WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production:

Understanding Producer and Consumer Perspectives

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INTRODUCTION

Successful antibiotic-free poultry production requires understanding producer and consumer perspectives including marketing, regulations and science. This collection of exclusive and in-depth articles from the acclaimed editors of *WATT Poultry USA* and *Poultry International* magazines and many expert contributors, will provide you with highly valuable insights that intend to help you strengthen and grow your poultry business.

The production of poultry and livestock without antibiotics has gone from a niche market to the mainstream in a matter of years. Increased awareness about the dangers of antimicrobial resistance has increased consumer and government pressure for a prudent use of antibiotics, extending beyond human health care to focus on antibiotic administration in animal agriculture. It's been widely reported that antibiotic residues in meat are responsible for increased incidents of resistance; however, antibiotic contamination in carcasses is virtually non-existent.

A disconnect between livestock producers and consumers has created a lack of trust and a movement for a more transparent food supply chain. Consumers are looking for and buying poultry raised without antibiotics and many national and international fast-food chains and restaurants have announced they will only serve antibiotic-free meats, which is creating new challenges for poultry and livestock producers. Growing consumer and regulatory pressure raises the question of whether antibiotic use in livestock production could end in the coming years.

The challenges of raising healthy ABF flocks requires changes in production techniques and management strategies like biosecurity measures, which significantly impact poultry health and performance. Producers have raised concerns that removing all antibiotics can increase flock mortality rates from common poultry diseases like coccidiosis and necrotic enteritis.

In 2017, The U.S. Food and Drug Administration's Veterinary Feed Directive (VFD), which will ban the use of growth promoting antibiotics the FDA deems medically important to humans, will go into effect. Under the VFD, all antibiotics for livestock must be under direct veterinary supervision so they are only used when necessary for assuring animal health.

The World Organization for Animal Health also has developed a set of international standards for animal antibiotic use to help protect the effectiveness of antibiotics used in veterinary medicine. Europe is the first major market to restrict the use of antibiotics in meat and poultry production, which has increased production costs in the EU. U.S. poultry producers and the rest of the world are watching carefully and studying how to transition to relying less on antibiotics and using nutritional additives and alternative feed ingredients for healthy birds.

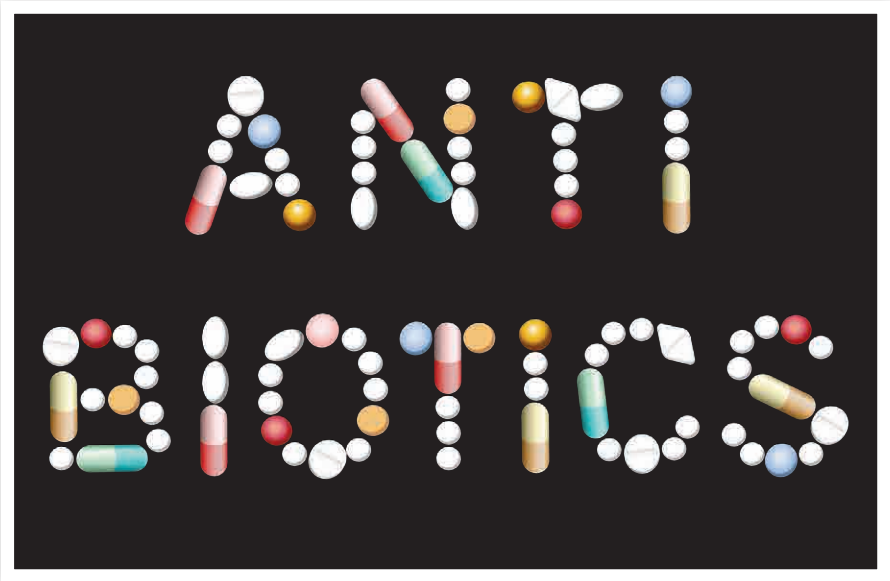
It is critical to stay on top of the most important issues impacting our industry today to remain competitive. The WATT Global Media Focus Series was created to help you achieve that objective, and ultimately succeed in reaching your business goals.

THE SCIENCE OF PRODUCING ABF POULTRY

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

POULTRY ANTIBIOTICS POLICY BEGS FOR SCIENCE, DATA



Important scientific and ethical insights to drive future policy to reduce antimicrobial resistance are needed in the poultry industry. | Bigstock.com

By: Gary Thornton
Published: December 29, 2015

Merely enforcing labeled usage or reducing total kilograms of antibiotics used in beef, pork and poultry production may not be the best public policy to reduce antimicrobial resistance.

The veterinary landscape for the production of food animals is changing with the Food and Drug Administration's (FDA) Veterinary Feed Directive, but, even as the use of antimicrobials in food-producing animals comes under direct veterinary supervision, important scientific and ethical insights to drive future policy to reduce antimicrobial resistance are missing.

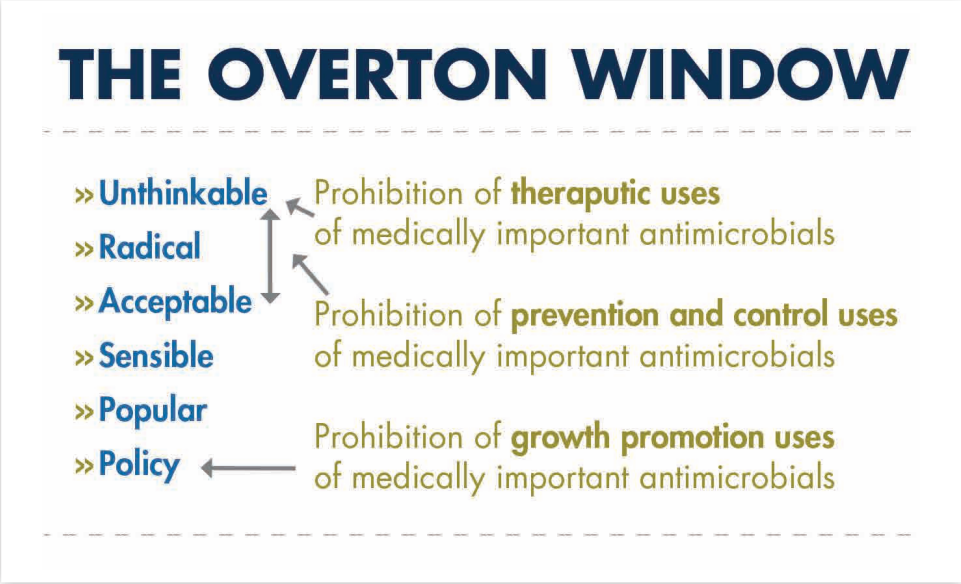
Mike Apley, veterinarian and professor at Kansas State University, speaking at the National Institute of Animal Agriculture (NIAA) Antibiotics Symposium, identified policy issues involving antibiotic use in the production of beef, pork or poultry that cannot easily be resolved either by the science of pharmacology or by ethical principles alone.

> ***"In my opinion, antimicrobial-use monitoring should be actual use tied to reason for use."***

"In my opinion, antimicrobial-use monitoring should be actual use tied to reason for use."

The mere enforcement of labeled usage or the reduction of total kilograms of antibiotics may not be the most effective approaches to reducing antimicrobial resistance, according to the professor of production medicine and clinical pharmacology.

What's more, stakeholders and regulators must find a way to move forward with antimicrobial-use policy when data is incomplete, and even where it exists, it is not interpreted in the same way by different stakeholders.



There is a range in society's acceptance of ideas about the use of antibiotics in food-producing animals from popular to sensible to radical to unthinkable.

VETERINARY RESPONSIBILITY FOR ANTIBIOTICS USAGE

"Going forward, the emphasis on treatment records will be greater than it has ever been," Apley said.

The veterinarian is going to be responsible for all medically important antimicrobial uses in food production animals, he said, and this brings significant change in protocols, treatment records and reporting for meat and poultry production:

> ***"Going forward, the emphasis on treatment records will be greater than it has ever been"***

» The days of verbal treatment protocols are gone
» The days of unacceptable treatment records are gone
» The days of nontransparent use of antimicrobials in food animals are coming to an end

He said that not only is more and better data about antibiotics usage in food animal production needed, but the only way to get it is to "give agriculture the steering wheel for data collection" while providing government audit of the sampling strategy and data collection.

Apley offered the following recommendations for obtaining "the needed granularity in the data":

» Give agriculture the steering wheel for data collection
» Government audit of the sampling strategy and data handling
» Absolute guarantee of anonymity for participants
» Sampling structure must balance a view of the industry with utility for individual participants

LIMITATIONS OF METRICS ON ANTIBIOTIC USAGE

"Antibiotics sales data do not drive accurate estimates of indications for use, or even actual use"

"In my opinion, antimicrobial-use monitoring should be actual use tied to reason for use. [Collecting data about] total kilograms [of antimicrobials] as a metric only serves as a stick to drive 'cut the use' as a goal. Animal daily doses (ADD) and animal regimens (AR) provide a look into drug exposure as well as numbers of animals receiving the regimen. There may be different regimens for the same drug in a species," he added.

"Only actual use tied to reason for use will allow us to drive antimicrobial stewardship in food animals," he reiterated.

BRINGING "TRUE KNOWLEDGE" TO BEAR ON ANTIBIOTICS USAGE

Even with more and better data likely to be available in the future, the best policy to avoid antimicrobial resistance cannot be expected to be clear-cut. He indicated that bringing "true knowledge" to bear on public policy and clinical practices remains a challenge.

Apley pointed to examples in human and veterinary medicine where current scientific understanding falls short in providing clear direction for determining basics such as dosing and duration of antibiotic therapy.

For example, Apley challenged listeners – who, in addition to other veterinarians, included policymakers from FDA and Centers for Disease Control (CDC), experts in human medicine and consumer group activists: "Who decided that the exposure dynamics for growth promotion (low and long) are the most likely to select for resistant organisms?

"Bringing 'true knowledge' to bear on public policy and clinical practice remains a challenge."

"Don't confuse a policy decision to reduce total kilograms of drug with proof that this exposure is the worst exposure to select for resistant organisms.

"It's time to wake up!" he challenged the meeting's attendees. "The pharmacokinetics and pharmacodynamics for efficacy don't necessarily match with optimal exposure for minimizing the selection for resistant organisms," he said.

Suggesting that recommendations on antibiotic labeling may not reflect the best pharmacokinetics for efficacy and avoidance of antimicrobial resistance, Apley said, "We have focused on dose comparisons for the same duration in veterinary and human medicine." And in human medicine, he continued, patients are directed, "Take your antibiotics for as long as your doctor prescribes so that you don't get a relapse with a resistant infection."

"Labeled use doesn't necessarily mean judicious use," he said. "It is not necessarily compatible with stewardship. Labeled use is not necessarily the regimen most likely to minimize selection for resistant organisms."

> ***"Don't confuse a policy decision to reduce total kilograms of drug with proof that this exposure is the worst exposure to select for resistant organisms."***

DEBATE ABOUT ANTIBIOTICS IN FOOD ANIMALS

Beef, pork and poultry producers and their veterinarians, Apley said, need to be actively engaged in the debate that will frame antimicrobial usage for the future.

It is a debate that will determine how society weighs incomplete and sometimes contradictory data and resolves conflicting values. It involves policy issues that cannot be resolved on the basis of science or ethical principles alone.

"We are going to have to figure out how to move forward without a clearly defined smoking gun or the lack of a smoking gun. And what we get to there is really a discussion of where lies the burden of proof. Does someone have to prove that it does cause a problem? Or does someone have to prove that it doesn't?" he said.

STEWARDSHIP CYCLE FOR USING ANTIBIOTICS IN POULTRY

What is stewardship in the use of antibiotics in poultry? It is more than labeled use or even judicious use, which is more about the specific application of the antibiotic, according to Kansas State University professor, Mike Apley.

The veterinarian should ask the following questions in prescribing antibiotics:

- Could I have avoided the disease challenge?
- Is an antibiotic actually needed?
- Is the disease challenge actually present or imminent?
- Is there a chance for efficacy?

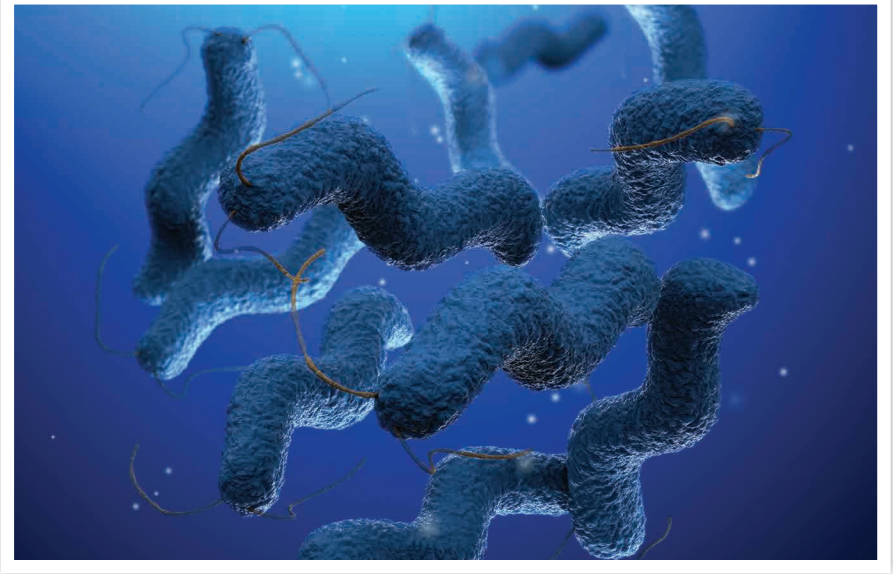
Stewardship is not something that the veterinarian does and forgets. Stewardship is a commitment to a decision-making cycle in which the veterinarian is continually engaged.

Stewardship is a commitment to a decision-making cycle in which the veterinarian is continually engaged.

PHARMACOKINETICS VS. PHARMACODYNAMICS

Pharmacokinetics (PK) is concerned with the time course of antimicrobial concentrations in the body, while pharmacodynamics (PD) is concerned with the relationship between those concentrations and the antimicrobial effect. Antibiotic dosing regimens have traditionally been determined by PK parameters only. However, PD plays an equal, if not more important, role. In this age of increasing antimicrobial resistance, PD becomes even more important because these parameters may be used to design dosing regimens which counteract or prevent resistance. *– A PK/PD approach to antibiotic therapy*

POULTRY SUPERBUG CLAIMS REJECTED AS SCAREMONGERING



Reports that a new superbug has been infecting the population of New Zealand have been roundly dismissed. | Anivax

By: Mark Clements
Published: November 24, 2015

Sensationalist reporting of antibiotic resistance does nothing to protect public health

The discovery of campylobacter resistant to fluoroquinolone and tetracycline antibiotics in poultry flocks in New Zealand has led to reports of the emergence of a new resistant "superbug." The claims, however, have been swiftly rejected by the local poultry industry, which has accused the press of scaremongering.

The word superbug makes for a great headline and grabs reader attention. However, while it's true that the public needs to think more about antibiotic use and misuse, offering facts and context would be far more valuable in protecting public health and preserving antibiotics to fight bacterial infections.

While no one will welcome this latest discovery, as the Poultry Industry Association New Zealand (PIANZ) points out, the usual treatment for campylobacter infection for humans is erythromycin-not fluoroquinolones or tetracycline-to which campylobacter has not become resistant in New Zealand.

RESPONSIBLE MONITORING

The emergence of the resistant bacteria came to light as part of ongoing monitoring and testing of poultry flocks, initiated by the poultry industry and Massey University to identify, investigate and manage emerging issues. The monitoring was part of continuing studies to look for any antibiotic resistance.

The finding was, however, unprecedented in New Zealand and, for that reason, PIANZ notified the country's Ministry for Primary Industries (MPI) immediately and is continuing to work with MPI and the Ministry of Health.

Yet, the press has reported “alarm” among doctors following the “discovery of a superbug in chicken that has jumped across to infect people around New Zealand,” and went on to say that, while it was not clear how the bacteria had become resistant, it was possibly due to DNA mutation or through chicken feed being “pumped with antibiotics.”

I’ll leave you to decide how helpful such comments are in educating and protecting the public but, as PIANZ has pointed out, fluoroquinolones have never been used in the country’s poultry flocks, and tetracycline is used on a very limited basis for therapy only in breeding birds and under veterinary supervision.

Tetracycline is so rarely used, in fact, that there have only been two treatments in breeder flocks over the past 18 months.

A causative link between this use and the resistance has not been proven, hence the reason for joint efforts to continue working on a risk profile.

NO ADDITIONAL RISK TO CONSUMERS

PIANZ has stated that it is backed by regulatory authorities and experts and is confident that the antibiotic-resistant strain of campylobacter poses no additional risk to the public.

And, as for the term superbug? Antimicrobial consultant Stephen Page has said that the strain is not a superbug, defined as a bacteria with very few, if any, treatment options, and that, internationally, this resistance is not unprecedented. As for jumping across to infect people around New Zealand, according to Page: This simply has not happened.

NEW ANTIBIOTIC COULD BE GAME CHANGER IN FIGHT AGAINST RESISTANCE

Published: January 8, 2015

Promising new compound, and 25 others, could turn tables in efforts to tackle AB resistance

An antibiotic with the ability to vanquish drug-resistant pathogens has been discovered, through a soil bacterium found just beneath the surface of a field in Maine. The discovery, coming at a time of increasing concern over use and curbs to antibiotic use, could lead to considerable benefits for human medicine and, by implication, for veterinary medicine.

A team from Northeastern University in Boston, Massachusetts, have reported in "Nature" that the antibiotic, which they have named teixobactin, is active against the bacterium methicillin-resistant *Staphylococcus aureus* (MRSA) in mice, and a host of other pathogens in cell cultures. If the compound behaves similarly in people, it may prove to be a much-needed triumph in the war against antibiotic resistance.

The researchers used a device to discover teixobactin that has the potential to reveal further undiscovered antibiotics as it enables "unculturable" microbes to thrive in the laboratory, and so makes it easier to discover bacteria that naturally produce compounds deadly to other pathogens.

MINING DARK MATTER

Many of the most successful antibiotics were found by scientists who trawled microbial communities for bacteria capable of killing their brethren. But the researchers missed the type that produces teixobactin, *Eleftheria terrae*, as well as many more candidates – known collectively as microbial "dark matter" – because of their reluctance to adapt to life on a petri dish.

The device used to identify teixobactin, called the iChip, works by sorting individual bacterial cells harvested from soil into single chambers. The device is then buried in the ground. Several molecules in that environment are able to diffuse into the iChip, allowing the bacteria to thrive in a more natural setting than a petri dish. Typically, only about 1 percent of microbes in a soil sample are able to grow in the laboratory. The iChip extends that to 50 percent, offering the possibility of further discoveries.

The researchers tested 10,000 of the resulting bacterial colonies to see whether any were able to halt the growth of ***S aureus***. That search yielded 25 potential candidates, but teixobactin has been the most attractive so far.

Research team leader Kim Lewis believes that the importance of teixobactin lies in the fact that it will be difficult for pathogens to develop resistance against it.

Unusually for an antibiotic, he says, teixobactin is thought to attack microbes by binding to fatty lipids that make up the bacterial cell wall, and it is difficult for a bacterium to alter such fundamental building blocks of the cell. By comparison, most antibiotics target proteins and it can be relatively easy for a microbe to become resistant to those drugs by accumulating mutations that alter the target protein's shape.

Seeing a commercial product come to market could still be some time away, however. While teixobactin has been tested in mice and has yet to show any toxic side effects, demonstrating safety in humans will be important, notes Barry Einstein, senior vice-president of scientific affairs at Cubist Pharmaceuticals, which attempted mining dark matter a decade ago.

Toxicity is still the leading cause of failure in turning a potential antibiotic drug into a real drug, and disappointingly, teixobactin has disappointed in its failure to kill gram-negative bacteria, however Einstein believes there is reason to be optimistic about teixobactin because it is rare to find a single molecule with so many promising properties.

NEED FOR MORE MEDICINE CHOICES

Both human and veterinary medicine need new antibiotics; however, research in the field has been significantly reduced over recent years.

Resistance is spreading faster than the introduction of new compounds into clinical practice, causing a public health crisis, and the discovery of teixobactin comes amid growing warnings from public-health experts about the dangers of antibiotic resistance, and decreasing options for treatment.

In 2014, the World Health Organization declared that the post-antibiotic era – a time in which people could die from ordinary and minor injuries – could begin this century.

In human medicine doctors are repeatedly being urged to prescribe antibiotics with greater caution, while in agriculture, producers are facing growing curbs as, use of antibiotics in livestock, it has been argued, is leading to antibiotic resistance in human medicine.

Agriculture has been at the forefront in efforts to reduce antibiotic use, particularly where drugs can be used across animals and humans, however, it is not the case that all agricultural use antibiotics are used in human medicine, take for example ionophores.

There are also some macrolides, which are also derived from soil organisms, for example tyvalosin, marketed by Eco Animal Health as Aivlosin, and used in the poultry industry against mycoplasma spp. Company global marketing manager Marc Coulier notes that tyvalosin is not used in human medicine and is only administered in low doses for a rapid response as and when issues arise, meaning that its use can help producers align with responsible use initiatives.

AGRICULTURE'S ROLE IN ANTIBIOTIC RESISTANCE

E. coli and Salmonella, which account for a growing level of drug-resistant infects, remain a major food safety concern. | Bigstock.com

By: Zoe Kay
Published: March 10, 2015

Increased consumer, government pressure reduce antibiotic usage in food producing animals.

> ***"Superbugs to kill more than cancer by 2050"***

In late 2014, a BBC News article, "Superbugs to kill more than cancer by 2050," discussed a UK government review that suggested an additional 10 million people worldwide will die as a result of drug-resistant infections, with an economic impact of $100 trillion. Currently, antibiotic-resistant bugs are implicated in 700,000 deaths each year. Increased awareness about the dangers of antimicrobial resistance has driven increased consumer and government pressure for prudent use of antibiotics, extending beyond human health care to focus on antibiotic administration in animal agriculture.

THE LINK BETWEEN ANTIBIOTIC-RESISTANT BACTERIA AND AGRICULTURE

The UK study found that drug-resistant *E. coli*, *malaria* and *tuberculosis* will have the biggest impact on the additional deaths by 2050.

E. coli and *Salmonella* are responsible for a growing level of drug-resistant infections. Both are gram-negative bacteria with a complex cell wall that acts as a barrier to antibiotics. If they do get through, the bacterial cells have a way of "vacuuming" them out. This natural resistance mechanism makes it difficult to find effective drugs.

In the UK, the University of Birmingham is looking at ways to make the bacteria more sensitive to antibiotics. Researchers are investigating the switches that turn off the "vacuum" mechanism these bacteria have, as well molecules, which would have the same effect.

The most resistant organisms are being found in hospitals. The two commonly discussed resistance problems are Methicillin-resistant *Staphylococcus aureus* (MRSA) and Extended spectrum *beta-lactamases* (ESBLs). ESBLs are enzymes, which inactivate antibiotics including penicillins and cefalosporins; if the bacterium has the genes for this enzyme, then resistance will occur. Judicious use of antibiotics in these settings could have a large effect on reducing resistant infection rates.

Livestock production has been widely implicated in the spread of ESBLs as these products move through the food chain. For example, studies have shown that 80 to 100 percent of poultry meat tested positive for ESBLs, mainly in *E. coli* and *Salmonella*.

Surveillance in the Netherlands shows that most pig and veal calf farms are positive for MRSA. Since the bacterium is transmitted through direct contact, farmers and veterinarians are considered to be potential carriers. Therefore, if they are admitted to a hospital, they are treated in isolation to prevent the spread of MRSA.

COMMON MYTHS

Some believe antibiotic residues in meat are responsible for increased incidents of resistance; however, antibiotic contamination in carcasses is virtually non-existent. This has been demonstrated by rigorous testing in both the U.S. and Europe.

It is also believe that agriculture contributes to the prevalence of resistant micro-organisms in the environment. This only becomes a human health issue when those bacteria are zoonotic (cause diseases in humans) or are foodborne pathogens, e.g. *Salmonella* or *Campylobacter*.

These resistant bacteria then spread from the animal population to the human population, where the ability to control the infection is reduced.

Genes capable of transferring resistance from bacteria in livestock to those that cause human infections pose another threat. Figure 1 shows the involvement of humans, livestock and companion animals in the spread of antibiotic resistance, as well as their impact in different habitats.

While the headline grabbing concerns regarding antibiotic resistance relate to human health, these issues can also affect agriculture. As any vet will tell you, treating infections in livestock is becoming more difficult. There will be serious financial implications for the future of producers if disease outbreaks cannot be controlled.

CAN ANTIBIOTIC RESISTANCE BE REDUCED?

Although the many factors involved in the increase in antibiotic resistance make it a difficult problem to tackle, there are examples of success.

Ceftiofur, for example, is an antibiotic which isn't used in broilers, but it had been common practice to use it in grandparent/parent flocks and hatcheries. In 2010, its use was banned in hatcheries in the Netherlands, resulting in a nearly 50 percent reduction in resistance rates in the broiler population.

This finding followed a similar trend to that observed when Quebec voluntarily stopped this use of the drug. (Figure 2) After the withdrawal of Ceftiofur in 2005, there was a drastic reduction in the prevalence of resistance in Salmonella Heidelberg in retail chicken and humans, as well as *E. coli* in retail chicken. This trend continued until mid-2007 when use of the drug was partially reinstated, resulting in an increase in the level of resistant bacteria, although not to pre-2005 levels.

GOVERNMENTS WEIGH IN

Since 2012, the U.S. Food and Drug Administration (FDA) has urged livestock producers to reduce their antibiotic usage. California is looking to stop farmers using preventative antibiotics and the Danish Pig Research Center is aiming to halve the use of the antibiotic tetracycline before the end of 2015.

> ***"Every time antibiotics are used in any setting, bacteria evolve by developing resistance,"***

However, many think legislation is needed in all countries to make a real difference.

"Every time antibiotics are used in any setting, bacteria evolve by developing resistance," says Steve Solomon, director of the Centers for Disease Control and Prevention (CDC) Office of Antimicrobial Resistance, in a press release. "The more we use antibiotics today, the less likely we are to have effective antibiotics tomorrow."

The UK government report, mentioned at the start of the article, highlighted the following three areas of investigation:

- How drug use could be changed to reduce the rise of resistance.
- How to boost the development of new drugs.
- The need for coherent international action concerning drug use in humans and animals.

It is only these combined strategies which will work to have a significant effect on the growing problem of antibiotic resistance. Agriculture certainly has a role to play; both farmers and vets should be motivated to use other methods to control and improve the health status of animals – and be responsible for the cautionary and strategic use of antibiotics.

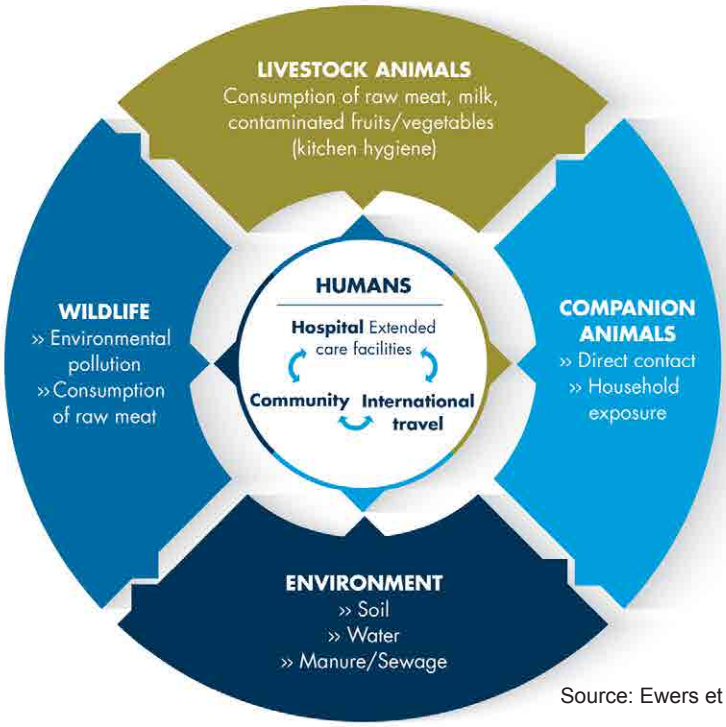
ANTIBIOTIC-FREE MANAGEMENT OF PIGS AND POULTRY

Producers who are unwilling to change their usage cite increased costs, higher mortality and even poorer animal welfare as reasons for continuing to use antibiotics.

Changes in production techniques and management strategies can have a significant effect on the health and performance of livestock. Improved biosecurity is one of the measures that has added benefits in terms of reduced disease incidence. Nutrition, genetics and husbandry all have roles to play in improving health status and reducing the need for antibiotics.

The use of competitive exclusion and other non-antibiotic products has also been successful for many producers – but that is a whole separate article.

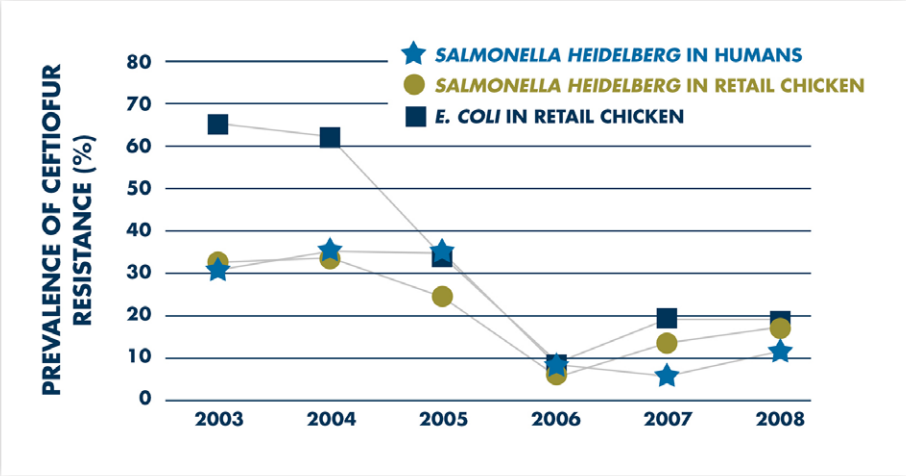
FIGURE 1. The transmission of antibiotics resistance



Source: Ewers et al. 2012

Infection control measures and increased hygiene procedures can reduce the spread of antibiotic resistance in all areas.

FIGURE 2. Withdrawal impact of *in ovo* ceftiofur use in Québec



Source: Dutil et al. 2010

Dutil et al., 2010 | Researchers observed dramatically reduced rates of resistance not only in bacteria present on chicken but also in the human population.

ANTIBIOTIC USE DESERVES SERIOUS TALKS, NOT SCARE TACTICS

Dr. Robin Ganzert, American Humane Association president and CEO

By: Robin Ganzert
Published: April 28, 2015

Animal and human health sectors must make sure decisions on animal antibiotics aren't based on misinformation.

The recent release of the Food and Drug Administration's report on antibiotic sales brought a round of calls from certain advocacy groups to ban the use of antibiotics in animal agriculture. These advocates remind me of another crowd: the anti-vaccination movement. Both the groups pushing for an antibiotic-free animal agriculture and the "anti-vaxxers" ignore established science on their respective issues in a way that leads to diminished human and animal welfare.

We certainly should have a debate about the judicious use of antibiotics in agriculture, but jumping to an outright ban defies science and common sense, will cause more animal suffering, and may have adverse effects on public health.

While those pushing for an outright ban are on the fringe, concerns about antibiotic-resistant bacteria in agriculture are starting to hit the mainstream. In American Humane Association's 2014 Humane Heartland Farm Animal Welfare Survey, more than half of the respondents indicated that they seek out food labeled "antibiotic free," second only behind "humanely raised."

LACK OF EVIDENCE THAT ANIMAL ANTIBIOTIC USE IS BAD FOR HUMAN HEALTH

Opponents of antibiotics frequently point to Centers for Disease Control and Prevention (CDC) estimates that at least two million Americans become infected with bacteria that are resistant to antibiotics every year. Reports indicate that the most resistant infections reside in human hospital settings. However, there is no evidence that antibiotics used in animal agriculture have decreased the effectiveness of antibiotics in humans. According to Dr. Stephanie Doores of Pennsylvania State University, "People would be more likely to die from a bee sting than for their antibiotic treatment to fail because of macrolide-resistant bacteria in meat or poultry."

> ***"People would be more likely to die from a bee sting than for their antibiotic treatment to fail because of macrolide-resistant bacteria in meat or poultry."***

A look across the world to Denmark is also instructive. Despite a complete ban on antibiotic use for growth promotion instituted in 2000, there is very little evidence that it led to any positive impacts on human health or a decline in antibiotic resistant bacteria. In fact, it has resulted in a significant increase in the therapeutic use of antibiotics in animals, due to animals getting sick.

ANTIBIOTICS CAN AND DO HELP ANIMAL WELL-BEING

Science – and common sense – tell us that antibiotics can and do help improve well-being, decrease mortality rates of farm animals, and prevent unnecessary suffering. Just as they do when given to a child with strep throat, antibiotics relieve the pain and distress of sick animals while helping them to recover. One of the Five Freedoms upon which the American Humane Certified program is based is the freedom "from pain, injury and disease." An outright ban would be inhumane to sick animals, and would violate one of the Five Freedoms that serves as the internationally accepted social contract with animals.

Additionally, what is not often discussed is that use of antibiotics in farm animals provides for a safer food supply, and that the FDA has long required withdrawal periods for such use. As noted by Dr. Christine Hoang, assistant director of the American Veterinary Medical Association, in her 2010 testimony to the House Committee on Energy and Commerce, Subcommittee on Health: "For food animals, drugs additionally contribute to the public health by mitigating disease and thereby reducing the numbers of bacteria entering the food supply. Studies show that a reduction in the incidence of food animal illness will reduce bacterial contamination on meat, thereby reducing the risk of human illness."

SCIENCE-BASED DIALOGUES ON ANTIBIOTICS NEEDED

Because it is an issue of concern for the public, antibiotic use in agriculture demands a healthy and robust discussion. But veterinarians, public health professionals and scientists should be determining what the appropriate use of antibiotics is. And such a discussion needs to include outcomes for the sick animal, as it's simply not humane to leave an animal to suffer needlessly.

Recent moves by Chick-fil-A and McDonald's demonstrate that the issue is becoming more urgent. Let's set aside the scare tactics and pressure campaigns and have a real, honest conversation about safe and proper antibiotic use that's driven by science.

Agriculture, researchers and humane organizations must work together to educate the public and food companies about proper antibiotic use, or else the dialogue will be led by misinformation. In working together, we can develop policies that improve animal health and welfare, safeguard our abundant food supply and protect public health. Better science is needed to advance a better understanding of human and animal health, and define what it is to be humane.

The views expressed in the guest commentaries on www.WATTAgnet.com are those of the authors' and do not reflect the opinions of the editors at Watt Global Media. Those with differing opinions are encouraged to comment on this site or contact tokeefe@wattnet.net

ANTIBIOTIC RESISTANCE NOT SOLVED BY LIVESTOCK CURBS ALONE

By: Mark Clements
Published: December 2, 2015

Study results released during World Antibiotics Awareness Week show growing resistance to veterinary and human antibiotics, and poor public understanding of its causes.

Calls for a ban on veterinary use of colistin, also used as a last line of treatment in human medicine, along with a new study showing growing resistance to the last line antibiotic group carbapenems, came as the World Health Organization (WHO) held its first Antibiotics Awareness Week.

The livestock study, from China, revealed the discovery of the mcr-1 gene, which allows a range of common bacteria, including Escherichia coli, to become resistant to the polymixin class of antibiotics, which includes colistin, used in poultry and other livestock primarily to treat *E. coli* and *Salmonella* gastrointestinal tract infections.

The gene was found by chance during routine testing of animals destined for consumption, leading the researchers to conduct more widespread testing.

> ***"Our results reveal the emergence of the first polymixin resistance gene that is readily passed between common bacteria such as E coli and K pneumoniae, suggesting the progression from extensive resistance to pandrug resistance is inevitable."***

Bacteria samples were collected from pigs at slaughter and from retailed chicken and pork between 2011 and 2014. Bacterial samples from patients with infections at two hospitals in Guangdong and Zheidong were also studied.

The researchers found the gene in 166 out of 804 animals and in 78 of 523 raw meat samples. They also found it in 16 *E. coli* and *Klebsiella penumoniae* samples from 1,322 patients.

"These are extremely worrying results," said Professor Jian-Hua Liu, from the South China Agricultural University, and author of the report.

"Our results reveal the emergence of the first polymixin resistance gene that is readily passed between common bacteria such as *E. coli and K pneumoniae*, suggesting the progression from extensive resistance to pandrug resistance is inevitable."

NO MORE VETERINARY COLISTIN USE?

In response to the findings, there were immediate calls for colistin use on farms to be severely limited or stopped altogether to slow livestock antibiotic resistance progression.

A statement from the UK Responsible Use of Medicines Alliance (RUMA), however, noted that use of antimicrobials in the Chinese pig herd is not normally under veterinary control. Trade in pig meat was unlikely to spread the bacteria, it continued, however transfer by humans posed a greater risk, particularly via trade and tourism.

The statement pointed to other recent research looking at attribution of extended-spectrum beta lactamase resistance from food to man, which has shown that man to man is the major contributor – not poultry, pig or other livestock to man – due to hospital care spread of bacteria carrying resistance genes.

MORE BARRIERS FALL

The Chinese publication came after the release of European Centre for Disease Prevention and Control (ECDC) survey results revealing that the spread of carbapenemase-producing Enterobactericae (CPE) in the EU is continuing, with eight countries reporting an interregional spread, and three an endemic situation. In these three countries, most hospitals are reportedly seeing patients that cannot be treated with carbapenems – a last line antibiotic group.

ANTIBIOTIC RESISTANCE INCREASING DAILY

Vytenis Andriukailis, European Commissioner for Health and Food Safety said: "The ECDC results show that the threat of antibiotic resistance is increasing day by day. If left unchecked, it has the capacity to run the clock back on medicine by a hundred years."

The European survey, released on the region's eighth Antibiotics Day, also found that resistance continued to rise for most bacteria and antibiotics under surveillance.

A positive finding, however, was that there was a significant decrease in antibiotic consumption in five European countries, yet antibiotic use in the hospital sector, overall and for carbapenems, is still increasing.

Carbapenems are not authorized for use in poultry or other livestock production, leaving little doubt as to where resistance emerged.

LIVESTOCK PRODUCTION THE MAJOR CULPRIT?

As part of WHO Antibiotics Awareness Week and its new campaign "Antibiotics: Handle with care," the organization released survey results on public awareness of antibiotic resistance.

Of the 10,000 people questioned across 12 countries, almost 75 percent believed livestock should be given fewer antimicrobials.

The survey, however, highlighted the major problems that exist within human antibiotic prescribing, compliance and understanding.

The World Health Organization points out that there are various ways in which antibiotic resistance can develop.

Seventy-six percent of respondents believed resistance occurs when the body becomes resistant to antibiotics, while two-thirds thought they would not be at risk from drug-resistant bacteria if they took antibiotics as prescribed.

PRESCRIPTION, ATTITUDES AND COMPLIANCE VARY GREATLY FROM COUNTRY TO COUNTRY.
In China, for example, where 83 percent of respondents said livestock farmers should use fewer antibiotics, 57 percent of respondents reported taking antibiotics within the past six months. Seventy-four percent said they had been doctor or nurse prescribed, with 5 percent having bought them online.

More than half of respondents believed they should stop taking their antibiotics when they felt better.

“The findings of this survey point to the urgent need to improve understanding around antibiotic resistance,” said Dr. Keiji Fujuda, special representative of the director general for antimicrobial resistance. “One of the biggest health challenges of the 21st century will require global behavior change by individuals and societies.”

ONE HEALTH THE ANSWER
In response to Europe’s awareness day, the European Platform for the Responsible Use of Medicines in Animals (EPRUMA), which comprises agricultural associations, argued that more should be done to develop science-based resources to prevent and control disease in humans and animals.

The right legal framework also needs to be put in place for the provision of innovative animal medicines, including veterinary antibiotics, and diagnostics, to help treat disease efficiently and work toward tackling resistance, it added.

A similar view came from veterinary medicines association IFAH-Europe.

“Actions to reduce resistance need to be taken in a One Heath context with all sectors concerned combining efforts to develop science-based solutions. The main objective should be to reduce resistance to antibiotics, not simply to reduce antibiotic use,” IFAH-Europe secretary general Roxane Feller said.

As part of the Antibiotics: Handle With Care campaign, WHO is offering specific advice to the livestock sector on antibiotic use.

AAAP: POULTRY HEALTH, WELFARE 'SHOULD NOT BE SACRIFICED IN THE NAME OF MARKETING'

Published: April 21, 2016

Antibiotic use in poultry should be minimized through carefully planned and well-executed preventive practices, according to a new position statement released by the American Association of Avian Pathologists.

However, the association added, antibiotics should remain "a viable option when appropriate and necessary for the health and well-being of the animal, even when marketing and consumer preference dictate otherwise."

The new document, "AAAP White Paper on Poultry Welfare and Careful Antibiotic Use," expressed concerns about the "growing trend" for some food retailers and restaurants to only offer poultry products from flocks raised with no antibiotics.

"This practice may result in situations where farmers are reluctant to allow treatment of flocks in order to maintain their 'antibiotic-free' status," the association said.

> ***"This practice may result in situations where farmers are reluctant to allow treatment of flocks in order to maintain their 'antibiotic-free' status"***

"Veterinarians need the ability to make the proper treatment plans for animal health and animal welfare, including the use of antibiotics when warranted as part of their professional commitment and ethical obligation," AAAP added.

Hoping to ease consumer and retailer concerns, AAAP noted that FDA-mandated withdrawal times for antibiotics ensured that no drug residues were present at the time of slaughter.

"This means that poultry meat and eggs are free of antibiotics" even when these medications are used to prevent, control or treat disease, AAAP said.

The association added antibiotics remained "an important tool for poultry veterinarians to protect the health and well-being of flocks and should not be sacrificed in the name of marketing of an antibiotic-free product."

At the same time, AAAP acknowledged that antibiotic stewardship was "important to the veterinarians, food companies, regulators and other stakeholders who make decisions about sustainable livestock and food production" and said it supported efforts to "research and evaluate new technology and production systems that will eliminate routine use of antibiotics."

Noting that the effectiveness, dosage and duration of many of antibiotic alternatives "have not been scientifically proven to provide treatment for diseases," AAAP said it also supported research aimed at measuring their effectiveness.

Earlier this year, AAAP issued another document, "White Paper on the Judicious Use of Drugs Fed to Poultry and the Risks to Human Health."

The American Association of Avian Pathologists is an international association whose mission is to promote scientific knowledge to enhance the health, well-being, and productivity of poultry to provide safe and abundant food for the world.

AFBF PRESIDENT CAUTIOUS ABOUT ANTIBIOTIC-FREE PRODUCTION

Antibiotic-free poultry production meets a demand, but it shouldn't be carried to the extreme, says American Farm Bureau Federation leader

By: Roy Graber
Published: April 5, 2016

American Farm Bureau Federation (AFBF) President Vincent "Zippy" Duvall knows that there is a demand for poultry raised without antibiotics, but he adds that any decision to switch to an antibiotic-free (ABF) operation should not be made until thorough research is done.

Duvall, who was elected AFBF president in January, has also been a poultry grower for the past 30 years. He is currently raising chickens under contract with Pilgrim's, and all chickens in his flock will be raised without antibiotics before the end of 2016 per the request of the integrator.

But Duvall, like many other farmers, still has concerns about the health of birds raised without antibiotics.

> ***"We don't want to carry antibiotic-free [production] to the extreme that we're not taking care of our animals."***

"As farmers and in Farm Bureau, we believe that if an animal is sick, we should treat it. We also believe in a strong relationship with a veterinarian to help guide us through those treatments. To me, that's part of treating animals humanely, and that's taking care of them when they need to be taken care of," Duvall said. "We don't want to carry antibiotic-free [production] to the extreme that we're not taking care of our animals."

Duvall has a strong relationship with his veterinarian. His youngest son, Zeb, is a veterinarian and has been managing day-to-day operations at the Duvall farm while he tends to his duties with AFBF.

The AFBF president also wants to make sure that all decisions a farmer or integrator makes concerning raising animals without antibiotics are based on sound science.

> ***"If we have a minority of people who want antibiotic-free, I'm not sure they should be driving the market"***

ABF DEMAND SHOULDN'T DRIVE MARKET

Duvall knows there is a segment of the consumer base that wants poultry raised without antibiotics, but he also thinks it might not be as large as some might think. Instead, he thinks it is a representation of a smaller group of people that is being heard as more broiler companies transition into ABF production.

"If we have a minority of people who want antibiotic-free, I'm not sure they should be driving the market," he said.

"People perceive that's what the market's calling for. Some of the companies are requesting that, and moving forward thinking that's what the market's calling for. But we live in a free country, and we're all about choice. I think it is a niche market that people can go into and produce that way."

WHY YOU SHOULD CARE ABOUT ANTIBIOTIC RESISTANCE

Dr. Randall Singer, a professor of epidemiology at the University of Minnesota's Department of Veterinary and Biomedical Sciences, speaks at the International Processing & Production Expo in Atlanta on Tuesday, Jan. 26, 2016. | Austin Alonzo

By: Austin Alonzo
Published: January 26, 2016

Dr. Randall Singer, a leading mind on antibiotic use and resistance, spoke about the future of antibiotic use in the poultry industry at IPPE in Atlanta.

As regulations surrounding the use of antibiotics in animals change, a leading mind in the field of antibiotic resistance urges the poultry industry to be good stewards of the powerful tools.

On Tuesday at the International Production & Processing Expo in Atlanta, Georgia, Dr. Randall Singer, a professor of epidemiology at the University of Minnesota's Department of Veterinary and Biomedical Sciences, spoke about how the use of antibiotics contributes to the development of antibiotic resistant pathogens.

In his presentation, Singer discussed how changing attitudes and regulations toward the use of antibiotics to prevent disease in flocks and herds could affect animal and human health over the long term. The fear, he said, is that widespread use of antibiotics in animals is contributing to the creation of antibiotic-resistant pathogens which could eventually affect human health and reduce the overall efficacy of medically important antibiotics.

While the issue has attracted scrutiny around the world, there's a lack of research on how the use of antibiotics in animals affects the development of antibiotic-resistant pathogens. Singer, who's served on national advisory boards focusing on the topic, said his biggest concern is good stewardship and responsible antibiotic use.

Singer said research indicates high doses of antibiotics administered over a short period of time, the conventional way of using the antimicrobials, may be contributing to the proliferation of antibiotic-resistant pathogens.

Recent studies in animals have shown that practice is eradicating all bacteria except for the antibiotic-resistant pathogens. While he supports the U.S. Food and Drug Administration's forthcoming Veterinary Feed Directive regulations and thinks antibiotic use should be supervised by veterinarians, there's the possibility that kind of treatment could contribute to the development of antibiotic-resistant microbes.

Singer said research indicates high doses of antibiotics administered over a short period of time, the conventional way of using the antimicrobials, may be contributing to the proliferation of antibiotic-resistant pathogens. Recent studies in animals have shown that practice is eradicating all bacteria except for the antibiotic-resistant pathogens. While he supports the U.S. Food and Drug Administration's forthcoming Veterinary Feed Directive regulations and thinks antibiotic use should be supervised by veterinarians, there's the possibility that kind of treatment could contribute to the development of antibiotic-resistant microbes.

"It's possible that we will use (antibiotics) responsibly, and yet make the resistance situation worse," Singer said in an interview after his presentation.

> ***"It's possible that we will use (antibiotics) responsibly, and yet make the resistance situation worse"***

Singer said research also indicates long-term use of low doses of antibiotics, such as those used for growth promotion, may not be contributing to antibiotic resistance, but rather keeping the amount of antibiotic resistant bacteria stable. Empirical evidence from Europe, where some countries have already banned the use of antibiotics from growth promotion, suggests there could be more antibiotic resistance in animals after the use of those antibiotics ceases.

Singer, in collaboration with trade groups like the U.S. Poultry and Egg Association and the National Chicken Council, is launching a new voluntary and confidential survey to understand how broiler and layer farmers use antibiotics. The survey, he said, will help the industry collect real data on how antibiotics are being used and which antibiotics farmers are using. He urged the poultry industry to participate and take the lead on the issue.

"Antibiotics are an incredibly important piece of our arsenal for maintaining animal health," Singer said. "What we don't want is to see them disappear, and one way you do that is by documenting that they are being used responsibly and you can demonstrate stewardship.

"I fear the day where we don't have any antibiotics left to maintain animal health. Already poultry has very few compared to beef and swine. If that number continues to dwindle that would be a scary day for us."

THE CHALLENGE OF RAISING ABF POULTRY

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

ECONOMIC EFFECTS OF ANTIBIOTIC USE IN POULTRY, PIG PRODUCTION

By: Alyssa Conway
Published: December 18, 2015

A policy restricting the use of production-purpose antibiotics in livestock in the U.S. may not have as drastic of an impact on producers as typically thought, depending on how the market and consumers respond.

The U.S. Food and Drug Administration (FDA) issued a final guidance on voluntarily phasing out the use of medically important antibiotics for the purpose of livestock production in 2013. However, a large number of poultry and pig producers were already not using antibiotics, and those producers will be better off in the long-run should regulations on antibiotic use in food animal production in the U.S. get tighter. This was the conclusion of a new report released by the U.S. Department of Agriculture (USDA) Economic Research Service (ERS) and discussed by Stacy Sneeringer, PhD, USDA ERS, during a webinar on "The Economics of Antibiotic Use in U.S. Livestock Agriculture."

Farmers use antibiotics in livestock: to treat disease, control disease, prevent disease or increase productivity

Farmers use antibiotics in livestock, Sneeringer said, for four main purposes: to treat disease, control disease, prevent disease or increase productivity. However, these uses have also raised a number of public health concerns. These concerns–mainly that antibiotic use in livestock and humans can contribute to the emergence of organisms that are resistant to most or all antibiotics and that antibiotic use leads to difficult-to-treat illness or death in humans and animals – have led to recent calls for policy changes, including restricting or eliminating antibiotics for production use.

Sneeringer's research, based on the most recent data from the Agricultural Resource Management Survey (ARMS) conducted every five to six years, looked at three main questions associated with the potential economic effects of a policy restricting antibiotics for production purposes in broilers and hogs:

1. Current extent of antibiotic use for production purposes and disease prevention
2. Effects of restricting production purpose uses on animals and farms
3. Effects of production purpose restrictions on prices and quantities produced of pork and chicken

For the broiler industry, the ARMS survey, most recently conducted in 2011, found that 48 percent of farmers surveyed used antibiotics only for disease treatment; 32 percent did not know if antibiotics were used only for disease treatment (such as in the possible case of contract growers who may not know what was in the feed previously); and 20 percent used antibiotics for purposes other than disease treatment. Additionally, between 2006 and 2011, the share of broilers raised without antibiotics except for disease treatment rose from 44 to 48 percent.

7 KEYS TO ANTIBIOTIC-FREE POULTRY PRODUCTION

Make sure that every hen is vaccinated so that the chicks have the immunity they need. Missed or skipped vaccinations cost in the future. | Yuriy Bukhanovsky, Bigstock.com

By: Gary Thornton
Published: October 23, 2015

Pay attention to seven key areas of live production for successful antibiotic-free (ABF) poultry production.

Seven key areas of live production for successful antibiotic-free poultry production were discussed by John Carey, Texas A&M University, in the webinar, “Antibiotic-free poultry production requires teamwork.”

In the webinar, presented by WATT Global Media and sponsored by Jones-Hamilton Company, Dr. Carey focused on live-production basics of high importance to antibiotic-free (ABF) poultry production.

1. SUCCESSFUL ANTIBIOTIC-FREE (ABF) POULTRY PRODUCTION BEGINS BEFORE THE BIRDS ARE ON THE FARM

The period between poultry flocks is the time for the grower to perform activities needed to get the next flock off to a good start. The following are especially important in ABF poultry production:

» Assess the need for poultry litter treatment and windrowing.
» Consider closing up the housing to induce heating and purging of poultry litter.
» Downtime of less than 14 days makes it difficult to accomplish everything that needs to be done to prepare for the first seven days of the chicks’ life, including preparation of satellite drinker and feed trays, placement of paper under drinkers and establishment of drinker water temperature.
» Heat poultry houses far enough in advance of the arrival of flocks for the litter to warm enough for the birds’ comfort.

2. ABF POULTRY PRODUCTION PROGRAMS CONTINUE DURING POULTRY GROW-OUT

Attention to basic husbandry is a key to successful ABF poultry production. Growers need to spend "quality time" with the birds.

» Pay close attention to the birds in the flocks. Look, listen, smell and touch to evaluate a flock's condition.
» Avoid overreliance on automated house management systems. Human husbandry is necessary to determine how the systems are performing for the flocks.
» Reducing stocking density can be beneficial in ABF poultry production.
» Basic husbandry is crucial. Provide for the feed, water and environmental needs of the needs of flocks without interruption.
» Litter quality plays an important role in coccidiosis control. Drinker management and ventilation are crucial to litter quality.

3. REDUCE CONTAMINATION AND STRESS AT THE HATCHERY AND DURING CHICK TRANSPORT

Avoid the dehydration, chilling and exposure to pathogens that can occur at the hatchery and during chick transport.

» Pull the hatch at the proper time.
» Minimize the time involved with chick holding and transport.
» Minimize stress during chick placement; everything should ready and in place for the chicks prior to their arrival on the farm.
» Proper sanitation of everything that the eggs and chicks come into contact with is critical.

4. VACCINATION OF BREEDER FLOCKS AND SANITATION OF FERTILE EGGS ARE ESSENTIAL

The husbandry provisions recommended for the grow-out operation apply to pullets, including implementation of a coccidiosis control program.

» Make sure that every hen is vaccinated so that the chicks have the immunity they need. Missed or skipped vaccinations cost in the future.
» Send only clean, uncontaminated eggs to the hatchery.
» Avoid exposing the fertile eggs to microbial challenges.
» Egg room hygiene is important, including workers' hands and surfaces that the eggs contact.
» Maintain proper egg room temperature.

5. FEED MILLING AND NUTRITION

Avoid feed milling- and nutrition-related stresses to antibiotic-free poultry flocks. It is imperative that feed inventory and feed delivery be managed closely. Never run out of feed on the farm.

» Larger particle sizes of feed benefit gut health and flock performance.
» Assure good pellet quality.
» Feeding all-vegetarian diets is the norm in ABF poultry production but the real key is in maintaining ingredient quality.
» There is a place in ABF poultry production for feed additives, but the key is to determine what is needed from the feed additive and under what conditions the additive can deliver the needed performance.
» Water supply and quality are an essential part of the nutrition experience.

6. MANAGEMENT AND ADMINISTRATION MUST ADEQUATELY SUPPORT ABF POULTRY PRODUCTION PROGRAMS

Poultry company management must ensure that the paradigm for antibiotic-free poultry production is followed throughout the live-production operation. There needs to be commitment of resources to support the changes necessary for a successful ABF program for poultry.

» There must be a “plan B” for birds that require antibiotic treatment; flocks needing antibiotic treatment must receive it.
» Communication and coordination within the live-production operation and externally are vital.

7. VETERINARY CARE MUST ENSURE THE ABF POULTRY FLOCK’S GUT HEALTH

A main focus of veterinary care of ABF poultry flocks is on managing gut health.

» Vaccination of all breeder hens is essential for overall health of the flock.
» Coccidiosis control and gut health are of paramount importance.
» Flocks needing antibiotic treatment must receive it.

Dr. John Carey is a faculty member of the Department of Poultry Science at Texas A&M University, where he is engaged in undergraduate teaching and research in laying hen and broiler production.

TEAMWORK REQUIRED IN ANTIBIOTIC-FREE POULTRY PRODUCTION

By: Gary Thornton
Published: October 23, 2015

Successful antibiotic-free poultry production requires a paradigm change in live-production operations involving growers, nutritionists and veterinarians.

Who is involved in a successful antibiotic-free (ABF) poultry production program? Everyone involved with live production in the poultry complex, according to Dr. John Carey, Texas A&M University.

Speaking in the webinar, "Antibiotic-free poultry production requires teamwork," Carey said successful ABF poultry production starts in the hatchery and on the farm before chicks or poults reach the brooding chamber, includes every phase of live production from the feed mill to the breeder operation, and involves growers, nutritionists and veterinarians.

Carey discussed seven keys to successful antibiotic-free poultry production in the webinar, which was presented by WATT Global Media and sponsored by Jones-Hamilton Company. (see p. 30)

MAKING ANTIBIOTIC-FREE POULTRY PRODUCTION WORK

"Everyone must be involved in making antibiotic-free poultry production work," Carey said. "Every element of a live-bird division is impacted and involved in an ABF program."

Not only is everyone's involvement required, but significant change is also necessary to make ABF poultry production work.

"Everyone's job is more complex in ABF poultry production," he continued, "especially those at the front lines with direct bird contact. It is no longer business as usual – this is a big change."

CHALLENGES OF ABF POULTRY PRODUCTION

Carey named several challenges involved with ABF poultry production – the chief one being to keep the focus of the entire live-production operation on the birds and their needs.

> ***"Poultry producers must stay abreast of developments and new technologies."***

What's more, there is no single program that will result in successful ABF production in all poultry operations, he added. Every poultry producer must tailor the ABF program to the individual needs of each poultry operation.

"There is much to be learned and unlearned for successful ABF poultry production, and there is a steep learning curve involved," he said. "Poultry producers must stay abreast of developments and new technologies."

Carey warned that the difficulty of growing ABF poultry means that the bottom-performing growers will face tough challenges.

UNDERSTANDING THE ABF POULTRY PARADIGM

"There needs to be an understanding of how all of us play a role"

"One key element of an ABF program is that everyone understands that it is the paradigm for how broilers or turkeys are produced. This requires more than simply saying it will happen. There needs to be an understanding of how all of us play a role. There needs to be a commitment of resources [physical, financial and time] to support the changes necessary to make ABF poultry production successful," he said.

ANTIBIOTIC-FREE BROILER PRODUCTION IS SUSTAINABLE

Dr. David Wicker, live operations vice president, Fieldale Farms, challenged broiler company managers to change their way of thinking and develop a can do attitude regarding antibiotic-free production.

By: Terrence O'Keefe
Published: May 19, 2015

Fieldale Farms executive says antibiotic-free chicken production can be done efficiently, humanely and sustainably.

Dr. David Wicker, live operations vice president, Fieldale Farms, said, "I hear a lot that the growers are the major problem with ABF (antibiotic-free) production. No, they are not."

He told the attendees at a panel discussion on antibiotic-free poultry and livestock production at the Alltech Symposium in Lexington, Kentucky, that the real problem starts with executives and managers at integrated companies who are stubborn and can't see another way to do things.

> ***"It is best to start at a small level, because the first three years there is a steep learning curve"***

"It starts out here right in this room. We have to change a lot of thinking and develop a can-do attitude," he said.

Fieldale started antibiotic-free broiler production in the 1996-97 timeframe, according to Wicker. He said Fieldale now raises all of its broilers in the antibiotic-free program.

"It is best to start at a small level, because the first three years there is a steep learning curve," Wicker said. "You can easily lose five to 10 points of feed conversion and most companies will have trouble maintaining flock mortality rates at 10 percent or less."

ANTIBIOTIC-FREE PRODUCTION IS HUMANE, EFFICIENT AND SUSTAINABLE

"Is antibiotic-free production doable? The answer is yes, we have been doing it for 18 years," he said. "We have very few treated flocks, and we are American Humane Association approved.

For your first few years, you will have to treat lots of flocks. Later on, you will treat fewer of them."

Wicker said McDonald's announcement of the company's intention to only purchase chicken that has not been treated with antibiotics used in human medicine has really changed the landscape for broiler production in the U.S. He said that if a company wants to get into antibiotic-free production then it better have "extremely good feed quality and consistency."

"Are we sustainable? The answer is yes," Wicker said. "We recently moved to Category A in the Global Reporting Initiative." The Global Reporting Initiative is an internationally recognized sustainability initiative.

"Can antibiotic-free production be done efficiently, can it be done humanely? The answer to both is yes. I will remind everyone that all animals were raised antibiotic-free prior to the 1950s, because they were not around," he said.

PORK PRODUCER ADDRESSING CUSTOMER REQUESTS

Commenting on antibiotic-free and other specialty pork production alternatives, Doug Clemens, CEO, Clemens Family Corporation, said, "The requests keep coming in from our customer group every day. We take the approach of learning, testing and verifying." Clemens Family Corporation owns Hatfield Quality Meats, a pork processor, and Country View Family Farms, a swine production company.

> ***"The requests keep coming in from our customer group every day. We take the approach of learning, testing and verifying"***

Clemens was asked by a member of the audience what would happen to producers if they "caved in" to every consumer/customer request? Clemens replied, "We aren't caving in to what the consumer/customer says they want. We start out by asking, 'Can we do it in a way that is different from the way we have done it in the past, while keeping animal welfare at the top of the pyramid?' If we don't think we can do something, we have to ask why."

"We have been asked to do a lot of things by customers that we haven't done," Clemens said. "We will not do it until we can prove that it is sustainable."

Hatfield processes 5,000 head of swine per week in the Never Ever 3 program. Never Ever 3 is a marketing claim for livestock and meat products that is part of USDA's Process Verified program. For meat to be sold with Never Ever 3 on the product label it has to come from animals that have never received antibiotics, growth promoters or animal byproducts.

PRODUCING CHICKEN WITHOUT ANTIBIOTICS REQUIRES A PLAN

Dr. Bruce Stewart-Brown explains the steps Perdue took to produce antibiotic-free chicken.

By: Bruce Plantz
Published: February 23, 2015

With major food chains and increasing numbers of consumers looking for chicken raised without antibiotics, the demand for antibiotic free poultry is growing. Multiple factors, including maintaining good gut health, go into a successful antibiotic-free…

A few years ago, antibiotic-free poultry was considered a niche market for the type of consumer that shops at Whole Foods Market. Today, major fast food chains, mainstream retailers and even schools are offering chicken raised without antibiotics. This has brought the production of antibiotic-free poultry into the mainstream. The nutritional, health and husbandry requirements to produce chicken without antibiotics was the topic of a panel discussion sponsored by DuPont during IPPE 2015 in January.

Perdue has been one of the leading mainstream poultry producers embracing antibiotic-free production. Dr. Bruce Stewart-Brown, senior vice president of food safety and quality, talked about Perdue's 12-year journey to antibiotic-free production and some of the lessons learned. He stressed it is a process.

> ***"We've learned a lot of things…you must have clean eggs in hatchery."***

"We've learned a lot of things," said Stewart-Brown. "For example, you must have clean eggs in hatchery. We had to clean hatcheries better, had to step up sanitation and use a stricter approach as it related to personnel and procedures. I think the hatchery piece was the most significant to work through, but in the end all that cleaning and sanitation had positive side benefits in regards to chick quality."

Brown said the easiest part of the transition to producing chicken without antibiotics was to remove the growth promoters. "We took the antibiotics out of the feed and put in probiotics and prebiotics. Seven years ago, I was very skeptical, but today I believe probiotics and prebiotics have a place."

Purdue also relies more on vaccination to maintain flock health than some of its competitors. Stewart-Brown says vaccination of the parent stock is very effective in producing healthy flocks.

Other speakers on the panel included Dr. Gregory Siragusa, senior principal scientist – microbiology, Danisco/DuPont; Dr. Steven Collett, clinical associate professor, University of Georgia; and Richard Kottmeyer, founder and managing director of Strategic. The discussion was moderated by Terrence O'Keefe, WATT's content director-agribusiness.

POULTRY GUT HEALTH IMPORTANT

Dr. Siragusa echoed Stewart-Brown's statements on performance without antibiotics. He said that studies have shown that overall performance does not have to suffer, but can even be better than flocks using growth promoters.

"There are a lot of variables involved and new systems have to be put into place," said Siragusa. "You have to customize the program, plus the practices of the organization. If it is done right you can get better performance from antibiotic free flocks."

Siragusa said the key to optimizing bird performance without growth promoters is to optimize the flora in the gut. "If you look back five years ago, we knew so little about what was making up that flora," he said. Over the last two or three years, we've been able to figure that out."

Dr. Collett agreed that managing poultry gut health is one of the key variables in raising broilers without antibiotics. "Seeding the gut with the correct flora is the most important part," he said. "That can be done in the breeder stock in the hatchery."

> ***"Seeding the gut with the correct flora is the most important part,"***

Collet said that, in the past, the industry has used antibiotics to control unfavorable bacteria in the gut, but the prebiotic has a very strong role in suppressing the unfavorable elements versus the favorable flora and can be as effective, with proper management.

Collet said vaccination for disease control is also a vital part of a successful antibiotic-free production system. "Coccidiosis control becomes very important in antibiotic free production," he said. "You have to use coccidiosis vaccines."

CONSUMERS WANT CHICKEN WITHOUT ANTIBIOTICS

Kottmeyer spoke on the consumer sentiment toward antibiotic free poultry. He said that the consumer is convinced antibiotics use in poultry is detrimental to human health because the Centers for Disease Control and Prevention and the American Medical Association turned antibiotic use in animals into a human health issue.

"We now have a lot of people who know someone who has problems with antibiotic resistance," said Kottmeyer. "It is a mainstream health issue. I think in a few years, one-third of chicken and turkey will be antibiotic free. The problem then is the other 66 percent of consumers will be resenting the fact their chicken isn't antibiotic free."

SECRETS TO ANTIBIOTIC-FREE POULTRY PRODUCTION

By: Gary Thornton

A panel of experts dissected the secrets to successful antibiotic-free poultry production.
Hint: There is no single secret – success is mainly from superior execution of poultry production basics.

If there is a secret to antibiotic-free (ABF) poultry production, it is that producers are using powerful tools to make their ABF programs successful – in most cases, these tools are old ones just better applied than in the past. Combine those tools with the customized use of prebiotics, probiotics and organic acids, and you have the formula for maintaining competitive performance in ABF poultry production.

In the final analysis, there are no real secrets to successful ABF poultry production. Success boils down to trial and error leading to customized application of non-antibiotic feed additives and the superior execution of the fundamentals of poultry production.

A lot can be learned, however, from the experiences of veterinarians at U.S. poultry companies that have invested in ABF-friendly hatcheries, conducted trials with feed additives and refined live-production management techniques to make antibiotic-free poultry production successful.

FOUR EXPERTS SHARE KNOWLEDGE OF ABF POULTRY

WATT Global Media presented, "Judicious use of antibiotics in the poultry industry," which featured the following experts:

- **Bruce Stewart-Brown** Vice President of food safety and quality | Perdue Foods
- **Brian Wooming** Senior Staff Veterinarian | Cargill Turkey Products
- **Jeff Courtney** Director of Veterinary Services | Pilgrim's
- **Alastair Thomas** DFM Business Manager | DuPont

The panel presentation, sponsored by DuPont – Danisco Animal Nutrition, took place during the 2016 International Production and Processing Exposition (IPPE).

> ***"Integrators are changing production practices to meet the demands of the marketplace in the U.S."***

"Integrators are changing production practices to meet the demands of the marketplace in the U.S.," said moderator Terrence O'Keefe of WATT Global Media. "Poultry growers, nutritionists and veterinarians are being challenged to raise birds using fewer antibiotics. Meanwhile, they must maintain good performance and welfare without raising food safety concerns."

MIGRATION TO ANTIBIOTIC-FREE POULTRY PRODUCTION BY SOME PRODUCERS

The top veterinarian at Pilgrim's said the company produces ABF broilers at two poultry complexes – one of which is fully dedicated to ABF production and the other with half conventional and half ABF production.

Courtney said, "We are learning, as we transition broiler complexes to ABF production, that adjustments in management must occur for the program to be successful. Some people may expect to be able to continue business as usual when antibiotics are removed from flocks, but it requires a whole change in mindset of paying attention to every little detail of production management."

Jeff Courtney, director of veterinary services, Pilgrim's

Perdue Foods is raising approximately 70 percent of its poultry in "no antibiotics ever" (NAE) production and continues its migration to NAE production. Stewart-Brown said some of the company's hatcheries are achieving lower seven-day mortality in ABF flocks than when antibiotics were being used.

"We're working hard in the process of migrating to NAE production," he said, "but it takes a lot of work and preparation. I don't think that every bird in the United States should be raised under NAE production."

MANAGING ANTIBIOTIC-FREE POULTRY PRODUCTION

Antibiotic-free (ABF) poultry production programs succeed or fail based on superior execution of the basics of poultry management, the panelists agreed. There are no silver bullets to make an ABF program successful. Having the right people with the right focus, however, is essential.

Stewart Brown said, "We have been working on a definition of an ABF farm and an ABF farmer to identify what makes them successful. Successful NAE (no antibiotics ever) poultry complexes are characterized by tight relationships between their flock advisors and growers. They might talk every day to identify problems early and do things other than using antibiotics. It is a powerful tool that has been there all along but the removal of antibiotics forces them to have tighter everyday relationships.

"For example, don't tell me how many poultry have died," he continued, "but do tell me what the water consumption is [and other environmental clues about the health of flocks]. Those things are very helpful in knowing what early action to take."

Bruce Stewart-Brown, vice president of food safety and quality, Perdue Foods

Wooming agreed that monitoring of in-house environmental cues – such as carbon dioxide and humidity levels – is important to maintaining performance in ABF poultry flocks.

"There is not one thing that solves all the challenges of maintaining good performance in ABF flocks," he said, "but a combination of factors influences success in growing birds with no or reduced use of antibiotics."

> ***"There is not one thing that solves all the challenges of maintaining good performance in ABF flocks"***

INTERACTIVE ABF POULTRY PRODUCTION TEAMS

Wooming said ABF poultry production is creating a heightened need for near-instantaneous communication and interaction between field service personnel and veterinarians. Cargill is equipping field service staff with smartphones and other Internet-based technology to allow them to communicate quickly and easily with company veterinarians.

This communication can include Internet texting of mortality data and the transmission of images of flock conditions including post-mortems.

"Field service people, by using this technology, can communicate quickly with me or other veterinarians about the care and treatment of flocks," he said, and this results in quicker health care decision-making and action.

WHAT MAKES A SUCCESSFUL ABF POULTRY PRODUCER?

Stewart-Brown said poultry producers are still trying to understand what makes a successful ABF poultry farm and farmer. Some growers, he said, need more help in transitioning from traditional to NAE poultry production.

"It became obvious during our migration to NAE production that some of the poultry growers who tended to finish in the top tier in flock performance in traditional production did not readily make the transition to NAE production and fell to the middle of the pack in performance. Other growers who tended to rank in the middle in flock performance in traditional production were more successful in NAE production.

"We came to realize that NAE production is not for everybody. Some farms and farmers shouldn't do it. In some cases, it is more work than they signed up for and that is OK. The people who are successful in NAE production have a different kind of make-up," Stewart-Brown continued.

SUCCESSFUL ABF POULTRY PRODUCTION

Stewart-Brown said Perdue may have made a mistake in the transition from conventional to ABF poultry production by making the change-over invisible to the farmer.

“In the beginning, we made it invisible to the farmer that we were transitioning to ABF production. That, in retrospect, probably was a mistake to some degree. We needed to have the farmers involved at the start of the process.”

One of the key changes was the addition of probiotics to the feed package. “We were working on making the growers successful without them having to change their practices very much,” he explained.

Today, however, Perdue’s growers are heavily involved in the adjustments needed to make ABF production successful.

MEASUREMENT OF ANTIBIOTIC USE HAS BENEFITS

The panelists agreed that measuring antibiotic usage benefits the production performance of flocks and the organizational culture of the poultry company. Measuring the number of antibiotic treatments on a farm, for example, helps identify poultry farms or individual houses that would benefit from extra attention and care.

Wooming named three benefits to measuring antibiotic usage:

1. More care is taken by production team members in deciding if and when to use antibiotics.
2. Farms are identified where there needs to be resolution of chronic or multifactorial problems impacting flock health.
3. Team members are more willing to adopt alternatives to antibiotics and use them sooner.

Brian Wooming, senior staff veterinarian, Cargill Turkey Products

ANTIBIOTIC-FREE POULTRY PRODUCTION AND OPERATIONAL CULTURE

> ***"The cultural impact in the company of monitoring these management practices is just as important as what is done operationally"***

"The cultural impact in the company of monitoring these management practices is just as important as what is done operationally," Stewart-Brown said.

The intense focus on the details of poultry production management can come close to being "neurotic" in the ABF poultry complex, he joked, as the production team works to minimize seven-day mortality.

Hatchery managers in the ABF operations must be intensely focused on management details, he said. The hatchery manager, for example, needs to demand that eggs received be clean. That leads to close attention at breeder farms on litter quality and other factors that impact contamination of hatching eggs, including the need to reduce the number of floor eggs and maintain the cleanliness of breeder nests.

DOWNTIME BETWEEN FLOCKS IS POWERFUL TOOL

Adequate downtime between flocks is crucial to good performance in in ABF poultry production.

"In the past, the processing plants tended to dictate the layout time between flocks," Courtney said. "Now we try to set and adhere to a minimum number of days of layout – whether 16 or 18 or whatever the number of days. Layout needs to be as long as feasible while allowing growers enough flocks in a year for their economic success."

Wooming said the number of days that a poultry house is idled under dry and clean conditions is more important than the overall numbers of days idle. This is especially true of turkey brooder houses that are cleaned out after every flock.

"The number of days the barn is dry and clean between flocks is probably more important in turkeys. How long is long enough? It depends on the geographic location (some areas tend to exhibit more intense health challenges), and whether the complex or the farm is a multi-age facility or an all-in/all-out facility, which requires fewer days of downtime," said Wooming.

> ***"The number of days the barn is dry and clean between flocks is probably more important in turkeys…"***

Stewart-Brown said, "Layout is like magic. It is the most powerful tool we have to manage the microbiology in the poultry house. It is wrong to not respect it, especially with NAE production. A lot of discipline is required in managing downtime, and the whole company has to be disciplined when it comes to allowing adequate downtime."

CAPITAL INVESTMENT IN ABF HATCHERIES

Reducing or eliminating antibiotics in poultry production calls for more capital investment over time. Stewart-Brown said Perdue's migration to ABF production has involved 12 hatcheries for which every renovation or expansion of facilities is an opportunity to invest to be able to reduce antibiotic usage. For example, the company has invested in the construction of separate rooms equipped with laminar flow hoods for the mixing of vaccines.

"Every time a hatchery [is renovated or expanded] build it back with the reduction in the usage of antibiotics in mind, and your hatchery will change over time," he said.

FEED ADDITIVES: NOTHING WORKS LIKE ANTIBIOTICS

Thomas said that many poultry producers are looking for a single solution or feed additive to replace antibiotics: "I don't think that is a possibility because flexibility is needed. A particular prebiotic, probiotic or organic acid needs to fit the individual challenges of different production programs and poultry complexes."

Alastair Thomas, DFM business manager, DuPont

Cargill Turkey Products uses both prebiotics and probiotics in feed rations for both conventional and ABF flocks. The company continuously tests new feed additives, Wooming said.

Stewart-Brown said nothing works like an antibiotic. “Other additives are useful,” he said, “but require a lot of infrastructure, thought and trials to figure out how they best work in your production system.”

COMMUNICATING WITH CUSTOMERS, CONSUMERS ABOUT ANTIBIOTICS

The panelists expressed differing opinions about what information poultry producers should share publicly about their antibiotic usage.

- Pilgrim’s Courtney said he believes it is better to educate activists about why antibiotics are used rather than sharing usage data with them.
- Thomas said there should be an emphasis on the benefits of judicious use of antibiotics, such as the number of birds saved by judicious use.
- Stewart-Brown advocated sharing antibiotic usage data based on percentages of farms or flocks treated but not on pounds because administration rates differ by type of antibiotic.
- Wooming said that antibiotic usage might be stated on a per-pound basis of live poultry.

Stewart-Brown said there are three measures of antibiotic usage that Perdue is prepared to share publicly:

1. Percentage of poultry raised in antibiotic-free production programs
2. Percentage of farms or flocks receiving human-used antibiotics
3. Percentage of farms or flocks receiving animal-only antibiotics

“These three things are useful to know, and we are ready to share them with anybody who asks [about Perdue Foods’ antibiotic usage],” he said.

VIEW VIDEOS FROM THE PANEL DISCUSSION:

Where do ionophores fit in antibiotic-free production?
How can growers be more successful in ABF programs?
Controlling mortality in antibiotic-free production
Do consumers care about medically important antibiotics?
Which non-antibiotic alternatives have shown promise?
What works for ABF production at the farm level?

INFOGRAPHIC: 6 MYTHS ABOUT POULTRY PRODUCTION

By: Alyssa Conway
Published: September 29, 2015

This infographic sheds light on myths busting misconceptions about antibiotics in poultry production, litter as a waste product, chicken growth and more.

Consumers' perceptions about poultry production may end up being a deciding factor as to whether or not they ultimately purchase these products when shopping for food. So, in an age where consumers often trust their friends or misinformation on the Internet instead of seeking out further research from truly qualified sources, it is in the poultry industry's best interest to be transparent and forthcoming with the facts about how birds are raised in the U.S.

In an effort to do just that, media members attending the 2015 Chicken Media Summit heard four poultry experts bust these six common poultry production myths.

Media in attendance of this second summit, "Chicken: Farm to Forklift," sponsored by the National Chicken Council and U.S. Poultry & Egg Association (USPOULTRY), spanned print, broadcast and digital, including reporters from Bloomberg Business Media and the *Wall Street Journal* to popular food bloggers. Attendees had the opportunity to tour a poultry farm, hatchery, processing plant, and research and development facility, and question poultry industry leaders. Industry leaders speaking at the event included: John Glisson, vice president of research for USPOULTRY; Jennifer Rhodes, extension educator for Agricultural and Natural Resources, University of Maryland Extension, Queen Anne's County; Kate Barger, director, World Animal Welfare, Cobb-Vantress; and Christine Daugherty, vice president of sustainable food production, Tyson Foods.

LIFE WITHOUT ANTIBIOTICS IN POULTRY PRODUCTION

A big challenge in antibiotic-free poultry production is the control of coccidiosis, which can lead to necrotic enteritis.

By: Gary Thornton
Published: June 9, 2014

How are broiler producers coping with the flock health challenges in antibiotic-free production?

U.S.poultry producers are using fewer and less antibiotics in broiler flocks as public concern over the use of antibiotics in food-producing animals intensifies. Broiler flocks are being grown without the use of antibiotics in antibiotic-free (ABF) production programs. Broiler producers are still learning how to manage ABF flocks, which present greater disease control challenges.

Speaking at the 2013 Poultry Health & Production Seminar, Dr. Tim Cummings, senior technical services veterinarian, Zoetis, presented the results of an informal survey of veterinarians, researchers and consultants with experience in antibiotic-free poultry production programs.

EXPERIENCES WITH ABF POULTRY PRODUCTION

Cummings shared the early experiences reported by five broiler companies and two experts involved in ABF broiler production. He drew a number of conclusions from their responses:

- All-vegetable diets seem to work best.
- Husbandry plays a pivotal role in keeping flocks healthy.
- It helps to reduce bird density and maintain adequate downtime between flocks.
- Litter management is critical to success of ABF production programs.
- Coccidiosis vaccination works, when properly administered.

"There is definite variability in the way that companies grow ABF flocks but some similarities as well," he said. "It is important to realize that every poultry complex will be different and may require its own tailored approach."

"There is definite variability in the way that companies grow ABF flocks but some similarities as well"

It is important to keep in mind that ABF poultry production is evolving. The survey results reported here might not be indicative of current practices and experiences on all points.

SOUTHEASTERN COMPANY ROTATES VACCINES, CHEMICAL COCCIDIOSTATS

One of the five broiler companies that Cummings surveyed started with a small percentage of flocks in an ABF program but now has nearly 100 percent committed to ABF production.

Necrotic enteritis/enteritis remains a significant, seasonal problem, which is worse in the winter.

ABF program basics included the following:

» Feeds an all-vegetable diet
» Bird density reduced
» Coccivaccine administered, in rotation with chemical coccidiostats
» Built-up litter is maintained; litter is acidified
» Tries to maintain a minimum of 14 days downtime between flocks

This company gives growers a "conventional program break" when a farm's flock performance deteriorates or necrotic enteritis becomes severe.

One breed of broiler seems to perform the best in ABF conditions, the company reported to Cummings.

SOUTHEASTERN COMPLEX ADMINISTERS PROBIOTIC AT HATCHERY

Another broiler company that Cummings surveyed has a complex in the Southeast with production that is half ABF and half conventional. The company's ABF flocks experience some enteritis but practically no necrotic enteritis.

While broilers are grown to 6.5 pounds with good livability, the company reported feed conversion is 2 points less in ABF flocks.

ABF program basics included the following:

» No animal by-products in the diet, only corn and soy
» No antibiotics are administered at the hatchery
» At least 18 days downtime maintained between flocks
» Bird density is reduced compared to conventional flocks
» Built-up litter maintained; litter is acidified
» SIS (non-defined probiotic approved for use on litter) sprayed on the chicks at the hatchery

Cummings reported that the company rotates farms between ABF and conventional production when enteritis and/or necrotic enteritis become more severe. It reported a 5-point improvement in feed conversion with the rotation.

UPPER MIDWEST COMPANY: NO COCCI VACCINATION

A broiler company surveyed by Cummings in the Upper Midwest has 50 percent of production antibiotic free.

The company has used chemical coccidiostats in the starter/grower feeds for a couple of years in the ABF birds without cocci vaccination without major problems, he reported.

In the company's conventional flocks, in which ionophores are used, there is gangrenous dermatitis but no necrotic enteritis. In the company's ABF flocks there is some necrotic enteritis but no gangrenous dermatitis. Nonetheless, necrotic enteritis has not been a significant problem in the ABF flocks and performance is good, according to Cummings' survey.

ABF program basics at the Midwest company included the following:

- All-vegetable diets with no meat and bone meal are fed.
- Prime hatching eggs are used for the ABF program.
- No antibiotic is used in the hatchery for ABF birds (0.3 percent higher first-week mortality experienced in ABF flocks).
- A probiotic is used in the feed.
- Bird density is reduced compared to conventional flocks.

The brood chamber is cleaned out after every flock, and the litter is a mixture of rice/oat hulls and/or pine shavings. No litter treatments are used.

Necrotic enteritis outbreaks are treated with copper sulfate/acidifier and in a preventative program on days 3-7 as well as 21-28.

WEST COAST COMPANY STRESSES SUPERIOR HUSBANDRY

All production is ABF at this West Coast broiler company, where the emphasis is on close attention to flock management, according to Cummings.

When the company first adopted ABF production, necrotic enteritis was very severe in the flocks. By closely managing the birds' gut flora and the grow-out environment, flock health and performance has improved.

The production program at the West Coast company included the following:

- There should be no fluctuations in house temperature.
- Brooding temperatures are 2 degrees higher than conventional.
- Any disruption in eating pattern is avoided.
- Water quality is key and adjusted to pH 4-6.
- Flocks are managed to reduce stress, especially days 14-21.
- There is a strict downtime policy of 15-17 days.
- Immunosuppressive pathogens are monitored and controlled
- The proper application of cocci vaccine is considered to be vital.

"The company has learned that gut flora and house litter management is a key to the ABF program's success," Cummings said. "Some probiotics, prebiotics and acidifiers have been used in the feed and/or water successfully but in conjunction with the total overall management program."

It is critical that litter be kept dry and an acidifier be applied to the litter, the company told Cummings. Where litter is cleaned out on a dirt floor, salt is put down.

EAST COAST COMPANY: CLOSE MANAGEMENT REQUIRED

This East Coast broiler company stresses flock management in ABF production, according to Cummings.

Necrotic enteritis is experienced in ABF flocks, more so in the winter, the company reported. ABF program basics at the East Coast company included the following:

- No animal by-products are used in diets.
- The company administers cocci vaccines, but rarely uses chemical coccidiostats and tends not to use ionophores.
- Probiotics in the feed seem to provide some benefit, but prebiotics are not used.
- Antibiotics in the hatchery are generally not used.
- Bird density is reduced in certain grow-out areas.
- Downtime is variable, but must be adequate.
- Litter acidification and windrowing is used.

> ***"Don't just go to ABF production and hope for the best"***

Close attention must be paid to the management of air, water, litter and feed in ABF flocks. A company manager told Cummings: "Don't just go to ABF production and hope for the best."

CONSULTANT: CONSIDER ADJUSTING BIRD DENSITY

A consultant with experience in ABF production shared a number of recommendations with Cummings.

BIRD DENSITY: The consultant recommended bird density of a little over 6 pounds per square foot versus the industry average of 7.5 pounds per square foot. Reducing square footage is best and really doesn't lose as much as the increased gain which often offsets the reduction in placement density.

TIMING OF LITTER ACIDIFICATION: *Clostridium perfringens* levels in the litter need to be reduced to promote flock health. While litter acidifiers are widely used, the timing of application is an often overlooked factor in their effectiveness. The consultant recommended windrowing or treating litter with an acidifier immediately after birds are harvested. Application at this time destroys the most Clostridia before spore formation, he said.

DOWNTIME: While downtime between broiler flocks on farms is often not a discretionary management factor, the longer the downtime the better. The consultant said downtime longer than two weeks is preferred.

Other recommendations from the consultant included the following:

- Most cocci vaccines can work but must be properly administered.
- All-vegetable diets and enzymes are strongly recommended.
- The consultant's program involves feeding a commercially available yeast cell wall mannan oligosaccharide.
- Probiotics should be given as early as possible, preferably sprayed at the hatchery with cocci vaccine.
- Acidify the flock's drinking water for the first three days or a week. This promotes the establishment of microflora in the bird's gut and the effectiveness of probiotics.

RESEARCHER: CONSIDER THE PRODUCTION SITUATION

A researcher, who conducts extensive research involving gut health and necrotic enteritis, offered observations and recommendations for ABF broiler production.

The management of ABF production can be aided by an understanding of the disease challenge.

- Necrotic enteritis is more likely to occur on new litter.
- More light will increase the necrotic enteritis challenge.
- The use of rice or oat hulls will increase litter consumption, which can increase the risk of necrotic enteritis.
- Increased litter moisture will result in more necrotic enteritis.
- Necrotic enteritis can occur in hot spots in the chicken house, so manage the house environment.
- Birds are less susceptible to necrotic enteritis after four weeks of age, so manage the flock so as to delay the development of cocci lesions.
- Breed is a factor in that early, rapid growth predisposes birds to necrotic enteritis.
- Minor turn-out mismanagement may set the birds up for the disease.
- Increased protein levels increase susceptibility to necrotic enteritis.
- Low temperature or chilled chicks predisposes the birds to necrotic enteritis.
- Feed outages during peak susceptible periods will predispose birds to necrotic enteritis once they are back on feed.

CUMMINGS OFFERS ABF PRODUCTION PRINCIPLES

Feed additive antibiotics have been used over the years because they work, according to Cummings. As poultry producers move to the use of fewer and less antibiotics, he offered the following principles:

- Intestinal and litter microflora are involved, so new programs may take some time to fully assess.
- Experience teaches that not all programs work in all poultry production complexes.
- Alternative products definitely have a role but the strengths and weaknesses of each product must be understood.
- Although some products or product combinations have demonstrated efficacy, they need to demonstrate an economic return.
- No product will work consistently without total program support including management.

No endorsement of products or brands is intended or implied by citation or mention in this article. The survey of industry practices conducted by Dr. Cummings in a prior year may not be indicative of current practices and experience in all cases.

Water can be the hidden problem in poor broiler performance: www.WATTAgNet.com/167283.html

ANTIBIOTIC-FREE (ABF) PRODUCTION AT FIVE US POULTRY COMPANIES

Practices and Experience with Necrotic Enteritis

	Southeastern company	Southeastern complex	Upper Midwest company	West Coast company	East Coast company
Scope of ABF production	Nearly 100%	Single complex, 50%	50%	100%	Not specified
Diet	All vegetable	No animal by-products	No meat/ bone meal	Conventional	No animal by-product
Growing density vs. conventional	Reduced	Reduced	Reduced	Conventional	Reduced in some cases
Coccidiosis vaccination	Yes[1]	Yes	Not Reported	Yes	Yes
Chemical	Yes[1]	Not Reported	Yes	Not reported	Used rarely
Probiotic/ Prebiotic	No/No	Yes[2]/No	Yes/No[3]	Yes/Yes	Yes/No
Litter acidification	Yes	None	None	Yes	Yes
Downtime between flocks	14 days or more	18 days	Not reported[4]	15 to 17 days	Variable; considered important
Necrotic enteritis incidence	Significant, seasonally	Practically none	Not significant	Not significant	Some seasonally

Source: Presentation by Dr. Tim Cummings, Zoetis, Poultry Production & Health Seminar, 2013

1 = Cocci Cavcines/chemical coccidiostats in rotation

2 = SIS non-defined spray on chicks

3 = Under evaluation at time of report

4 = Brood chamber cleaned out between every flock

Poultry companies are still learning how to manage ABF poultry production. Early experience indicates:

1. Cocci vaccination works, when properly administered.
2. All-vegetable diets seem to work best.
3. Litter management and downtime between flocks is critical to success.

THE FUTURE OF ANTIBIOTIC USE IN POULTRY PRODUCTION

Published: November 28, 2011

The availability of antibiotics in poultry production depends on greater understanding of their risks and benefits.

The availability of antibiotics in poultry production depends on greater understanding of their risks and benefits. The regulatory status and use of antibiotics in poultry production were addressed in research presented at the annual meetings of the Poultry Science Association, American Association of Avian Pathologists and the American Veterinary Medical Association.

Topics covered in one of the symposia ranged from the effect of antibiotics in poultry on consumer shopping, the need to educate people on the differences in the way that antibiotic use is reported, the current use of antibiotics in poultry, and the discussion of the possible ways that antibiotics will be administered and their use monitored in the future.

THREE CLASSES OF ANTIBIOTIC USAGE

One of the first things to understand is that antibiotics can be classified into three uses which include therapeutics, disease prevention and growth promotants. An antibiotic is a chemical produced naturally by a bacteria or fungus to inhibit the growth of neighboring bacteria, where antimicrobials include both the antibiotics and those compounds that are manmade, like sulfa drugs.

Preventative growth promotants are often added to the feed to improve feed efficiency. These antibiotic feed additives are used at low-dose, therapeutic levels to decrease organisms such as *Clostridium perfringens* that cause necrotic enteritis. In addition to preventing subclinical *C. perfringens*, the growth promotants may have a benefit in food safety, as found in two studies by Dr. Scott Russell at the University of Georgia which demonstrated that birds with airsacculitis that were not given antibiotics were significantly higher in *Campylobacter* and *Salmonella*.

There are situations where animals do contract infections that require therapeutic antibiotic administration. This is not only important to the production aspects of the food animal but also is critical in terms of animal welfare.

ANTIBIOTIC RESISTANCE MISUNDERSTOOD

The threat of organisms developing resistance to antibiotics used in human medical treatments is one of the biggest concerns raised in this debate. Research on antibiotic resistance continues to help us better understand the factors that impact this mechanism. Consumers armed with their power of purchasing choice have also greatly influenced the amount and depth of research on this topic, by insisting on antibiotic-free and reduced antibiotic use in the animals for food choices. Media sources have put a heavy emphasis on antibiotic use in food animals and its potential impact on antibiotic resistance. However, there are other factors that can affect the development of antibiotic resistance, which include, but are not limited to, human medical use and perhaps even practices of sanitation and disinfection.

The use of antibiotics as preventative growth promotants is probably the most misunderstood by the general public. Many people interpret the use of antibiotics to be the same, whether it is a therapeutic treatment of disease or preventative control of subclinical disease such as necrotic enteritis. Several speakers at this symposium shared data from various sources both domestic and international, which indicated that data comparisons were not comparing apples to apples. When reading the summaries that have been published by both domestic and foreign

organizations on antibiotic use in food animals, the reader should be aware of whether the reports include one or a combination of the three antibiotic categories. For example, some reports may only include therapeutic and preventative growth promotants, whereas others will include therapeutics, preventative growth promotants and ionophore coccidiostats.

VETERINARY FEED DIRECTIVE

One regulatory step that is currently being taken by the FDA (Draft Guidance Document No.209) to restrict antimicrobial drugs in food producing animals is to limit their use to situations that do not include the label for growth promotion or performance enhancement. The new FDA guidance will also require greater veterinary oversight. This means that anytime antibiotics are utilized in feed, a veterinarian will have to sign authorization forms called a Veterinary Feed Directive.

For many companies the oversight task alone could dominate a veterinarian's time, reducing their time and effectiveness in monitoring flock health. The FDA is aware of this situation and is working with the American Feed Industry Association and the AVMA to make the VFD process more workable while still protecting animal health. It is believed it will also protect humans by reducing the potential of antibiotic use in food animals, causing increased resistance in human bacteria.

INCREASED POULTRY PRODUCTION COSTS

Antibiotic use in the poultry industry has decreased over the last decade. Companies are striving to utilize fewer antibiotics in feeds, and they are using genetic selection, bird management and house sanitation to reduce the load present of disease-causing organisms. However, even with these steps, there are concerns that the cost of producing chicken will increase because of the decreased use of antibiotics. It might be from a variety of causes such as increased incidence of disease, decreased feed efficiency due to the omission of growth promotants, or increased costs related to disinfection and sanitation procedures to reduce disease-causing organisms.

In the end, there are still situations that will require the use of therapeutic antibiotics in poultry flocks that have infections. Many companies are voluntarily removing preventative growth promotants from diets, but the debate will continue on how these actions will impact antibiotic use and resistance in the future.

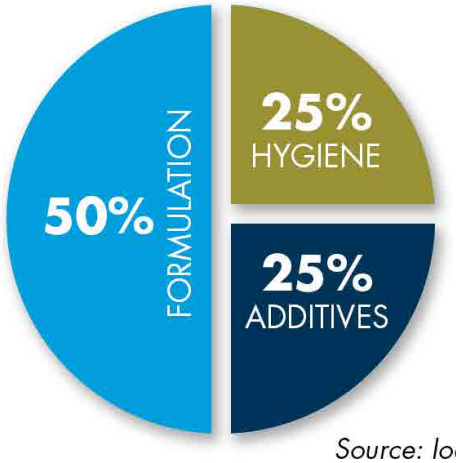
FORMULATING LIVESTOCK DIETS WITHOUT ANTIBIOTICS: THE COST ISSUES

By: Ioannis Mavromichalis
Published: July 16, 2015

Looking beyond alternatives, we must focus on cost, ingredient selection and dietary nutrient adjustments to fully replace in-feed antibiotics.

In most cases, any discussion regarding replacing in-feed antibiotics revolves around the topic of replacements. Yet, experiences from the European Union reveal that no single additive can fully compensate for the removal of antibiotics from pig and poultry feeds. Not only is a combination of additives is required, but also, a refocus on feed formulation with particular emphasis on ingredient selection and dietary nutrient adjustments. In my opinion, even more important is the issue of animal health and that of overall farm health status (see Figure 1), but this is beyond the scope of this article that focuses on nutritional intervention strategies.

FIGURE 1: AREAS OF IMPORTANCE IN THE ABSENCE OF FEED-GRADE ANTIBIOTICS



Source: Ioannis Mavromichalis

While farm hygiene plays an important role in maintaining the performance in an antibiotic-free diet, proper formulation and the introduction of feed additives contribute much to successful animal production.

To begin with, let's imagine any nutritionist faced with the challenge of reformulating a diet without antibiotics. After having selected the combination of additives required, the nutritionist is looking at a computer screen facing the main interface of a feed formulation program. Our nutritionist must have an alert eye on three aspects: cost, ingredients and nutrients.

Quite often, the cost, which is rather important if the feed is to be sold, is neglected with subsequent reformulation attempts to bring it down to more "reasonable" levels. So, we shall address these three areas in the above order in three serial articles starting with cost that largely defines or rather constricts the options for the other two aspects.

PREPARING FOR THE INEVITABLE

Antibiotics (and similar other antimicrobial agents, which are all referred to as antibiotics for simplicity's sake) were, without the slightest doubt, very cheap. So cheap, that they became universal, allowing for a more relaxed attitude towards feed formulation principles.

But, in many parts of the world where antibiotics are already or soon will be gone, alternative options are unlikely to be as inexpensive. In fact, the more efficacious is such an alternative, the more expensive it will be, until similar products become competitively produced and marketed. But, given the fact that such a single product or combination of additives has yet to be proven as effective as most antibiotics were, alternatives will remain rather expensive for the foreseeable future.

Thus, manufacturers and users of antibiotic-free diets should be prepared to sell and buy such diets at higher prices than they were used to before. It might be that in a market where antibiotics are still allowed, antibiotic-free diets may have to be sold at a lower margin in order to establish a viable market.

COST-CONTROL MEASURES

In other cases, such as in most EU countries and nowadays in the U.S., antibiotic-free diets are kept less expensive to what they should have been because of fierce competition, reluctance to buy expensive feeds and a general preference for less "efficient" diets due to widespread economic crisis. But, quality also suffers when such diets are offered at reduced prices, because margins are quite often inelastic.

In my own experience, it is always better to use a more expensive, and proper, antibiotic-free diet for a reduced period of time, rather than a less expensive diet for a longer period of time.

> **it is always better to use a more expensive, and proper, antibiotic-free diet for a reduced period of time…**

For example, if a medicated pre-starter was to be used, say, at 2 kg per piglet, or in for two weeks in the case of broilers, and cost for a non-medicated similar feed is deemed excessive, it is better to reduce allowance of such expensive diet to 1 kg per piglet or one week for broilers, rather than use a diet that is less expensive but used as per usual.

Although a less expensive feed will be suitable for the period towards the end of the period in question, it will cause nevertheless more damage than it will do good in the first stage. So, it is best to err towards less "quantity" rather than "less quality."

WILL ANTIBIOTIC-FREE BROILER PRODUCERS BE COMPETITIVE?

A U.S. researcher says broiler production without antibiotics will not work without ionophores. | Peter Dean

By: Terrence O'Keefe
Published: September 16, 2015

Researcher thinks U.S. chicken industry will lose its ability to compete on price in global markets if 'no antibiotics ever' and 'raised without antibiotics' programs become standard practice

The cascade of foodservice outlet pledges to purchase only chicken from flocks that have been raised without antibiotics that started with Chick-fil-A's is causing a major shift in how broilers are raised in the United States. Dr. Steve Davis, DVM, Colorado Quality Research, said,

"In my opinion, it (raised without antibiotics broiler production in the U.S.) won't work without ionophores." The problem, he explained, is that some antibiotic-free husbandry programs being mandated by customers are calling for "no antibiotics ever" and exclude the use of ionophores, a class of coccidiostats that also have antibacterial properties.

Davis told the audience at USPOULTRY's Live Production & Welfare Seminar, in Nashville, "I fear this will make the U.S. broiler industry noncompetitive in the world market." The research that Davis has conducted on necrotic enteritis, which has already become a major health problem in the U.S. broiler industry, has convinced him that prevention of this disease without access to antibiotics will be an even bigger problem for U.S. broiler producers as they move to reduce or eliminate antibiotic use in the future.

Davis speculated that broiler complexes in dry climates, which excludes most of the U.S. broiler belt, would have an advantage in antibiotic-free production because dry air helps keep litter dry and control coccidiosis in flocks and prevent necrotic enteritis from developing. He said that antibiotic-free production in the U.S. may only be feasible in some complexes with increased house cleanouts, perhaps as often as every flock, and houses might need to have concrete floors. Increased downtime between flocks, reduced bird densities in houses, and low-protein vegetarian diets may also be required, according to Davis.

Antibiotic-free broiler production could be an "industry killer" for the U.S., according to Davis, and he questioned if it was sustainable. As a veterinarian, Davis said he finds that no antibiotics ever and raised without antibiotics growing programs are troubling. They are "not best for the chickens and not best for the chicken companies," he said.

5 TIPS FOR RAISING HEALTHY ANTIBIOTIC-FREE POULTRY

Chicks given the best developmental opportunities in the shell will be easier to manage in antibiotic-free systems.

By: Ole Lund Svendsen
Published: May 19, 2016

The difficulties of antibiotic-free poultry production can be overcome by following carefully considered strategies.

Demand for antibiotic-free (ABF) poultry is growing fast, and what was once considered a passing trend has become a well-established, health-conscious requirement for consumers worldwide.

However, ABF production presents challenges for meat producers, who are taking distinct approaches to its development, with different results.

While some producers still have difficulties in controlling health challenges, others have had success, due to improvements in housing and changes in feeding, management and health programs. The various approaches to ABF production can be grouped as:

Demand for antibiotic-free (ABF) poultry is growing fast, and what was once considered a passing trend has become a well-established, health-conscious requirement for consumers worldwide.

1. MANAGING NUTRIENT INTAKE

A common misconception in ABF production is to focus only on controlling intestinal diseases. These are the main health issues when any ABF program is implemented, but the reality is that they are the consequences, not the causes, of the real problem.

Excess nutrients, especially protein and fat, may not be well digested and absorbed by the bird. Undigested feed increases microbial proliferation in the ceca, leading to potential infections. Appropriate digestibility is key to broilers' overall health and can help control microbes and resultant diseases.

Factors such as a balanced diet and sufficient water consumption are essential to improve digestibility. A pH between 5 and 7 and water temperature between 16C and 25C are ideal conditions to support the activity of most enzymes.

To further strengthen the effect of endogenous enzymes, additives such as phytases and xylanases can be added to feed. Moreover, to guarantee acidic crop, organic acids are a good option.

Feed management plays an essential role too. Grain damage and conditions that could increase mold and insect spoilage must be minimized and, at the same time, fat storage conditions should be frequently revised in order to control rancidity within the feed mill.

2. MODULATE MICROFLORA

The gut flora plays an important role in supporting the immune system. In addition to a balanced diet and good housing conditions, feed additives and minerals can help maintain a healthy microflora in all gut regions.

For example, alternative feed additives, such as probiotics, can introduce desirable live microorganisms in the gut and, with the support of prebiotics, can help maintain a healthy gut balance.

Enzymes are an alternative to eliminate the anti-nutritional effects of water-soluble polysaccharides, while organic acids cause the inhibition of bacterial growth, and essential oils can support gut microflora balance, stimulate digestive enzyme production and the immune system.

Regardless of the above single benefits, it is extremely important to understand that only appropriate testing and use can guarantee success. One solution working in one flock may not work in the next as the environment may have changed, e.g. the feed raw material properties.

3. IMPROVE HOUSE ENVIRONMENT, BIOSECURITY

Proper environmental conditions are the foundations of effective ABF poultry production. Optimum temperature, air velocity, and relative humidity according to the age, phase of production and size of the birds should be considered.

Environmental stress, due to heat, cold, very dry or very humid air could affect feed intake and intestinal motility, causing reduced digestibility.

Lighting programs may also affect feed intake, motility and digestion. Light intensities lower than 10 lux and 4 to 6 hours of total darkness per day improve feed conversion ratios, indicating slower feed intake and better digestibility.

Good house ventilation is key for ABF programs to maintain litter moisture below 30 percent, and to minimize condensation and caking.

Flock management is also important to allow the flock more space during the brooding period. This helps avoid excessive stress.

4. MAINTAIN FLOCK HEALTH

Preventing coccidiosis and necrotic enteritis are normally the main concerns during ABF production.

In cases where no anticoccidial medications are allowed, coccidiosis vaccines and litter management are the principle controls. Cocci vaccination for broilers has been applied in traditional poultry production systems and new ABF programs for years, in many countries.

Furthermore, the appropriate feeding regime and use of feed additives, such as the eubiotics category, may help maintain healthy microflora adding to flock health.

Control of other intestinal parasites, worms and poultry diseases that affect intestines and immunity is also necessary.

Practices including bio-exclusion, limiting visitors, vehicles and equipment that visit other poultry farms, and bio-containment, isolating the houses, controlling insects, rodents and entry of wild birds and other animals to the houses, can help prevent new infections.

5. IMPROVE BREEDER HEALTH

Broiler breeder nutrition is fundamental for adequate development of their progeny.

Embryo development is totally dependent upon egg nutrients deposited by the hen, and specific nutrients, such as vitamin D, trace minerals, carotenoids, and fatty acids, are key in immunity and gut development.

Hens also affect embryo nutrition and development via eggshell properties, including porosity and thickness, which determine conductance. Eggshell conductance dictates the capacity of eggs to exchange gases and water vapor, consequently affecting embryo yolk and general nutrient utilization.

These physical factors, especially the capacity to obtain sufficient oxygen, limit the type of metabolism, rates of tissue development, and embryo growth.

This is more important during the last three or four days prior to hatch, when development of many tissues, including the gastrointestinal tract, bones and muscles, is fastest.

As breeders can transfer intestinal microbes and immunity to their progeny, companies practicing ABF production should make sure that intestinal health is adequate in breeders and that vaccination programs are effective.

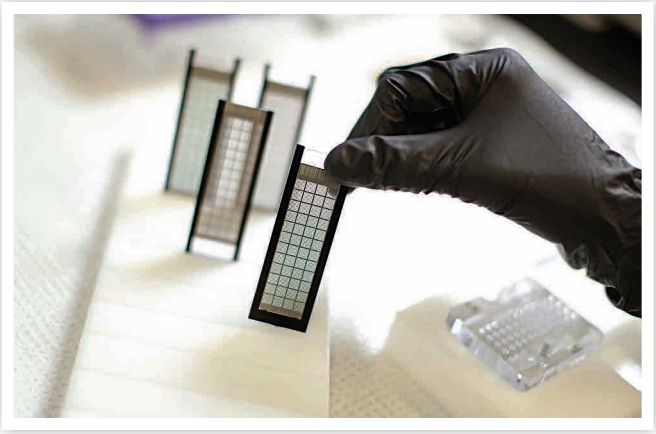
HOLISTIC APPROACH

There are numerous concepts around the ways ABF systems in poultry meat production can be implemented to improve productivity.

As ABF programs for poultry production become more common, and to make these programs successful, a holistic approach along the whole production system is needed. Not only are feed, feed additives or enteric pathogen control important, but also are housing management, water quality and biosecurity at breeder and grow-out levels.

Ole Lund Svendsen is marketing manager at DSM Nutritional Products.

GENOMIC SELECTION AND ANTIBIOTIC-FREE BROILERS



Using genomic selection in breeding programs will continue to prove its worth as producers embark on antibiotic-free programs and broiler's disease tolerance becomes more important. | Courtesy Cobb-Vantress Inc.

By: Austin Alonzo
Published: May 5, 2016

Genomic selection provides breeders a tool for improving previously hard-to-select-for traits like disease resistance and could pave the way for more efficient broiler production.

One hundred years after its founding, Cobb-Vantress Inc. is still tackling current issues facing the broiler industry.

In an interview, Dr. Mitchell Abrahamsen, senior vice president of research and development at the Arkansas-based broiler primary breeder company, explained how Cobb applies cutting-edge genomic technologies to better understand what specific aspects of an individual bird's genetic make-up contribute to desirable traits.

Abrahamsen said the genomics work represents a continuation of Cobb's past century of progress in broiler genetics. Cobb has brought significant improvements in animal health, mortality, feed conversion, growth rate and overall yield which, he said, has provided the basis for the development of today's global broiler industry. With more information on which specific gene sequences contribute to desirable traits, the company is positioned to keep moving the industry forward in the coming decades.

Scientific advancement is an integral part of Cobb's ability to develop products that perform better in antibiotic-free production environments, and it's helping it breed birds that will be able to thrive under more stressful conditions farmers might face in the coming decades.

> ***"Cobb has brought significant improvements in animal health, mortality, feed conversion, growth rate and overall yield…"***

WHAT IS GENOMIC SELECTION?

Completion of the chicken genome project opened the door for genetics companies and academia to partner to use genomic selection to speed up the delivery of commercially important improvements in genetic stock. Abrahamsen said Cobb's partnership with Dutch genetics company Hendrix Genetics and its academic collaborators was critical to helping Cobb understand the potential value of genomics in its breeding programs and allowed it to take full advantage of the science.

The application of genomic selection to poultry breeding allows geneticists to be able to examine which specific DNA sequences contribute to useful production traits and then select birds who possess those genes for the next generation of breeders within the pedigree program.

> ***"Genomics is a critical component of our program to improve animal health and welfare traits, as well as the key broiler traits that are driving profit for the industry"***

"Genomics is a critical component of our program to improve animal health and welfare traits, as well as the key broiler traits that are driving profit for the industry," Abrahamsen said.

By monitoring which single nucleotide polymorphisms (SNPs) – specific variations in the DNA sequence – exist in genes, breeders are able to understand and recognize parts of chromosomes that are linked to desirable traits as they are inherited from generation to generation. This allows breeders to carefully identify and exploit the genetic components that are driving the changes in the birds. Abrahamsen said that, before genomic selection, geneticists were only able to understand genetic contributions based on parentage/family relationships to breed for desirable traits. Now they can understand what specific genes were passed on and put that knowledge to use.

THE BENEFITS OF GENOMIC SELECTION

Genomic selection is already increasing the rate of genetic progress for many key economic traits. Abrahamsen said genomic selection has demonstrated the ability to improve the rate of genetic progress for today's pedigree selection program.

"The bigger win is going to be the ability to use genomic selection to select for traits that are difficult to express in a pedigree program. This will be a key technology for linking data/knowledge from off-farm selection programs with the pedigree breeding program." Abrahamsen said.

Data collection has always been a vital component of Cobb's selection programs. With genomic technology, breeders are able to gather even more data to help select birds that will perform in harsher environments around the world and in antibiotic-free operations. It's through this technology that we are able to better understand which genetic variations cause one bird to do better than another under stressful conditions and select for those birds for our breeding program.

ON THE HORIZON

Using genomic selection in breeding programs will continue to prove its worth as producers embark on antibiotic-free programs and broilers' disease tolerance becomes more important. Abrahamsen said this trend is going to allow breeding companies to develop products that will drive the poultry industry to be efficient and profitable in a time when consumers are demanding more focus on bird health without using antibiotics, and more knowledge about where their food comes from.

In the long term, the poultry industry will be challenged as livestock competes with humanity for the grains the earth can produce. In the coming decades, Abrahamsen said Cobb and the genetics industry will be required to develop birds that can succeed on alternative feed stocks and live in environments where temperatures are higher, water is scarcer, and energy to heat and cool chicken houses is less affordable.

"We'll need to develop genetic lines and products that can deal with this ever changing world in the future where the key economic drivers today are probably not going to be the key economic drivers 20 and 50 years from now," Abrahamsen said.

ANTIBIOTIC-FREE CHICKEN: THE INDUSTRY UNDER THE MICROSCOPE

Dr. Ashley Peterson, vice president of science and technology at the National Chicken Council, said that there is confusion among consumers regarding the production of antibiotic-free chicken.

By: Benjamin Ruiz
Published: March 15, 2016

During the Ceva Poultry Vaccinology Summit, different production perspectives of ABF chicken and their impact were analyzed

The use of antibiotics is one of the growing challenges in producing safe animal protein today, and everyone is watching chicken production.

It is estimated that 20 percent of food is lost to animal diseases. That means we need to protect our food sources. But, without antibiotics?

Production without antibiotics was the main topic during the first day of the Ceva Poultry Vaccinology Summit on March 14 in Barcelona, Spain. Dr. Ashley Peterson, vice president of science and technology of the National Chicken Council (NCC), spoke about the U.S. perspective. It is noteworthy to mention that the NCC represents 95 percent of the chickens produced in that country and that 22 percent of U.S. chickens are exported.

Of the total number of chickens produced in the U.S., 10 to 15 percent are already produced antibiotic-free and 40 percent with a restricted use. Antibiotic-free (ABF) production, also known as NAE (no antibiotics ever), may include these compounds if birds become sick, but chickens must be commercialized differently.

> ***"If the label does not have these acronyms, the consumer believes that the chicken does have antibiotics, which is not the case"***

We may be filled with acronyms, but Dr. Peterson said that, "If the label does not have these acronyms, the consumer believes that the chicken does have antibiotics, which is not the case."

However, there is an issue we should take into account that, if chickens get sick, there is an obligation to administer antibiotics, from the ethical and animal welfare point of view.

Dr. Peterson also asked who among the various actors – consumers, legislators/government, retailers, industry – is leading the industry? Because apparently the industry that uses poultry products succumbs to pressure from consumer groups, not based on scientific facts and without consulting the industry to see if it is economically feasible.

Another important point is that most antibiotics used in animal production are not used in human medicine, nor are human antibiotics used to promote growth.

However, despite all this, “Every day there are more companies that want to be supplied antibiotic-free chicken.”

Another important aspect is that because of the different terms used, there is much confusion among consumers, which adds on to the ignorance. For example, according to a study conducted by the NCC, the consumer believes antibiotics are used “because of mishandling or to promote growth,” which is not the case.

Finally, Dr. Peterson spoke about the impact of eliminating antibiotics in production, for which there are four key points:

» Mortality
» Days to market
» Downtime
» Stocking density

Among the various things she talked about, she mentioned that one antibiotic-free chicken house may represent 300 fewer people fed in a year. Seeing this, we can not forget sustainability, and also animal welfare, as there will be more moisture in the bed and can present health problems such as necrotic enteritis.

What are the future trends? She pointed out three specific things: the use of coccidiosis vaccine, the development of alternative antibiotics and finally and to better use vaccines instead of antibiotics, for which “there must be innovation in animal health”.

ANIMAL PROTEIN PRODUCER PANEL DISCUSSES ANTIBIOTIC USE

Dr. Scott Stehlik, general manager of technical operations at The Maschhoffs LLC (left), Dr. Philip Stayer, corporate veterinarian for Sanderson Farms Inc. (middle) and Beef Marketing Group CEO John Butler (right) speak at the Facts vs. Fears: Addressing Antibiotics in Animal Agriculture at the Annual Meat Conference 2016 in Nashville, Tennessee.

By: Austin Alonzo
Published: Mar 10, 2016

Top U.S. animal protein producers said the meat industry questions the need for "No Antibiotics Ever" programs.

Consumer concern about the use of antibiotics in livestock production, and a possible link to antibiotic resistance problems in human medicine, is driving many livestock and poultry producers to reduce the use of antibiotics in their growing programs.

On February 23, at the Annual Meat Conference 2016 in Nashville, Tennessee, Dr. Philip Stayer, corporate veterinarian for Sanderson Farms Inc., Dr. Scott Stehlik, general manager of technical operations at The Maschhoffs LLC, and Beef Marketing Group CEO John Butler, fielded questions about antibiotic use as part of a panel discussion on the future of antimicrobials in the food supply.

ANTIBIOTIC-FREE PRODUCTION, THE WAY OF THE FUTURE?

Growing consumer and regulatory pressure raises the question of whether antibiotic use in livestock production could end in coming years.

In 2017, the U.S. Food and Drug Administration's Veterinary Feed Directive (VFD) will go into effect. The regulation will ban the use of growth promoting antibiotics the FDA deems medically important to humans. The move is coupled with growing consumer concern about the presence of antibiotics in the food supply.

In response, major animal protein companies are rolling out new lines of meat from animals never given antibiotics – marketed as "No Antibiotics Ever" – or pledging to exceed the standards set by the VFD. Some protein purchasers are also pledging not to sell any meat raised with antibiotics.

The panelists said antibiotics are used to protect animal health when other disease-prevention methods fail, and because of mandatory withdrawal periods, the medications are not present in the meat U.S. consumers eat.

Stayer, the lead veterinarian for the third largest company in *WATT PoultryUSA*'s Top Broiler Company rankings, said that he hopes that "No Antibiotics Ever" doesn't become the standard production method. Until a better tool for protecting animal health comes along, livestock producers need the option to use antibiotics. Their use allows growers to produce a healthier product for consumers.

He said removing antibiotics entirely – going no antibiotics ever – will have a domino effect on the industry as a whole. Stayer estimated no antibiotics ever practices would increase the size of an operation by 20 percent.

"So you're talking about a much bigger carbon footprint. Much more corn required, much more manure to be deposited, so if you don't treat your animals with the current technology available now there's a price effect," Stayer said. "The consumer may be asking for something where they don't really know what the unintended consequences are. So sometimes you give someone what they want, and it's not what they thought they wanted."

> ***"So you're talking about a much bigger carbon footprint. Much more corn required, much more manure to be deposited…"***

Stayer added that Sanderson Farms is capable of going no antibiotics ever, but birds will suffer if that change is made.

Stehlik, a leader of the Illinois-based pork producer's breeding program, agreed that a system based on no antibiotics ever practices would lead to either a decline in product produced or an increase in price.

Butler, a leader of the Kansas-based beef producer cooperative, said the best way to respond to the situation is to continue providing consumers choices; whether it be organic, antibiotic-free or conventionally raised. The challenge is to do it in a sustainable way. His own company tried to produce a no antibiotics ever Angus product, but it was unsustainable due to the high cost and the risk of implementing an antibiotic-free program in a decentralized cattle rearing infrastructure.

CONSUMERS DISCONNECTED FROM FARMING

Suspicion of antibiotic use may be caused by growing disconnect between farmers and the average American consumer. Stehlik said the number of farms in the country is steadily declining as its population increases. That disconnect creates a lack of trust and a desire for more transparency in the food supply. He acknowledged the animal protein industry must do a better job of being transparent, but wondered if consumers will ultimately be willing to pay more for a product a vocal minority is demanding.

"I struggle with allowing that subset of the consuming public to drive the price point for the majority and in essence pull the options away from the folks who don't have that consumer ability to spend more," Stehlik said.

PRODUCERS MUST TAKE ACTION TO ADDRESS TRUST ISSUES

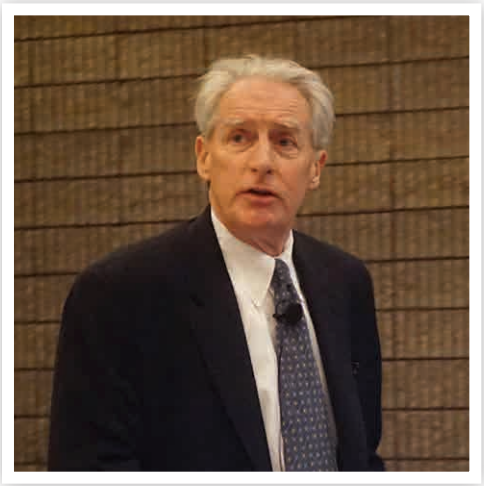
Butler said animal protein producers need to take comprehensive action to address consumer's skepticism about their products.

"If we tackle trust in a holistic way we will make terrific steps with the consumer," Butler said. "We love taking care of animals and we've got to start convincing consumers that that is part of it. These tools that we have in our tool chest – including antibiotics – are part of our ability to do our job. When we get a chance to be consumer facing… the takeaway [for consumers] is 'I'm convinced, check the box, the protein is safe.'"

Otherwise, Butler cautioned, activists will continue to set the agenda for consumers.

"We've sort of let the activists take a role in dismantling our business and dismantling the way we do business, and we sort of sit there and [say], 'Well that's OK,'" Butler said. "Here we are. We cannot do that any longer. We've got to be very much out in front."

ALMOST HALF OF CHICKENS IN U.S. NOT FED GROWTH PROMOTING ANTIBIOTICS



Mike Donohue, vice president at Indiana-based agricultural research company Agri Stats Inc., speaks at the 2016 International Production & Processing Expo on Wednesday, January 27, 2016.

By: Austin Alonzo
Published: February 4, 2016

About 46 percent of chickens in the U.S. were not fed growth promoting antibiotics in the past month, according to data from agricultural research company Agri Stats Inc.

During a presentation at the 2016 IPPE in Atlanta, Mike Donohue, vice president of Agri Stats Inc., said data collected by the agricultural research company indicated 46.1 percent of chickens Agri Stats monitors were not fed antibiotics traditionally used for growth promotion within the past month. Some of the birds he referred to were treated with other classes of drugs. Ionophores, a class of coccidiostats that also have antibacterial activity and are classified by the U.S. Department of Agriculture as antibiotics, do not have growth promoting claims, but may have been used in some of these flocks.

Donohue said the reduction in the use of antibiotics in the U.S. may also be correlated with a reversal in the productivity gains the poultry industry has enjoyed consistently for decades. Consumer concern over the use of antimicrobials in livestock production and the forthcoming US Food and Drug Administration's Veterinary Feed Directive, which will ban the use of growth promoting antibiotics the FDA deems medically important to humans in the U.S., were hot topics at last week's convention.

> ***"It's a slight decrease but I think a big part of that goes back to…antibiotic free and all its permutations"***

There are some antibiotics available for use in U.S. poultry flocks that have growth promotion claims that are not currently classified as medically important.

Over the past two to three years, Donohue has noticed steady improvement in key metrics – livability, field cost, condemnation, rate of gain and feed conversion – has stopped or started to reverse.

"It's a slight decrease but I think a big part of that goes back to…antibiotic free and all its permutations," Donohue said.

Donohue said he noticed the amount of birds not fed antibiotics increasing during the past 15 to 18 months. While it could be part of a normal medication rotation program, he said the trend is worth monitoring over the long term.

As the use of antibiotics continues to be reduced, Donohue said U.S. farmers will be challenged to manage the health of their flocks.

"I do think that eventually we'll get to another plateau."

"As we see fewer tools being used that were traditionally helpful in bird health programs, I think that's a big part of what's gone on in not gaining the growth rate," Donohue said. "I do think that eventually we'll get to another plateau."

YEAST, A GOOD CHOICE TO PRODUCE ANTIBIOTIC-FREE POULTRY

Stephen Collett, University of Georgia.

By: Benjamín Ruiz
Published: January 29, 2016

Intestinal flora management with derivatives of yeast cell wall has advantages for producing antibiotic-free birds.

Changing the paradigm of 60 years of using antibiotics in poultry production is quite difficult. However, "we have lost the confidence of the consumer," said Dr. Stephen Collett, clinical associate professor at the University of Georgia, speaking at an Alltech breakfast event at the 2016 International Production & Processing Expo (IPPE) in Atlanta on January 27.

This statement was made in reference to the discussion regarding antibiotic-free production, known as ABF production.

He spoke of two important aspects to consider in order to produce without antibiotics: management of the intestinal flora and control of protozoa and coccidia.

One of the key issues was the analysis of natural intestinal flora against the flora found in the poultry houses, mainly in countries like the U.S., where bedding material of the previous flock stays up to six consecutive cycles. Raising birds in such houses, "is as if the chicken hatches in a natural nest, but with the risk of facing disease."

The integrity of the upper intestinal tract determines performance and growth of the bird in the long term. When handling intestinal flora, the development of an immature to a mature intestinal tract has to be accelerated.

For antibiotic-free production, microflora management is paramount. Collett discussed the recommended method of seed, feed and weed. It refers to seeding the correct intestinal flora, which is a crucial step. Feeding it in the early growing stages by acidification of the intestine with short-chain fatty acids, and weeding, which means rehabilitating or accelerating its evolution.

For this purpose, essential oils play a broad spectrum antimicrobial effect role, with a similar antibiotic action. Additionally, microorganisms tend to adapt to essential oils. Therefore, Collett recommended types of fimbriae blockers or antagonists, consisting of derivatives of yeast cell wall, which are not absorbed, block negative microflora attachment, prevent colonization and reduce ability to replicate.

ESSENTIAL OILS KEY TO REDUCING ANTIBIOTICS IN POULTRY

Published: January 29, 2016

Cargill is taking a comprehensive approach toward improving gut health to maximize feed efficiency

Cargill researchers are focusing on improving gut health in poultry to promote feed efficiency and keep birds healthy. Cargill has been researching the use of non-medicated feed additives for several years as an alternative to antibiotic growth promoters (AGPs). As an independent supplier, Cargill has performed cross-additive research and determined the most beneficial types of feed additives for individual customer needs. For consistent performance improvement, essential oils turned out to be a key solution because they impact all four key gut function areas (listed below).

Since 2009, a combined total of 77 comprehensive *in vitro* and *in vivo* trials have been conducted at Cargill's Animal Nutrition Innovation Centers in Velddriel, the Netherlands, and Elk River, MN, as well as at regional facilities in Jordan, France, Poland, India and the U.S., on additives including essential oils, probiotics, yeast derivatives and medium chain fatty acids (MCFA).

ESSENTIAL OILS KEY IN GUT HEALTH SUPPORT

Gut health is important in poultry production because the digestive system performs key functions essential to ensuring birds' optimum performance. Cargill seeks to better understand optimal gut function in four key areas:

1. Managing microflora for a well-balanced bacterial population
2. Controlling immune function and inflammatory response
3. Maximizing nutrient digestion and absorption
4. Improving the physical barrier against pathogens

While all additives studied showed some benefit in these areas, Cargill researchers found that selected essential oil compounds, particularly those derived from thyme, cinnamon and oregano, had the most comprehensive effect on overall gut health. Benefits included:

- Antimicrobial activity
- Modulation of immune response
- Antioxidant activity
- Improvement of nutrient digestibility
- Stimulation of mucus production

> ***"Only essential oils have both a broad spectrum of activity against pathogens and a direct impact on digestive function"***

"Only essential oils have both a broad spectrum of activity against pathogens and a direct impact on digestive function," said Stephanie Ladirat, global technology lead for gut health additives in Cargill's animal nutrition business.

ESSENTIAL OILS ROLE IN ANTIBIOTIC REDUCTION

In addition, essential oils were found to be particular efficient in conditions where intestinal infections such as *Salmonellosis* and *Coccidiosis* were present. They were also found to be a viable alternative to antibiotics as more than 85 percent of the results showed a minimal difference between the positive control (antibiotics) and essential oils.

The research also showed that essential oils are just one facet of a feeding program that promotes ideal gut health and allows antibiotic reduction. Research findings support combining essential oils with organic acids to get maximum efficacy. “Cargill’s local nutrition experts are working directly with poultry producers to develop customized, holistic feeding programs encompassing nutrition, additives and farm management based on the study results,” says Twan Van Gerwe, poultry R&D director in Cargill’s animal nutrition business. Combined study results from 12 trials demonstrated that birds given Cargill’s PROMOTE® Biacid™ Nucleus additive, which contains a proprietary mixture of seven carefully selected essential oil compounds, in combination with an antibiotic-free diet, consistently improves body weight gain by 2 percent and feed conversion by 1.5 percent, producing a return on investment (ROI) of 5:1 for producers.

LONG-TERM BENEFITS OF HEALTHY DIGESTION IN POULTRY

For poultry producers the high return on investment is a top benefit of intestinal health support. However, promoting gut health also helps address issues in food safety and animal welfare. Healthy poultry intestines may result in a lower risk of bacterial food contamination and in healthier barn environments.

Finally, feed efficiency has become increasingly important due to the growing world population and limitations in feed resources. Supporting gut heath contributes to efforts to meet increasing demand for global animal protein in an efficient way. “Promoting gut health while reducing AGPs is critical for sustainable animal performance and profitability,” adds Van Gerwe. “Our R&D work in improving poultry gut health is an important part of Cargill’s commitment to nourishing the world’s population.”

GUT HEALTH VITAL TO ANTIBIOTIC-FREE POULTRY PRODUCTION

Chastity Pender, poultry technical manager, Biomin America, discusses the importance of gut health in antibiotic-free poultry production at IPPE 2016.

By: Roy Graber
Published: January 26, 2016

Biomin scientist cites studies linking good poultry gut health to reduced risk of necrotic enteritis

While the demand for poultry raised without antibiotics continues to grow, poultry producers have been more reluctant to adapt to an antibiotic-free program because of the medical benefits that antibiotics provide.

However, the common denominator, is "good, effective, practical management of gut health," said Chastity Pender, PhD, poultry technical manager, Biomin America. Pender spoke during a session held at the International Production and Processing Expo (IPPE), held January 26 in Atlanta.

"Producers are looking for their animals to be healthy and to perform optimally, and until now, they have been achieving this through the use of antibiotic growth promoters (AGPs), antibiotics and ionophores," said Pender.

"Removing antibiotics does come with legitimate concerns. These concerns include decreased performance and productivity of those animals, increased morbidity and mortality rates because of the disease, increased costs of management the health of those flocks and increased disease incidence. If you add all of this up, there is going to be a potential loss of profitability."

> ***"Removing antibiotics does come with legitimate concerns…"***

The biggest health concerns, according to Pender, are coccidiosis and necrotic enteritis.

Natural feed additives have been gaining increased interest in this area, to help manage necrotic enteritis, she said.

Pender also suggested use of probitotics to promote beneficial bacteria, citing a study from partners at University of Ghent, where probiotic supplementation increased incidences of beneficial bacteria within the intestine.

Pender also advised limiting nutrient access to pathogens, which can be achieved with a switch to an all-vegetable diet.

THE SUPPLY CHAIN AND ABF REQUIREMENTS

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

POULTRY SUPPLY CHAIN DISCUSSES ANTIBIOTICS, CONSUMER TRUST

The issue of antibiotic usage in food production animals is high on Yum! Brands' list of priorities but so are animal welfare concerns and other issues. | Bigstock.com

By: Gary Thornton
Published: December 10, 2015

Tyson Foods and its customers in the poultry supply chain are balancing animal well-being, sustainable practice, food security and food safety.

Executives from Tyson Foods, Yum! Brands and Costco Wholesale discussed the use of antibiotics in meat and poultry products and consumer trust during a panel session at the National Institute for Animal Agriculture (NIAA) Antibiotics Symposium.

The most diverse group of power players in the debate over the use of antimicrobials in animal agriculture in the symposium's five-year history gathered as federal and state regulators, livestock and poultry producers, veterinarians, medical professionals, academia and consumer group activists traded views and staked out positions of the issue of antibiotic usage in food production and the potential development of antimicrobial resistance.

MEAT AND POULTRY SUPPLY CHAIN PANELISTS

The highlight of the symposium was the panel session, which featured Mike Morris, Yum! Brands Global Quality Assurance; Donnie Smith, president and CEO, Tyson Foods; and Christine Summers, director of global food safety and quality for Costco Wholesale.

The meat and poultry supply chain panelists made presentations then submitted to questioning from the crowd of around 200 symposium participants.

YUM! BRANDS TO TAKE HOLISTIC APPROACH TO ANTIBIOTICS

Yum! Brands' Morris told listeners that the issue of antibiotic usage in food production animals is high on the fast-food chain's list of priorities but so are animal welfare concerns and other issues.

"Every issue or policy around animal well-being [including the usage of antibiotics] impacts sustainable practices, food safety and food security, and these issues are interrelated. If you impinge on any one of these factors without consideration you are making a mistake in our view."

Yum! Brands holistic approach to food and animal issues

Yum! Brands takes a holistic approach to antibiotic usage in food animal production.

Yum's approach to antibiotic usage in livestock and poultry production, Morris said, will be a holistic one, weighing animal well-being, sustainable practice, food security and food safety.

"From Yum's perspective, we will not discuss these issues in a vacuum. We will discuss them in a holistic approach," he said.

TYSON FOODS BALANCES CORE VALUES

Tyson Foods has been reducing antibiotic use in its livestock and poultry for several years. It has reduced human-used antibiotics in its poultry production by about 80 percent in the last four years. By September of 2017, Smith anticipates removing all human-used antibiotics from Tyson's poultry production, except in cases of sick poultry where no other treatment would be efficacious.

"Antibiotics are expensive," Smith explained, "and if we can find ways not to have to use them [in Tyson's herds and flocks] that is good for everybody."

"Tyson's approach, however, is a balanced one," he continued. "We recognize the global health concern over antibiotic resistance, and it is very important for us to play our part in addressing that issue. But it is also part of Tyson's core values that we serve as stewards of the animals that are entrusted to us. The well-being of those animals is very important to us."

Smith said necessary antibiotics would not be withheld from animals needing therapeutic treatment – including human-used antibiotics if those were the efficacious ones. In such cases, usage of human-used antibiotics would be reported by the company.

Costco's Summers stated the same values for the wholesale grocer. "Costco is committed to the welfare of the animals used in the production of food. It is not only a responsibility; it is an ethical priority that animals be treated in a humane way. If they get sick, they must get the drugs or treatment that they need to get better."

Food affordability is an additional concern to be weighed, according to Smith.

> ***"The other thing that we must balance is food affordability."***

"The other thing that we must balance is food affordability. There is chicken, beef and pork available today that is organic and antibiotic free, but it is not cheap. So we are trying to find the balance between the concern about antibiotic resistance, the welfare of the animals and food affordability," he said.

TYSON FOODS CHICKEN, BEEF & PORK PRODUCTION

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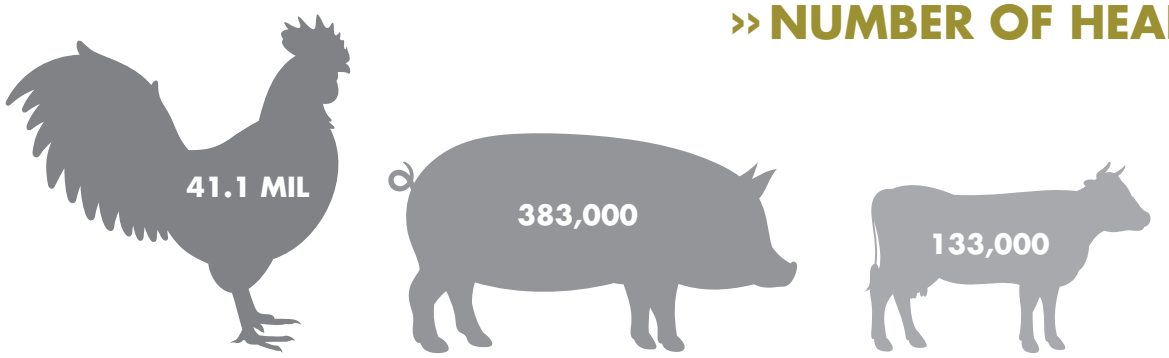


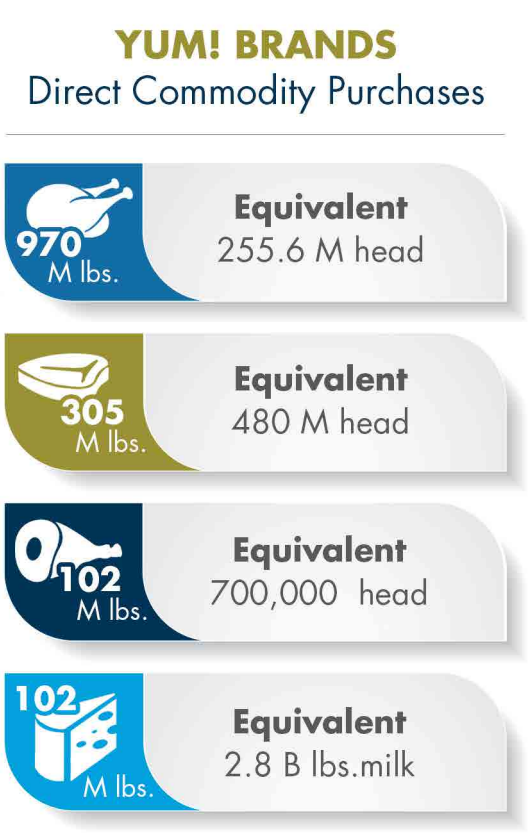
Source: Donnie Smith, Tyson Foods, NIAA Antibiotics Symposium, 2015

Tyson Foods produces more than 41 million chickens per week following a balanced approach to animal well-being and antibiotic use.

Tyson currently offers "no antibiotics ever" product lines (Nature Raised Farms and Open Prairie Angus), but Smith said these market segments are small.

FOOD PRIORITIES DIFFER AROUND THE WORLD

The need for balancing the potentially competing values is especially important for Yum! Brands which operates internationally. What is important in food differs around the world depending in part on a society's affluence. Less affluent societies may place a higher priority on food affordability and security.



Source: Mike Morris, Yum! Brands, NIAA Antibiotics Symposium, 2015

Purchasing more than 255 million chickens per year, Yum! Brands is confident in its meat and poultry suppliers' use of antibiotics in their animals.

"Yum! Brands does business all around the world," Morris noted, "and with people from India, Africa, China and Southeast Asia as part of the Yum management team, those managers have widely diverse perspectives about what is important in a food animal supply policy. People in the emerging markets, if they are not currently worried about food security or food safety, they have a recent memory of it."

WHO INFLUENCES THE ANIMAL ANTIBIOTICS DEBATE?

"Where antibiotics usage is concerned we have enormous confidence in our [meat and poultry] suppliers," Morris said. "They are ethical people. They are experts in their field. And they do the right thing."

And while many consumer groups are legitimately concerned about antibiotic resistance or animal welfare, he said, there are others who often drive the media coverage of the issues.

"There are numerous NGOs; some very sincere, some that are virulently anti-humanity. Sincere or not they tend to be very short-sighted when demanding agricultural reforms and can be passionately ignorant of what is required to feed people," he indicated in his presentation.

Morris said Yum! Brands has tremendous confidence in the Food and Drug Administration (FDA) and the regulations promulgated by the agency. "At our company, we feel that we are on solid ground relying on the regulations that are there to protect consumers, and we are confident that they are efficacious."

TRANSPARENCY IN ANTIBIOTICS USAGE IN POULTRY

The three panelists agreed that greater transparency is needed in the usage of antibiotics and will be demanded by society.

"Millennials are going to drive more transparency, and I am fine with that," Smith said. "On this year's sustainability report Tyson will report how much human-used antibiotics we used and put it in perspective. It will involve how many chickens we raised and how many were treated with human-used antibiotics and the number of days treated. I think that will help the consumer understand what judicious use really means. …We are committed to be completely transparent [in our reporting of antibiotics usage]."

Morris agreed about the need for transparency, saying, "If we did not want transparency it would be irrelevant because this generation of consumers demands it; and it is a good thing."

> ***"Where antibiotics usage is concerned we have enormous confidence in our [meat and poultry] suppliers"***

Summers echoed the idea that Millennials are changing the way food suppliers, wholesalers and retailers must interact with consumers in the marketplace. "Millennials are very tech savvy. They use social media and the Internet and blogs, which is their primary source of information and communication," she observed.

SOCIAL MEDIA KEY TO POULTRY'S RESPONSE

How must poultry suppliers and retailers respond to the rapidly changing marketplace? Morris talked about the shifting marketing and communication challenge.

"We consider our brand an extraordinarily valuable asset. So we continually try to advance in the public's mind the quality and value of the brands and protect them where necessary," he said.

The challenge is illustrated by a video screen in the Yum! Brands offices that keeps real-time social media impressions from around the world for all the Yum! Brands.

Yum! Brands monitors social media impressions for each of its brands around the world, including Taco Bell in Spain. | Bigstock.com

"At Yum! Brands we are absolutely immersed in social media. We promote our brands from a positive perspective, but when social media breaks with a negative story the screen displays the impressions and rates them on a scale. We try and stay ahead of that narrative.

"For an old guy like me the landscape is rather frightening. Fortunately, we have people (many of whom are Millennials) who are comfortable operating in this environment. I think that a progressive company that wants to be successful going forward is going to have to take that approach," he said.

> ***"At Yum! Brands we are absolutely immersed in social media."***

LISTENING TO CONSUMERS ON THE ISSUES

Smith also spoke about the importance of staying in touch with consumers, whether it involves the usage of antibiotics in poultry production or other issues.

"It is really important to continue to listen to consumers because they will tell us in subtle ways where they are going and what the gaps are in your offerings to be able to fill those needs. And it changes very rapidly.

"We have to be responsible. We have to be trustworthy in everything we do. But, ultimately we are providing for consumer[s] the food they want to buy. We have to listen to them and provide the food they want to buy…We have to be careful about who is ultimately paying the bill and making sure that without endangering animals, without endangering global health concerns, and trying our best to keep the product as affordable as we can, we keep meeting consumer needs," he added.

QUICK VIDEO SHARES MUCH ABOUT ANIMAL ANTIBIOTIC USE

ANIMAL AGRIBUSINESS ANGLE

Roy Graber, staff reporter for WATTAgNet, combines his Midwestern farming background with his knowledge of economics and agriculture policy to offer a deeper look at the poultry and pig industries.

Video released by the Center for Accountability in Science debunks common myths about antibiotics in animal production

By: Roy Graber
Published: December 4, 2015

If you've ever debated about antibiotics in animal production, and you believe that responsible use of antibiotics to prevent or treat disease is a good thing and that there are no antibiotic residues in the food you eat, you may have spent a good deal of time getting your points across.

But if people who doubt the merits of judicious animal antibiotic use would simply take less than three minutes out of their day to view a new video released by the Center for Accountability in Science regarding common misconceptions about animal antibiotic use, it could sure get the message out there and free up a lot of time that can be spent on something else.

Narrated by Dr. Joseph Perrone, the center's chief science officer, the video – in all its brevity – debunks many common misconceptions. Perrone's status as an unbiased scientist lends substantial credibility to his message.

Perrone points out that a growing number of restaurants like Subway, Chipotle and Au Bon Pain are serving or planning to exclusively serve antibiotic-free meat. Perrone asks: "Is this meat actually healthier for consumers?"

> ***"Choosing a burrito or a foot-long sub labeled antibiotic-free, might make you feel like you're making a healthier choice, but in reality, you're paying more for a label,"***

He goes on to confirm that it is not.

"Choosing a burrito or a foot-long sub labeled antibiotic-free, might make you feel like you're making a healthier choice, but in reality, you're paying more for a label," he said.

Perrone explains that antibiotics are an important tool for farmers to treat sick animals and prevent animals from getting ill. By strategically using antibiotics, farmers ensure only meat from healthy animals eventually makes it to your plate.

He also addresses those who think that when they eat meat from animals treated with antibiotics, they too will get a dose. He explains the U.S. Food and Drug Administration has strict guidelines that animals be taken off of the antibiotics for a period of time before they enter the food supply. “That means all meat you buy or eat in the U.S. is already antibiotic-free,” said Perrone.

Finally, he does what he can to ease the minds of those concerned with the problem of growing antibiotic resistance in humans and the potential role that treating animals might have on it. Perrone states there is no evidence that countries that limit the use of antibiotics in agriculture have any less instances of human antibiotic resistance. He notes that a new study shows animal antibiotic use plays an insignificant factor in antibiotic resistance, and we should be much more concerned with overprescription of antibiotics in human medicine and patients not taking those antibiotics as prescribed.

As of Friday morning, the video already had nearly 127,000 views. I hope word spreads about this video, as it is very seldom so much useful information is packaged into such a brief video. Regardless of your opinion on antibiotics in animal agriculture, this video is certainly worthy of 2 minutes and 21 seconds of your time.

THE CONSUMER AND THE MARKETING OF ABF CHICKEN

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

CONSUMER PANEL: TREAT SICK ANIMALS WITH ANTIBIOTICS

Members of a focus group discuss their food buying decisions during the Animal Agriculture Alliance Stakeholders Summit on May 5 in Arlington, Virginia.

By: Roy Graber
Published: May 5, 2016

Diverse focus group members tell attendees of Animal Agriculture Alliance Stakeholders Summit sick animals should be treated, but some may not necessarily eat the meat from the animal

> ***"Now consumers want great cellphone coverage all the time and the deal."***

The consensus among members of randomly chosen focus group speaking at the Animal Agriculture Alliance Stakeholders Summit was that sick animals should be treated with antibiotics. However, not all focus group members would necessarily want to eat the meat produced from the animal.

The consumer focus group was assembled by Jan Johnson, Principal, Millennium Research, Inc. The members of the group agreed to answer questions asked by Johnson and later the audience at the summit. However, they were not told until near the conclusion of the question-and-answer session that they were speaking to people directly involved in the animal agriculture industry. The session took place May 5 in Arlington, Virginia.

One audience member, identifying himself at first as a cattle producer, posed a question to the panel, creating a scenario that he had a sick animal. He asked: "Should I or could I be allowed to treat that animal with antibiotics?"

Four of the seven panelists answered. All four said they should treat the animal, yet their support level for antibiotic use varied.

One panelist who identified himself as a former farm worker had no doubt in his mind. "Yes. I love antibiotics," he said with a hint of humor.

Others gave more complex answers. One woman, who identified herself as a teacher, said she would say yes if the producer sat down and told her everything he knew about the benefits of antibiotics, she would say yes. But she acknowledged that her response might be different if she was asked in a grocery store.

But the session also revealed there are consumers who do not realize that under federal regulations, no antibiotic residues are in the meat from animals treated with antibiotics. A third respondent said the animal should be treated, but she would want the meat to be labeled in a manner that stated the animal was treated. The fourth to speak in favor of treating the cow with antibiotics, said she wanted the animal to be treated, but added she was “not sure I’d eat it,” because of fears of “unnecessary antibiotics” in the meat.

Once the focus group members shared their opinions, the cattle producer revealed that he was also a large animal veterinarian who specializes in infectious diseases in cattle. “I’m glad you allow me use antibiotics to treat the animal from an animal welfare aspect,” he said.

ANTIBIOTIC-FREE CHICKEN AND THE 'UNREASONABLE CONSUMER'

By: Terrence O'Keefe
Published: June 3, 2015

Foster Farms has joined the growing ranks of U.S. poultry producers who have made pledges to reduce antibiotic usage in their broiler operations this year. I definitely agree with the approach that poultry companies such as Foster, Perdue, Tyson and Cargill have chosen of reducing antibiotic usage on a voluntary basis, in advance of any possible new regulations, and attempting to get a marketing boost out of it. How big the marketing boost will be remains to be seen, but consumer interest and preferences are moving toward more "natural" foods produced using less additives, pesticides, herbicides and antibiotics.

Giving the customer what they want is a key facet of any winning strategy, but I read an article recently, *The war on big food*, that got me thinking about the importance of doing antibiotic-free chicken in a cost-efficient manner. In the article, Will Papa, chief research and development officer, the Hershey Company, explained that consumers have changed and that, today, even something like a candy bar should also be "good for you."

This idea that even a food that is considered an indulgence should be good for you is held by what Papa calls the "unreasonable consumer." He said, "It used to be I could have great cellphone coverage and pay a premium for it, or I could have slightly lesser coverage and get a deal," he said. "Now consumers want great cellphone coverage all the time and the deal."

Because they are getting it in many places, they now expect it everywhere."

The "unreasonable consumer" is going to want poultry raised without antibiotics and they aren't going to want to pay more for it, at least not much more for it. This means poultry companies are going to need to not only reduce the amount of antibiotics they use in growing programs, but they also are going to have to be very efficient while doing it.

We have all heard the arguments about how much feed conversion and rate of daily gain are lost by going antibiotic free. If every poultry producer embarked on a raised-without-antibiotics program at the same time, ultimately supply and demand would result in consumers picking up whatever the average additional cost is in raising poultry without antibiotics. But that isn't what is happening in the U.S. market. Some companies are changing their growing programs to reduce or eliminate antibiotic use and others aren't. The marketplace is going to pick out the winners and losers.

I think the ultimate winners will be the companies that reduce antibiotic usage in growing programs in a manner that allows them a marketing advantage and still allows them to be competitive from a cost standpoint. The winners of the future will develop programs to routinely grow healthy birds with good performance with minimal drug use.

MOST AMERICANS HAVE MISPERCEPTIONS ABOUT CHICKEN AND HORMONES

Published: December 8, 2015

The National Chicken Council invites consumers to visit its 'Chicken Check In' to view results of a consumer survey

The National Chicken Council (NCC) has released findings from a national survey on consumers' perceptions about chicken production. The study reveals that nearly 80 percent of Americans mistakenly believe that chicken contains added hormones or steroids, when in fact no chicken sold or raised in the U.S. is given hormones or steroids. Consumers are not able to easily access facts on chicken production. ORC International conducted the survey with 1,011 adults aged 18 years or older. It was fielded Sept. 17-20 and has a margin of error of +/- 3.1 percent at the 95 percent confidence level.

According to the survey, 68 percent of Americans believe that the media portrays the care of chicken negatively, highlighting the need for chicken producers to engage in more conversations with consumers about where their chicken comes from. The survey uncovered many concerning assumptions about the care and safety of chicken, including:

MISPERCEPTIONS

1. A majority (78 percent) believe chickens are genetically modified.
2. A majority (77 percent) believe chicken contains added hormones or steroids.
3. Nearly three-quarters (73 percent) believe antibiotics are present in most chicken meat.
4. More than two-thirds (68 percent) believe most chickens raised for meat are raised in cages.

REALITY

1. There are no genetically modified chickens. Over the years, chickens with the healthiest growth and size have been selected for breeding – and are fed, housed and raised well. The result is a larger, healthier bird.
2. No chicken sold or raised in the U.S. is given hormones or steroids. In fact, the USDA has banned all hormones and steroids in poultry since the 1950s. Good breeding, proper nutrition, care by a veterinarian and better living conditions all contribute to the healthier growth of birds.
3. Any meat from chickens sold in the U.S. is free of antibiotics. The USDA regulates withdrawal periods to ensure no meat bought in-store contains antibiotics or antibiotic residue from animals that may need medicine.
4. No chicken meat you buy is raised in a cage. The majority of chickens raised for meat in the U.S. live in large, open structures called houses where they are free to walk around.

In an effort to recognize and respond to these concerns, NCC has launched Chicken Check In, which provides real answers to questions about chicken production in the U.S., and gives Americans a close look at the lives of the birds and how they get to our tables every day.

"We take pride in the care of our chickens, but we know it's on us as an industry to do a better job of providing more information on how our food gets from farm to table," said Tom Super, spokesperson for the NCC. "Food is an emotionally-charged topic, and with conflicting information readily available online and on social media, it's understandable people are concerned. We invite consumers with open arms to come and take a look at the work we're doing to progress as an industry in providing safe, healthy and sustainable food."

PILGRIM'S ENTERING ORGANIC CHICKEN MARKET

By: Roy Graber
Published: May 3, 2016

Company is converting one of its complexes to produce USDA-certified organic poultry

Pilgrim's is in the process of entering the organic chicken market, as the company's CEO announced the company is converting one of its complexes to produce USDA-certified organic chicken.

The company has not yet released which complex is being converted, but Pilgrim's CEO Bill Lovette said he expects the conversion to be completed "some time in 2017."

"We believe this is a game changer for our portfolio and signifies our commitment to satisfy evolving needs of our customers and consumers," Lovette said during the company's recent quarterly earnings call.

ORGANIC POULTRY DEMAND GROWING

> ***"If you look at the two categories of chickens that are growing, its antibiotic-free and organic."***

Lovette said there has been "fairly tepid growth" for the demand of traditional chicken over the past few years, but customers of Pilgrim's have seen an increased demand for antibiotic-free and organic chicken.

Presently, he estimates only about 2 percent of chicken produced is organic, but there is an incredible potential for growth.

"Our key customers in conversations with us as a key supplier have told us that their business continues to grow in organic chicken consumption," he stated. "In support of our key customers, we decided that the time was right for us to enter this market. We think that we can be the best producer of…USDA-certified organic chicken and we are excited about the prospects of growth. If you look at the two categories of chickens that are growing, its antibiotic-free and organic."

PILGRIM'S SHARE OF ANTIBIOTIC-FREE POULTRY MARKET TO GROW

Lovette said once the conversion is completed, he expects the company to be responsible for about 20 percent of total organic production in the United States, and possibly slightly more than 20 percent.

Pilgrim's not only plans to gain a significant share of the U.S. organic poultry market, but also is looking to increase its share of the U.S. antibiotic-free poultry market to more than 25 percent by the end of 2018. He estimates that the company presently has about 10 percent of that share.

TACO BELL TO CUT CHICKEN TREATED WITH HUMAN ANTIBIOTICS

Shredded chicken tacos, and all other products containing chicken at Taco Bell, will phase out the use of meat from chickens that have been administered antibiotics also used in human medicine.

By: Roy Graber
Published: April 20, 2016

Restaurant chain will eliminate use of chicken treated with antibiotics also used in human medicine by middle of March 2017

All chicken served in Taco Bell restaurants will come from birds that have never been treated with antibiotics also used in human medicine, the quick-service restaurant chain announced on April 18.

The company, in a statement on its website, stated that it will phase out the use of chickens treated with such antibiotics by the end of the first quarter of its 2017 fiscal year. That quarter is expected to end around mid-March.

Taco Bell, which operates about 6,000 restaurants in the United States, stated that it had been working with its partners and suppliers to identify an approach to antibiotic use for food production that "maintains the benefits while also helping to reduce antibiotic use overall."

OTHER YUM! BRANDS RESTAURANTS NOT INCLUDED IN NEW POLICY

Taco Bell is a subsidiary of Yum! Brands, which also operates KFC and Pizza Hut. However, a company spokesperson said that the antibiotic policy only applies to the Taco Bell chain.

> ***"Taco Bell stated that it will phase out the use of chickens treated with such antibiotics by the end of the first quarter…"***

All Yum! Brands restaurant chains in September 2015 were criticized for their policies on antibiotic use when the report "Chain Reaction: How Top Restaurants Rate on Reducing use of Antibiotic in Their Meat Supply" was released. The report, prepared by a coalition of groups including Friends of the Earth, Natural Resources Defense Council, Consumers Union,

Food Animal Concerns Trust, Keep antibiotics Working and Center for Food Safety, rated the top 25 restaurant chains in the U.S. for their policies concerning animal antibiotic use.

All three Yum! Brands subsidiaries received failing grades. The only chains to get “passing” grades were Chipotle, Panera Bread, Chick-fil-A, McDonald’s and Dunkin’ Donuts.

The antibiotics policy of McDonald’s is similar to the one just released by Taco Bell.

ANTIBIOTIC RESISTANCE CONFUSION REVEALED IN SURVEY

Published: May 9, 2014

American Meat Institute releases new brochure that aims to clarify facts surrounding antibiotics

A recent survey reveals that consumers are confused about the causes of antibiotic resistance and the use of antibiotics in livestock and poultry production. The survey was conducted online in March among more than 2,100 U.S. adults by Harris Poll for the American Meat Institute (AMI).

When asked what the greatest contributing factor to human antibiotic resistance was, only 41 percent correctly answered "health professionals over-prescribing to people." Eighteen percent thought use of antibiotics in livestock production was the number one contributing factor according to the Centers for Disease Control and Prevention (CDC). Seven percent thought the CDC found antimicrobial hand sanitizers to be the biggest factor; five percent thought the answer was drinking water and 28 percent said they were unsure.

During a September 2013 press conference to release a report on antibiotics, CDC Director Thomas Frieden, MD, said, "Right now, the most acute problem is in hospitals. And the most resistant organisms in hospitals are emerging in those settings because of poor antimicrobial stewardship among humans." In fact, he said that half of all antibiotic prescriptions given to humans are unnecessary.

> ***"Right now, the most acute problem is in hospitals"***

CDC also said that it is important to use good stewardship in administering antibiotics during livestock and poultry production and that animal antibiotic use for growth promotion should be phased out, an effort that is already under way at the request of the Food and Drug Administration and a move that the American Meat Institute supports.

The survey also reflected confusion around the issue of antibiotic residues. Thirty-nine percent think that unsafe levels of antibiotics are commonly present in the meat and poultry products found at the grocery store, though government data show that violative antibiotic residues in meat and poultry are virtually non-existent. In 2011, USDA's Food Safety and Inspection Service screened meat and poultry for 128 chemicals, and 99 percent of the tested carcasses were free of all of them.

To help counter the confusion, AMI has released a new, referenced and reviewed brochure called "Antibiotics in Livestock & Poultry Production: Sort Fact from Fiction." The brochure may be downloaded from the AMI website. AMI also released a new "Media MythCrusher" to help the media avoid some of the most common errors in reporting about the antibiotic issue.

GNP GOLD'N PLUMP BRAND TO BE ANTIBIOTIC-FREE BY 2019

GNP Company is adding a "No Antibiotics-ever" claim and the American Humane Certified farm program seal to its Gold'n Plump products. It aims to extend the attributes to its entire Gold'n Plump line by 2019.

By: Austin Alonzo
Published: February 17, 2016

Starting in March, the GNP Company's Gold'n Plump line of chicken is adding the "No Antibiotics-Ever" label to its products

Gold'n Plump is going antibiotic-free.

GNP Company, a Minnesota chicken producer, announced on February 16 it is adding a "No Antibiotics-Ever" claim and the American Humane Certified farm program seal to its products. The St. Cloud-based company aims to extend the attributes to its entire Gold'n Plump line by 2019.

The first products with the labeling will debut in March and be in stores in April. More products will be added during the summer. In a press release, the company said the move is significant because GNP is one of the first mainstream chicken brands to remove all antibiotics from its product line.

The "No Antibiotics-Ever" label is only granted by the U.S. Department of Agriculture if the bird is never given antibiotics at any point during its life. The American Humane Certified seal is granted by the American Humane Association after a third-party, independent verification that care and handling of farm animals meets the standards of the non-profit association.

The majority of the company's core Gold'n Plump products will carry both the "no antibiotics" claim and humane certified label by the summer, GNP Company stated. The remainder of its products will make the transition by the end of 2019.

The company said the move is being made in response to increased consumer demand for antibiotic-free products. The U.S. Food and Drug Administration's Veterinary Feed Directive (VFD), which will ban the use of growth promoting antibiotics the FDA deems medically important to humans, will go into effect in 2017. The forthcoming regulation is pushing the industry to make numerous changes. Several companies have pledged to expand their antibiotic-free offerings, or exceed the standards set by the VFD, in recent months.

In an interview, Julie Berling, GNP's director of strategic communications and insights, said the company will exceed the standards set by the VFD. She said the new certifications will raise the cost of production slightly but she declined to say by how much. The company has sold a line of antibiotic-free chicken, Just BARE, since 2009. She said the experience with raising antibiotic-free poultry will be beneficial going forward.

> **Birds who received treatment will be segregated from those used in the antibiotic-free product line.**

Berling said GNP will still administer animal antibiotics under veterinary supervision for the treatment of disease because medical treatment is part of humane practices. Those birds who received treatment will be segregated from those used in the antibiotic-free product line.

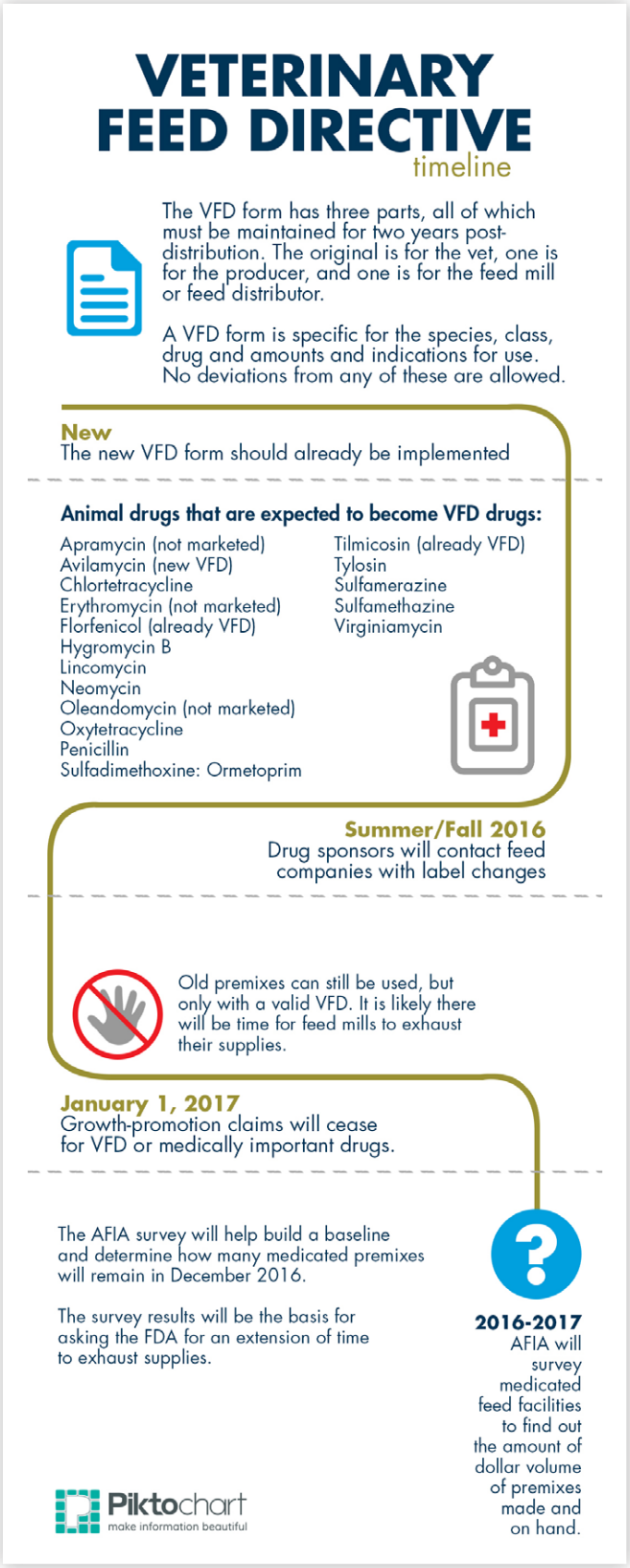
GNP is part of The Maschhoffs LLC, an Illinois-based, family owned pork producer. The Maschhoffs acquired GNP Company in 2013. The company's products are distributed mainly in the Midwest and are also sold around the country.

THE REGULATIONS INFLUENCING ABF LIVESTOCK

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

VETERINARY FEED DIRECTIVE TIMELINE



By: Ann Reus
Published: March 22, 2016

FIND OUT MORE ABOUT WHAT'S AHEAD WITH THE VFD

Gary Huddleston, manager of feed manufacturing, safety and environmental affairs for the American Feed Industry Association (AFIA), gave a regulatory update presentation at USPOULTRY'S Feed Mill Management Seminar, held recently in Nashville, Tennessee.

Huddleston focused much of his presentation on the Veterinary Feed Directive (VFD) and its goals, documents that are available for members of the feed industry, the VFD process, issues, future challenges, and a timeline for implementation.

President Bill Clinton signed the Animal Drug Availability Act into law in October 1996. That law created a new category of animal drugs, called VFD drugs, that can be used for animals with a veterinarian's order. The VFD requires more documentation than non-VFD drugs, with the goal of promoting the judicious use of antimicrobials in food-producing animals.

This strategy will bring the use of these drugs under veterinary supervision so that they are used only when necessary for assuring animal health. The VFD final rule, released in 2015, outlines the process for authorizing use of VFD drugs (animal drugs intended for use in or on animal feed that require the supervision of a licensed veterinarian) and provides veterinarians in all states with a framework for authorizing the use of medically important antimicrobials in feed when needed for specific animal health purposes.

The VFD final rule continues to require veterinarians to issue all VFDs within the context of a veterinarian-client-patient relationship (VCPR) and specifies the key elements that define a VCPR.

WHAT THE VETERINARY FEED DIRECTIVE MEANS FOR THE POULTRY INDUSTRY

By: John Glisson
Published: July 3, 2013

Learn more about the practical implications of the VFD for the poultry industry.

The debate of antibiotic use in animal agriculture revolves around the concept that antibiotic usage in food animals may induce antibiotic resistance in bacteria that may be transmitted from food animals to humans via the consumption of contaminated food products of animal origin.

> **This is a very complex issue and many gaps exist…**

This has been a subject of scientific and public policy debate for years. Public health advocacy groups, consumer groups, and even members of Congress have actively joined the public discussion. This is a very complex issue and many gaps exist in the scientific understanding of the multi-factorial contributions to the development of antibiotic resistance by the use of antibiotics in humans, animal agriculture, and horticulture.

The Food and Drug Administration is taking steps that it believes will address these public health concerns but also guarantee that antibiotics are available to ensure animal health. Currently, the FDA is putting into place new rules and regulations that will change the way the poultry industry uses medically important antibiotics in the future. Medically important antibiotics are defined by FDA as those antibiotics which are used therapeutically in human medicine. The definition includes seven classes of antibiotics currently used by the poultry industry. Examples are gentamicin, lincomycin, tylosin, penicillin, virginiamycin, sulfonamides, and tetracyclines, as well as others.

THE VETERINARY FEED DIRECTIVE

These changes are being implemented through two processes by the FDA; Guidance Documents 209 and 213 and the Veterinary Feed Directive. The changes are in two broad areas. First, medically important antibiotic use in food animals will be limited to therapeutic use, which is defined by FDA as the use to treat, control, or prevent a disease. This would disallow the use of medically important antibiotics solely for growth promotion. Second, the use of medically important antibiotics will involve veterinary involvement and oversight. The implementation of the new rules of the Veterinary Feed Directive will essentially change the status of many medically important antibiotics from the over-the-counter classification to the prescription only classification. In practice this will mean that in order to use a medically important antibiotic in the feed, a veterinarian will have to issue a prescription, which is called a Veterinary Feed Directive.

WHAT THIS MEANS FOR THE POULTRY INDUSTRY

The FDA is moving through the process of creating and implementing the new regulations relatively deliberately, and the expectation is that the new rules will not take effect before the end of 2016. Poultry companies should have ample time to implement processes necessary to comply with the new regulations. The ionophore antibiotics (monensin, salinomycin, narasin, etc.), which the poultry industry heavily relies upon to control coccidiosis, are not considered to be medically important antibiotics and will not be effected by the changes. Pharmaceutical companies

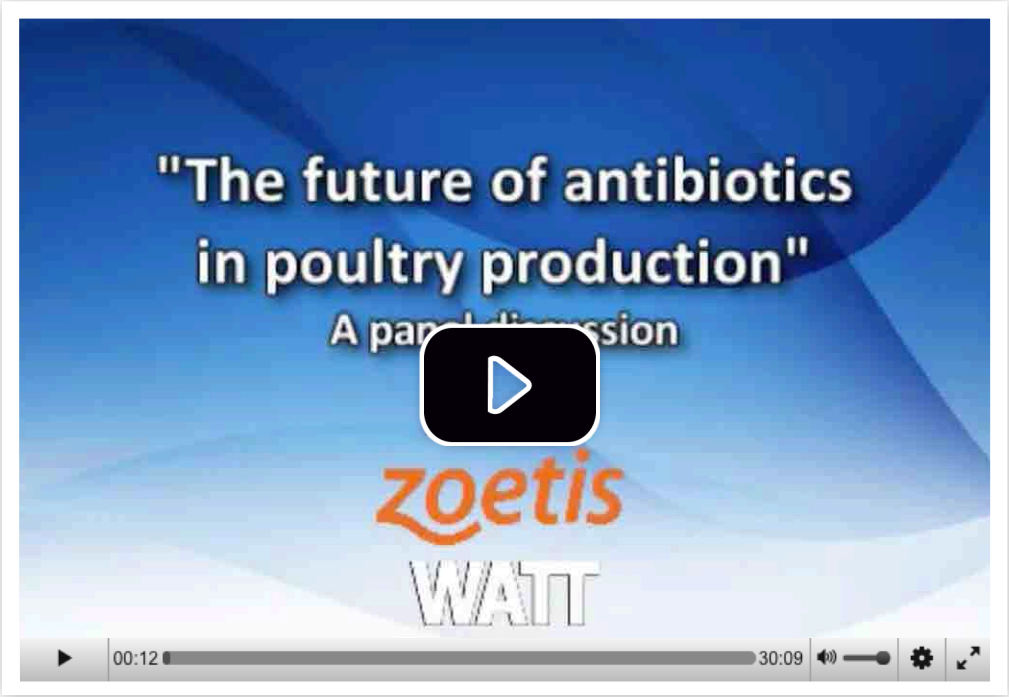
which currently sell an antibiotic product that is labeled for growth promotion have the option to apply to FDA for a new therapeutic claim for their product. Over the next three years, we will see the phase-out of the use of medically important antibiotics for growth promotion, the phase-in of greater veterinary oversight, and potentially the addition of new therapeutic claims for existing antibiotics.

VIDEO

Part 1: The role of the Veterinary Feed Directive - The future of antibiotics in poultry production

30:09 | March 22, 2013

A panel discussion presented by Zoetis Global Poultry and WATT. Panelists include: Dr. William Flynn, FDA; Dr. G. Donald Ritter, Mountaire Farms; Dr. Randy Singer, University of Minnesota; Dr. Stephen Sutherland, Zoetis.



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WILL THE VFD REDUCE ANTIBIOTIC RESISTANCE IN U.S.?

By: Gary Thornton
Published: April 13, 2016

The U.S. poultry industry faces a brave new world of animal healthcare and stewardship as the Veterinary Feed Directive (VFD) takes effect at the end of 2016. With the cessation of medically important growth promoters in food animal production, poultry producers are moving towards greater emphasis on treatment and control of disease.

Both the Centers for Disease Control and Prevention and the World Health Organization have declared antibiotic resistance to be one of the most serious problems facing our national and global health systems.

But the VFD is only a small part of the changing world of poultry healthcare. Big investors have joined non-governmental organizations (NGOs) in pushing for further reductions in the use of antibiotics in food production animals.

What's more, the federal government's National Action Plan for Combatting Antibiotic Resistant Bacteria (CARB) and the President's Advisory Council (PACCARB) have the momentum to continue to change the underpinnings of poultry healthcare.

> **Poultry producers are moving towards greater emphasis on treatment and control of disease.**

The President's Advisory Committee recently released Draft Report 1, which assesses progress of the National Action Plan, which includes the following:

- Goal 1: Slow the emergence of resistant bacteria and prevent the spread of resistant infection
- Goal 2: Strengthen national One Health surveillance efforts to combat resistance
- Goal 3: Advance the development and use of rapid and innovative diagnostic tests for identification and characterization of resistant bacteria
- Goal 4: Accelerate basic and applied R&D for new antibiotics, other therapeutics and vaccines
- Goal 5: Improve international collaboration and capacities for antibiotic-resistance prevention, surveillance and control and antibiotic R&D

Here's the big question: Will the changes in poultry production in the way antibiotics are used – or not used – result in a reduction of resistance? The answer may be far less certain than the policymakers and the advocates would have us believe. They define responsible use of antibiotics in animal food production in some pretty simplistic ways. Mostly, it involves not using medically important antibiotics in animal production.

Certainly experience with fluoroquinolone resistance in *Campylobacter* after the removal of Enrofloxacin in poultry in the U.S. doesn't support their certainty. The resistance has continued its increase. And there are other real-world examples that cast doubt on the efficacy of the policy.

Federal policymakers and the poultry industry need research and data to inform policy and production practices. The poultry industry needs to stay involved in the One Health approach and step up the dialogue with regulators and human health experts. It also needs to press for more funding, for development diagnostics and therapeutics. Let's not continue to experiment with policy. Instead, base future policy on data and knowledge.

WATT GLOBAL MEDIA

THE WORLD FOOD CHAIN AND THE ABF MOVEMENT

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

OIE STRATEGY TO FIGHT ANTIMICROBIAL RESISTANCE

By: Roy Graber
Published: May 27, 2016

World Organization for Animal Health outlines revised plan with six main goals to help animal agriculture sector protect the effectiveness of antibiotics

As concerns of antimicrobial resistance continue to grow worldwide, the World Organization for Animal Health (OIE) has worked for a number of years to develop a set of international standards for animal antibiotic use to help protect the effectiveness of antibiotics used in veterinary medicine.

Upon the OIE's 84th General Session of the World Assembly of National Delegates, held in Paris, the OIE on May 24 introduced to its members a new strategy that builds on international standards it developed and revised in 2015. Implementing the strategy will enable countries to benefit from the series of measures developed by the OIE, to assist them in carrying out the following actions, detailed in this infographic.

The organization has asked its member nations to adopt the plan, stating in a press release that these initiatives "can only fully bear fruit if they are carried out effectively in these countries.

The OIE stated that it will continue to support its member nations as they raise awareness on the issue of antimicrobial resistance, including in regard to animal health and disease prevention on the farm, to contribute to a reduction in the quantities of antimicrobials used. A number of free resource materials will be made available to assist national communication campaigns.

HOW PRUDENT IS ANTIBIOTIC USE IN THE POULTRY INDUSTRY?

By: Mark Clements
Published: January 3, 2015

Debate over restricting, refining antibiotic use in livestock production continues, but poultry industry making significant strides in this direction.

The Third International Conference on Responsible Use of Antibiotics in Animals took place in Amsterdam in late September and early October 2014.

As part of the event, Dr. Vincent Guyonnet, scientific adviser to the International Egg Commission, looked at what needs to happen within poultry production, and reviewed the sector's activities to date in confronting the growing threat of antimicrobial resistance.

He looked in particular at four broad categories: capacity building and awareness programs, setting industry guidelines and codes of practice, the development of internal evaluation processes, and co-operation and partnership.

The prudent use of antibiotics in poultry or other production animals in general is outlined in three key documents – Chapter 6.9 of the of the *OIE Terrestrial Animal Health Code, the Codex Alimentarius Recommended Code of Practice to minimize and contain antimicrobial resistance*, published in 2005, and the World Health Organization report of a joint consultation with the FAO and the OIE on *Global principles for the containment of antimicrobial resistance in animals intended for food*, published in 2000.

These three documents, Guyonnet explained, outline the role of various players, including the regulatory authorities, the veterinary pharmaceutical industry, the animal health products wholesale and distribution channel, the veterinarian, as well as food animal producers. In the case of the poultry industry, however, the role of other players such as feed mills and hatcheries also needs to be considered.

CAPACITY BUILDING

Capacity building, or training, is a key step toward judicious use of antibiotics in poultry production. In poultry, antibiotics can be administered *in ovo*, via feed, in drinking water, as well as by injection. Therefore, any training activities must include all parties involved: producers, hatcheries, feed mills and veterinarians.

In addressing prudent use, any training initiative also must emphasize the need to follow correct management practices, which are key to ensuring that birds will stay healthy and that antibiotic treatments are not used as a substitute for good management.

Awareness programs also need to target consumers, as they need to understand that antibiotics are important production tools that must sometimes be used to ensure the health and well-being of poultry.

While the development of training materials is important, Guyonnet said, the means and manner of delivery are critical to the implementation of new procedures and practices. A training program will only be effective if it provides the right information in the right manner, appropriate to the target audience.

In some countries, for example South Africa, the needs of small poultry producers also need to be addressed. In South Africa, the challenge harder as support needs to be provided in the country's 11 official languages. In neighboring Zimbabwe, the primary challenge is to reach out to country's 20,000 small commercial producers.

GUIDELINES, CODES OF PRACTICE

After capacity building, establishing industry guidelines and codes of practice is an important step toward ensuring the prudent use of antibiotics in poultry.

In the U.K., the British Egg Industry Council and the British Poultry Council, which represent egg and broiler producers, respectively, belong to RUMA – the Responsible Use of Medicines in Agriculture Alliance - a nonprofit organization set up in 1997 by organizations interested in promoting standards for food safety, animal health and welfare in the U.K. livestock sector.

The RUMA guidelines covering the poultry sector were first issued in 1999 and revised in 2005. In *Responsible use of antimicrobials in poultry production*, the responsibilities of veterinarians and poultry producers are outlined with, for instance, 13 specific items that producers should follow, such as giving medication only with formal veterinary approval, always completing the treatment course at the correct dosage, accurately recording the identity of the treated flock, complying with withdrawal periods, and maintaining a medicines log book.

Antibiotics must not be a substitute for good management, and a number of national poultry organizations have developed management codes of practice. For example, the South African Poultry Association has codes for broilers, layers, and breeders and hatcheries. In addition to good practice for optimum health and performance, the codes cover the judicious use of antimicrobials and include 13 principles to be followed by producers and veterinarians.

In addition to prudent use and good practice codes, biosecurity is essential. An example of an initiative to improve biosecurity is the Australian Chicken Meat Federation manual, the result of a joint initiative between Australia's various chicken meat organizations, the animal health sector, academia and government.

The industry achieves biosecurity through a series of standards covering the facilities where birds are kept, the personnel and the operational procedures on the farm. Clear objectives have been set, and forms have been designed to help farmers' compliance.

MONITORING

But without enforcement and monitoring, standards quickly become irrelevant, Guyonnet said. The organization representing Canada's 2,700 chicken farmers, Chicken Farmers of Canada, introduced in 1998 a program called On-Farm Food Safety Assurance Program (OFFSAP), designed to ensure that broiler producers meet the food safety and animal care levels expected by regulators and consumers.

It identifies 10 key elements, including on-farm use of medicines and chemicals. The program is also based on the HACCP principles and, as such, some Critical Control Points have been defined, namely on-farm feed mixing, feed receiving, and medication use and withdrawal.

> ***"Without enforcement and monitoring, standards quickly become irrelevant"***

Stringent record-keeping is an important part of on-farm food safety and, under OFFSAP, farmers must notify, a few days before sending the birds for processing, complete details of the flock, including of any vaccines or medications used. In addition to the self-audit conducted by each farmer, Chicken Farmers of Canada requires that each farm undergo third-party auditing annually.

In addition to on-farm audits, routine and random testing programs are an important addition to prudent antibiotic use evaluation. For example, the Agriculture and Food National Residue Survey was initiated by the Australian government in the early 1960s, and became industry funded in 1992. The livestock sector, including broiler and egg producers, funds the residue-monitoring program through levies and direct payments.

The program helps to ensure that good agricultural practices are followed and allows certification for export. Transparency and accountability are extremely important to the private sector organizations as they guarantee trust, so ensuring sustainability of production and trade. In this Australian initiative, the National Residue Survey is posted on the Department of Agriculture, Fisheries and Forestry website, with details of the tests and results for poultry and eggs.

Some poultry organizations have gone further in evaluating their practices for judicious use of antimicrobials and have looked at benchmarking. In 2011, the Australian Chicken Meat Federation commissioned a review of the principles of judicious antimicrobial use in poultry. The exercise identified 12 sets of guidelines from various organizations and then identified and defined principles dealing with areas including the pre-treatment period, diagnosis, therapeutic objective, drug selection, drug use, and post-treatment considerations.

WORKING TOGETHER

The fourth type of activity carried out by the poultry industry involves cooperation and partnership with various players.

Cooperation with governments is critical for new regulations and their practical implications, and numerous national poultry organizations are mandated to consult with regulatory authorities. Codes of practice and auditing schemes are also the result of a joint approach, where governments are often invited to participate and provide input. Joining forces provides better outcomes, as it takes into account the views of all parties.

In several countries, however, expertise really lies within private industry, not government. To remedy this gap, the South African Poultry Association, for example, in partnership with a local university, funds the training of state veterinarians.

Another form of partnership is where all livestock farmers, along with other partners, work together to achieve the same goals. RUMA, in the U.K., is a good example of such cooperation. The 23 organizations adhering to RUMA subscribe to the same eight main goals, all geared toward communicating and implementing animal medicine best practice. The alliance also stresses the importance of traceability, transparency and accountability at all stages of the food chain.

INVESTMENT

It is important to remember that national poultry organizations have and will continue to play a proactive role in ensuring the judicious use of antibiotics in poultry production, and invest time and money in the search for alternatives to antibiotics.

For example, the 4,500 farmers involved in poultry invest CAN$500,000 (US$438,538) each year in research through the Canadian Poultry Research Council, which has, as one of its goals, development of alternatives to antibiotics.

In the U.K., the poultry industry has developed a strategic plan for health and welfare, identifying priorities covering areas such as management practices, the control of diseases for which there are no therapeutic interventions, and antimicrobial availability, usage and resistance. Its plan was posted on the internet and comment invited, ensuring visibility and encouraging feedback on proposed solutions.

ADOPTING ALTERNATIVES

The poultry sector has developed and adopted several practices that have contributed to the reduction in use of antibiotics.

> **It is common for laying hens to receive up to 15 different vaccinations during the first 15 weeks of life…**

The general use of vaccination against major poultry diseases has contributed to the growth of the poultry sector around the world. For example, it is common for laying hens to receive up to 15 different vaccinations during the first 15 weeks of life, to ensure lasting immunity and protection throughout the production cycle.

Several countries have been successful in the eradication from their commercial flocks of important pathogens such as *Salmonella pullorum* and *S gallinarium*, therefore reducing considerably the incidence of the disease, economic losses and the need for treatment with antibiotics.

Considerable research has been conducted and publications been made on alternative methods to antibiotics in poultry.

Collectively, there are a lot of training materials, standards and codes of practice, auditing and monitoring schemes that can be shared with countries and companies that have limited resources or opportunities to promote the judicious use of antibiotics in poultry. Prudent use of antibiotics by the poultry industry is not wishful thinking – it is a reality lived everyday on farms where farmers work and care for their birds.

UK POULTRY MEAT SECTOR CUTS ANTIBIOTIC USE BY 44 PERCENT

By: Jackie Linden
Publish: May 6, 2016

New report highlights a dramatic reduction in the use of antibiotics by the poultry meat sector in the United Kingdom

The British Poultry Council (BPC) says its Antibiotic Stewardship Scheme has been notably successful in delivering a strategy for the responsible use of antibiotics in the poultry meat sector.

Over the period 2012-15, total antibiotics used in the same period by scheme members decreased by 44 percent. Over the same period, output increased by 5 percent so that poultry meat now accounts for 44 percent of total UK meat production. BPC members account for 90 percent of the production across the chicken, turkey and duck meat sectors.

Publishing the results this week in a report titled "Leading the Way in the Responsible Use of Antibiotics," BPC says its Antibiotic Stewardship Scheme was formed in 2011 and aimed to take decisive action to manage antibiotic usage across the sector. In 2012, it introduced a voluntary ban on the use of third- and fourth-generation cephalosporins, and a commitment to reduce the use of fluoroquinolones. In 2016, the scheme made a further commitment not to use colistin.

Among the achievements recorded in the report are reductions in the use of fluoroquinolone (by 48 percent 2014 and 2015), macrolides (by 50 percent year-on-year between 2013 and 2015), amoxicillin (by 46 percent between 2013 and 2015) and tetracycline (by 47 percent between 2012 and 2015).

The poultry sector is the first UK livestock industry to pioneer a data collection mechanism to record antibiotic usage, and is to share the information with the government's Veterinary Medicines Directorate (VMD).

A reception was held in Parliament this week to coincide with the launch of the BPC report. Farming Minister George Eustice praised the steps the poultry industry has taken to understand and reduce its use of antibiotics, and its commitment to open and transparent reporting.

"Antibiotic use is an incredibly important subject for both animal and human health," said John Reed, BPC Chairman. "The British poultry sector has taken a lead in understanding its own use and impact, and we hope that others will follow suit.

"Since 2011, we have worked with the VMD to collect accurate poultry-specific data, and we are delighted that we have reduced our use of antibiotics by 44 percent. Our priority remains the health of our birds, and the responsible therapeutic use of antibiotics is crucial."

Professor Peter Boriello, chief executive of the VMD, commended the sector for leading the way and engaging with stakeholders.

> ***"Antibiotic use is an incredibly important subject for both animal and human health,"***

"Responsible use is not simply a reduction in usage," said Daniel Parker, BPC veterinary adviser. "We use antibiotics to protect bird health and we will continue to work with government to explore alternatives. Until effective alternatives become available, antibiotics will continue to be important in treating bacterial conditions in both human and animal medicine."

ANTIBIOTIC STEWARDSHIP PROGRAM LAUNCHED FOR PIG SECTOR

This week, the U.K.'s National Pig Association announced that it is launching an antibiotic stewardship program, aimed to "achieve minimum usage of antibiotics in the pig sector consistent with responsible human and food animal use."

The program will comprise six strands, the first of which is to capture and collate antibiotic use data on pig farms.

"We recognize and share society's concerns about the level of antibiotic use in animal and livestock medicine," said NPA Chief Executive Zoe Davies. "In particular, we acknowledge the risk, albeit small, of antibiotic resistance developing in bacteria in pigs, and this resistance spreading to humans."

GERMAN POULTRY, LIVESTOCK FARMERS FACE MORE ANTIBIOTIC SCRUTINY

Published: August 21, 2014

Authorities will be able force change on farms where antibiotic use is above average

Local authorities in Germany will soon be able to recommend change where antibiotic use on farms is found to be above average and, in extreme cases, suspend livestock owners from farming.

The change, aimed at gradually reducing the use of antibiotics in livestock farming, is part of the 16th Act amending the German Drug Act, which came into force in July, and applies to chicken, turkey, pig and cattle farmers.

Under the new system, supervisory authorities will assess the frequency of antibiotic therapy on a farm and make comparisons with other farms. Following comparisons, a farmer can be required to take action deemed necessary.

> **Poultry and other farmers must report every six months on what antibiotics they have administered…**

As part of the system, poultry and other farmers must report every six months on what antibiotics they have administered to which animals in the period and in what quantities. After federal state authorities and the Federal Office of Consumer Protection and Food Safety have analyzed the data, a nationwide "farm-specific biannual therapeutic frequency" list will be drawn up, with first due for publication in March 2015.

If a farm's individual index exceeds the federal average, the farmer and veterinarian will have to jointly identify the causes and take steps to curb antibiotic use. If a farm's index is among the highest 25 percent, the farmer will, after consultation with veterinarians, have to draw up a written plan to cut antimicrobial use and submit that plan to the competent authorities.

Farmers can now be obliged to change husbandry methods, feeding practices, stocking densities and hygiene measures, and failure to comply could result in fines or a suspension from keeping animals.

EUROPEAN VETERINARY ANTIBIOTIC USE ON THE DECLINE

www.FreeImages.com

By: Mark Clements
Published: November 11, 2015

Overall livestock antibiotic use down, but progress patchy across EU countries

European sales of antibiotics for use in animals fell by approximately 8 percent between 2011 and 2013, data from the latest European Surveillance of Veterinary Antimicrobial (ESVAC) group report reveals.

> ***"…we are getting a clearer picture of the sales of antibiotics in animals in Europe"***

Of the 23 European countries that provided data over the period, 11 reported a decrease in sales of more than 5 percent, while the greatest decrease stood at 51 percent. However, six countries reported an increase in sales of more than 5 percent with the highest individual increase standing at 21 percent.

The report contains standardized sales data gathered annually on veterinary microbials by class, and is produced in cooperation with national authorities, coordinated by the European Medicines Agency (EMA).

"With the new sales data collected and experience gained in the process, we are getting a clearer picture of the sales of antibiotics in animals in Europe," said David Mackay, head of the EMA's Veterinary Medicines Division.

"As data collected through ESVAC becomes increasingly robust, we hope they can support European countries in promoting rational use of antibiotics in animals.

"Collecting accurate data on the sale and use of these medicines in food-producing animals is an essential step to inform policies for responsible use of antibiotics."

The report, now in its fifth edition, also includes more detailed graphs and trends on sales of flouroquinolones and 3rd and 4th-generation cephalosporins, giving further information on the use in animals of some of the most critically important classes of antimicrobials for humans.

Alongside the report, ESVAC also has launched an interactive database, allowing users to access specific data and search for a specific country or sales of a particular class of antibiotic.

NEW EPRUMA GUIDE

Several publications relating to antibiotic resistance and reduction of antibiotic use have been published in Europe over recent months including the European Commission's *Guidelines for the prudent use of antimicrobials*, along with *Best practice framework* for the use of antibiotics in food producing animals – Reaching the next level issued by the European Platform for the Responsible Use of Medicines in Animals (EPRUMA), a broad industry coalition.

The document combines a holistic and a specific approach to help in the optimization of animal health at farm level.

If offers guidance on indoor and free-range production, housing and biosecurity, and it includes a decision tree on the use of veterinary antibiotics in food-producing animals.

AS LITTLE AS POSSIBLE, AS MUCH AS NECESSARY

"Veterinary medicines, including antibiotics, need to be used responsibly to main their efficacy. All animal health stakeholders are committed to responsible use," said Gwyn Jones, EPRUMA chairman.

> ***"Veterinary medicines, including antibiotics, need to be used responsibly to main their efficacy."***

EPRUMA, which was set up 10 years ago and whose partners include the groups European Farmers and Agri-Cooperatives and the European Feed Manufacturers' Association, works with policy- and decision-makers and concerned parties at European and national levels to promote responsible antibiotic use as part of a holistic approach to disease prevention and control and to support animal health and welfare.

Its latest publication, which builds on the group's 2008 best practice framework document, covers all major livestock species from poultry to cattle, addressing areas including animal-specific factors affecting animal health, husbandry systems and management practices.

NEW ZEALAND ANTIBIOTIC PLEDGE TO BRING ADDED BENEFITS

By: Mark Clements
Published: December 7, 2015

In what was thought to be a world first, the New Zealand Veterinary Association (NZVA) announced this year a target date of 2030 for the country to no longer need antibiotics for the maintenance of animal health and wellness.

"With sharply increasing levels of resistance to antibiotics worldwide, we want animals and, by extension, humans to enter the 'post-antibiotic' era as safely as possible," said NZVA president Dr. Steve Merchant.

The need to tackle antibiotic resistance is widely accepted, even if opinions vary as to where efforts should be concentrated.

Few can deny that preserving antibiotics requires significant, and perhaps difficult, shifts in thinking and behavior, but there may be hitherto unconsidered additional benefits for livestock producers in further restricting use, in addition to preserving this important class of medicines.

> ***"…we want animals and, by extension, humans to enter the 'post-antibiotic' era as safely as possible"***

DIFFICULT ROUTE, POSITIVE END POINT

The association commissioned PwC to look at the impact of making the change, and the challenges and opportunities that may emerge, and PwC's report has found that scientific innovations and reduced antibiotic use in livestock production could increase the value of the country's exports – with the right approach.

Moreover, higher-value exports are part of the New Zealand government's Business Growth Agenda, as is innovation in agriculture and related sciences, along with smarter ways to use natural resources, so meat and poultry producers and veterinarians ought to find the environment favorable for reaching the goal.

FUTURE-PROOFING THE SUPPLY CHAIN

The report goes on to note that the most fundamental gain could be in "future-proofing" the supply chain to overseas markets, as antibiotic resistance is an emerging consumer issue that could change regulations in importing countries and affect market access.

New Zealand's poultry industry has been working with strict antibiotics guidelines for several years, and the country's livestock sector is possibly in a better position than most to make the change, as New Zealand is already one of the world's lowest users of veterinary antibiotics.

Key to this has been strict regulation, control by veterinarians of antibiotic prescriptions and dispensing, and extensive agricultural systems.

Nevertheless, as in other countries, resistant bacteria have emerged.

Bacteria isolated from New Zealand's poultry have one of the lowest rates of resistance of any country, yet this year, the local poultry industry reported the emergence of *Campylobacter* resistant to fluoroquinolones and tetracycline, having to issue statements rebutting press claims of the emergence of a "superbug."

While the NZVA statement may appear daunting to some, the association's Dr. Jenny Weston has assured livestock producers that veterinarians will continue to prescribe responsibly and administer antibiotics as required as part of an integrated disease control program.

And achieving the target will need all sectors to play their part.

"Veterinarians and everyone involved in livestock farming are responsible for improving disease-control programs and putting the focus on preventive health care so that we reduce, replace, and refine our use of antibiotics," Weston added.

EUROPEAN ANIMAL HEALTH LAW ADOPTED

By: Jackie Linden
Published: March 31, 2016

Scheduled to come into effect next month, the new law aims to improve controls on transmissible animal diseases in the European Union by streamlining existing legislation

As another weapon in the fight against animal diseases and antibiotic resistance, European Commissioner for Health and Food Safety, Vytenis Andriukaitis, has welcomed the adoption of the Animal Health Law.

"The new law that comes into force on 20 April paves the way for a more efficient system to combat transmissible animal diseases," said Andriukaitis. "These diseases, like foot and mouth disease or bluetongue, can have a devastating effect on our livestock production. Others, such as avian influenza, or certain newly emerging diseases, also have the potential to affect human health. The new law provides a single, comprehensive animal health framework to replace the series of complicated rules which have accumulated over the years.

> ***"The adoption of the Animal Health Law is a great victory,"***

"The adopted legislation also clarifies the division of responsibilities between animal keepers, traders, veterinarians, and national authorities and puts in place better notification and surveillance tools to fight animal diseases. This in turn should lead to fewer epidemics in EU countries, and help them reduce their social and economic effects thus ensuring the competitiveness and safety of EU livestock production.

"The new legislation also recognizes the importance of recent emerging issues, such as antimicrobial resistance, and sets out a better legal basis for monitoring animal pathogens which are resistant to antimicrobial agents. This will be supplemented by two further proposals - on veterinary medicines and on medicated feed - currently being negotiated in the European Parliament and Council."

Having been informally agreed by members of the European Parliament and the EU Council of Ministers in June 2015, the new measures were endorsed by Parliament earlier this month.

"The adoption of the Animal Health Law is a great victory," said rapporteur, Jasenko Selimovic. "This law makes three things possible. First, it links animal health and welfare and connects it to human health. This direct link, together with emphasis on responsible use of antibiotics, will help us fight growing antimicrobial resistance. Second, it enables the authorities and producers to focus more closely on prevention and control of transmissible animal diseases. And third, it merges around 40 legal acts into one basic act."

In brief, the new rules put more emphasis on disease prevention and clarify the responsibilities of farmers, traders and animal professionals including veterinarians. It also empowers the EU Commission to take urgent measures to tackle emerging diseases that could have a "highly significant impact" on public health and agricultural production, following consultation with the European Food Safety Authority (EFSA) and other stakeholders including farmers' and veterinary organizations. All disease control measures will have to take into account animal welfare, sparing animals avoidable pain, distress or suffering.

EU ANTIBIOTIC GROWTH PROMOTER BAN NOT MOST COSTLY REGULATION

Dominique Chavette, international poultry market manager, Invivo NSA, said that total antibiotic use in poultry production in the EU has been reduced as a result of the ban on growth promoting antibiotic use, but growing costs have increased.

By: Terrence O'Keefe
Published: March 29, 2016

EU regulations banning the use of GMO grains, meat and bone meal in poultry rations cost poultry producers more than does the ban on use of antibiotic growth promoters.

Consumer interest in meat and poultry products that have been produced either without the use of antibiotics or with restricted antibiotic use has increased in recent years. Europe was the first major market where restricted use of antibiotics in meat and poultry production was instituted, and producers in other regions can learn something about cost impacts that have been experienced in the EU.

EU REGULATIONS INCREASE GROWING COSTS

The ban of antibiotic growth promoters in food producing poultry and livestock in the EU has resulted in a reduction in the total use of antibiotics in animal production in Europe, Dominique Chavette, international poultry market manager, Invivo USA, reported. He told the audience at the 2016 FIAAP Animal Nutrition Conference in Bangkok, Thailand, on March 29, 2016, that the economic impact of this ban was estimated to have increased the cost of producing a kilogram of live broiler by EUR0.008 (US$0.009) in 2011 by Peter van Horne, poultry economist, Wageningen University.

> **"Europe was the first major market where restricted use of antibiotics in meat and poultry production was instituted…"**

In this analysis, the additional costs of all EU legislations on the cost of producing live broilers were estimated to be EUR0.0479 (US$0.0536) per kilogram, which represents around a 5 percent increase in total cost. The ban on use of antibiotic growth promoters was estimated to represent 16 percent of this total, around EUR0.008 per kilogram of live weight.

The ban on feeding genetically modified grains (GMO) was estimated to be EUR0.012 per kilogram of live weight, which was around 25 percent of the total cost of all EU regulations affecting the feeding of poultry. The ban on use meat and bone meal in broiler feeds in the EU was estimated to be EUR0.008 per kilogram of live weight, which is just as costly as the antibiotic growth promoter ban.

ANTIBIOTIC ALTERNATIVES HELP PERFORMANCE

Chavette discussed the management practices and nutritional additives that European broiler producers have tried to offset the performance lost due to the antibiotic growth promoter ban. On farm management activities such as enhanced biosecurity, vaccines, and drinking water treatments. Hatchery enhancements include grading and disinfection of hatching eggs and single stage incubation. Alternative feed ingredients that have been included in poultry rations to help improve bird performance include exogenous enzymes, organic acids, prebiotics, probiotics, herbs and etheric oils.

These enhanced farm and hatchery management practices and alternative feed ingredients have helped, but they have not offset all of the lost performance due to the antibiotic growth promoter bans and growing costs are still estimated to have increased because of the ban.

WATT GLOBAL MEDIA

ANTIOBIOTIC-FREE POULTRY VIDEOS

WATT Global Media Focus Series: Volume 1

Antibiotic-Free Poultry Production: Understanding Producer and Consumer Perspectives

PANEL DISCUSSES ANTIBIOTIC-FREE CHICKEN PRODUCTION AT IPPE

Guests at the DuPont roundtable on antibiotic-free chicken production at IPPE 2015 listen as industry expert panelists discuss how demand for this product is changing.

Published: January 28, 2015

A discussion of the impact of the growing demand for antibiotic-free chicken on the U.S. poultry industry

DuPont hosted an expert industry panel that discussed how the growing demand for antibiotic-free chicken is impacting the U.S. and global poultry industries January 26 at IPPE 2015 in Atlanta.

This exclusive industry roundtable discussion examined factors causing some mass market restaurant chains and major poultry retail brands to move to antibiotic-free chicken production and the steps poultry integrators are taking to meet these claims.

SEE VIDEO CLIPS FROM THIS DISCUSSION

» Have we reached the tipping point in demand for antibiotic-free chicken?
Richard Kottmeyer of Strategic says the tipping point was several years ago when the AMA turned antibiotic use in animals into a medical issue during a discussion on antibiotic-free poultry sponsored by DuPont during IPPE 2015.

» How removing antibiotics has impacted poultry performance at Perdue
Dr. Bruce Stewart-Brown and Dr. Stephen Collett discuss achieving antibiotic-free production issue during a panel presentation on antibiotic-free poultry sponsored by DuPont during IPPE 2015.

» Can chickens perform as well in an antibiotic-free production system?
Dr. Gregory Siragusa explains how performance can comparable or actually improves in flocks raised without antibiotics during a panel presentation on antibiotic-free poultry sponsored by DuPont during IPPE 2015

» Steps to produce antibiotic-free chicken
Dr. Bruce Stewart-Brown explains the steps Perdue took to produce antibiotic-free chicken during a panel presentation on antibiotic-free poultry sponsored by DuPont during IPPE 2015.

» Managing gut health in drug-free environment starts at breeder flock or hatchery
Dr. Stephen Collet explains how to control gut health in a true drug-free program during a panel discussion on antibiotic-free poultry production sponsored by DuPont at IPPE 2015.

» Better understanding gut health will lead to increased broiler performance
Dr. Gregory Siragusa talks about advances in understanding gut health during a panel discussion on antibiotic-free poultry production sponsored by DuPont at IPPE 2015.

» How important is antibiotic-free chicken production to consumers?
Richard Kottmeyer says the consumer sentiment on antibiotic use in agriculture will be a bigger problem than current sentiment against GMOs during a panel discussion on antibiotic-free poultry production sponsored by DuPont at IPPE 2015.

» Impact of feed quality on antibiotic-free poultry production
Dr. Bruce Stewart-Brown discusses how all-vegetable diets are linked with antibiotic-free production during a panel discussion sponsored by DuPont at IPPE 2015.

» Food producers have to be consumer centric
An audience member asks how to change the paradigm from cost to what society is expecting during a panel discussion on antibiotic-free poultry production sponsored by DuPont at IPPE 2015.

The speakers discussed changing consumer attitudes toward antibiotic-free claims and their impact on poultry production, as well as the impact of the revisions of the Veterinary Feed Directive on the production of poultry meat birds in the U.S.

The speakers included, Dr. Bruce Stewart-Brown, senior vice president, food safety and quality, Perdue Farms; Richard Kottmeyer, founder and managing director, Strategic; Dr. Gregory Siragusa, senior principal scientist – microbiology, Danisco/DuPont; and Dr. Steven Collett, clinical associate professor, University of Georgia. The discussion was moderated by Terrence O'Keefe, WATT's Content Director-Agribusiness.

» Antibiotic-free poultry production requires teamwork
» How Perdue moved toward antibiotic-free chicken
» Trends in antibiotic use, poultry welfare
» How feed quality impacts production of antibiotic-free chicken
» Veterinarians speak on antibiotic-free poultry production

Stay up to date on all the latest news and insights featuring antibiotic-free poultry production on **WATTAgNet.com** and **WATT Poultry Update eNews**.

Watch for future WATT Global Media Focus Series releases highlighting other critical poultry industry topics coming soon!

WATT GLOBAL MEDIA

303 North Main Street, Suite 500
Rockford, Illinois 61101 USA
Tel: +1.815.966.5400

www.WATTAgNet.com