, Hector, Antibiotic-free poultry production: Is it sustainable? *The Journal of Applied Poultry Research* 2015 *J. Appl. Poult. Res.* 24:91–97 <http://dx.doi.org/10.3382/japr/pfv006>

Cervantes, Hector, October 23, 2008, Coccidiosis Control, *The Poultry Site*;  
<http://www.thepoultrysite.com/articles/1138/coccidiosis-control>

Effects of FDA's Proposed New Regulations Regarding Judicious Use of Antibiotics in Medicated Feed and Drinking Water of Food Animals, February, 2014, Q&A Paper published jointly by *Bimeda, Inc., and the Animal Health Institute*

Industry Experts, Veterinarians, and Sanderson Farms Weigh-In on Antibiotics in Poultry Production, February 9, 2016, *PR Newswire*

Information synthesized from an Oct. 26-27, 2011, symposium in Chicago, IL: "Antibiotic Use in Food Animals: A Dialogue for a Common Purpose," *National Institute for Animal Agriculture*

Kesmodal, David, September 15, 2015, Beef's Meaty Profits Slow Effort to Boost Antibiotic-Free Production, *The Wall Street Journal*

Kesmodel, David, Bunge, Jacob and McKay, Betsy, November 3, 2014, Meat Companies Go Antibiotics-Free As More Consumers Demand It, *The Wall Street Journal*

Natural Resource Defense Council, 2015, Case Study, CS:13-03-C, Going Mainstream: Meat and Poultry Raised Without Routine Antibiotics Use

White, Elinore, Price, Bill, November 7, 2013, Media Statement on U.S. FDA Guidance #209, #213 and the Draft Veterinary Feed Directive, *Zoetis Animal Health*