Changing the current policy and regulatory framework of antibiotic use in agriculture could have a major impact on the availability of animal proteins, and ultimately the cost to consumers. In this session, we will explore the potential immediate and long-term effects of changes to the regulations on antibiotic use in the poultry industry. We will look at cost differences of current products on the market. Questions that will be addressed include: What will proposed changes do to availability of poultry products? What will proposed changes do to the cost of products? What will happen to the premium product market?

**Key Words:** poultry, antibiotic, regulatory, cost

---

**Consumer costs in relation to alternative production systems.** H. Thesmar*, National Turkey Federation, Washington, DC.

When used to prevent subclinical disease AFAs are sometimes used at subtherapeutic levels. Subclinical NE depresses flock performance and increases condemnations. Research has shown that the effectiveness of an AFA to improve growth rate and feed conversion (FC) is directly related to its ability to control Clostridium perfringens, the causative agent of NE. In the EU the prevalence of enteric diseases and the use of therapeutic antibiotics in food animals have increased significantly since the ban of AFAs. 2. Reduction of human pathogens, by improving flock uniformity, enhancing intestinal strength, minimizing gastrointestinal ruptures during processing, and by reducing shedding of human pathogens, the use of AFAs enhances food safety. Chickens raised without AFAs had a prevalence of Campylobacter spp. much greater than that of chickens raised with AFAs. 3. Improved animal welfare, AFAs were shown to reduce immunologic stress in healthy chickens kept under optimal conditions, their use contributes to the welfare of birds. 4. Improved production efficiency, results from better enteric health and prevention of nutrient degradation by the intestinal microflora. Rather than “growth promoters” AFAs are “health promoters.” 5. Preservation and less contamination of the environment, a 0.04 improvement in FC attributed to the use of AFAs in a commercial turkey operation eliminated the need for an additional 5525 tons of feed that without them would have been produced and delivered, and as a consequence, an additional amount of excreta corresponding to the increase in feed tonnage would have been produced and disposed of into the environment. An additional 11050 tons of water would have also been used taking more natural resources from the environment. This is why AFAs enhance the sustainability of animal agriculture and reduce its carbon footprint. 6. Lower prices for the consumer, the use of AFAs enhances production efficiency and the savings from the lower cost of production can be passed on to consumers.

**Key Words:** antibiotic feed additives, growth promoters

---

**Currently Using Roxarsone.** Joseph M. Cervantes*, Phibro Animal Health, Watkinsville, GA.

Roxarsone is effective as an aid in the prevention of coccidiosis in chickens when used according to label directions, are safe. The purpose of these products is to prevent colonization coccidia, whose presence can cause lethargy, lack of growth, illness, or death in untreated flocks. Roxarsone is effective as an aid in the prevention of coccidiosis in chickens when used in combination with certain anticoccidials. Roxarsone has also been shown to significantly reduce salmonella levels in chickens. Traces of organic arsenic that are sometimes found in broiler meat are not necessarily related to use of animal health products and could be related to naturally occurring arsenic in food and water ingested by the animals. The FDA says the presence of arsenic at these trace levels is not harmful to human health. The facts show that compounds containing organic arsenic are used responsibly and safely by poultry producers. Poultry producers using these products to produce healthy birds are contributing to a healthful food supply for consumers in America and around the world.

**Key Words:** Roxarsone, arsenic, coccidiosis, salmonella, chicken

---

**Benefits of antibiotic use in animal agriculture.** H. M. Cervantes*, Phibro Animal Health, Watkinsville, GA.

Many benefits come from using antibiotic feed additives (AFAs), such as: 1. Prevention of subclinical diseases, like necrotic enteritis (NE). 2. Prevention of subclinical disease AFAs are sometimes used at subtherapeutic levels. Subclinical NE depresses flock performance and increases condemnations. Research has shown that the effectiveness of an AFA to improve growth rate and feed conversion (FC) is directly related to its ability to control Clostridium perfringens, the causative agent of NE. In the EU the prevalence of enteric diseases and the use of therapeutic antibiotics in food animals have increased significantly since the ban of AFAs. 2. Reduction of human pathogens, by improving flock uniformity, enhancing intestinal strength, minimizing gastrointestinal ruptures during processing, and by reducing shedding of human pathogens, the use of AFAs enhances food safety. Chickens raised without AFAs had a prevalence of Campylobacter spp. much greater than that of chickens raised with AFAs. 3. Improved animal welfare, AFAs were shown to reduce immunologic stress in healthy chickens kept under optimal conditions, their use contributes to the welfare of birds. 4. Improved production efficiency, results from better enteric health and prevention of nutrient degradation by the intestinal microflora. Rather than “growth promoters” AFAs are “health promoters.” 5. Preservation and less contamination of the environment, a 0.04 improvement in FC attributed to the use of AFAs in a commercial turkey operation eliminated the need for an additional 5525 tons of feed that without them would have been produced and delivered, and as a consequence, an additional amount of excreta corresponding to the increase in feed tonnage would have been produced and disposed of into the environment. An additional 11050 tons of water would have also been used taking more natural resources from the environment. This is why AFAs enhance the sustainability of animal agriculture and reduce its carbon footprint. 6. Lower prices for the consumer, the use of AFAs enhances production efficiency and the savings from the lower cost of production can be passed on to consumers.

**Key Words:** antibiotic feed additives, growth promoters

---

**Current Regulatory Status and Use of Antibiotics in the Poultry Industry Symposium**

---

**Current Regulatory Status and Use of Antibiotics in the Poultry Industry Symposium**
resistance in humans attributed to the feed administration in food animals is debatable. It is known that discontinuation of use will result in the loss of the “benefits”. Moving forward, it is expected that legislation that seeks to follow the EU example (i.e., remove indications) for feed antimicrobials will continue to be advocated in several countries. Regulation will continue to migrate toward veterinarian oversight of antimicrobial use, with modernization of antimicrobial feed administration practices and risk assessment for product label evaluations. Veterinarians and producers will likely be called upon to comply more fully with responsible use guidelines.

88 The results of Denmark’s restriction on antibiotics. S. R. Clark*, Pfizer Inc.

In Europe where bans on antibiotic growth promoters in animal agriculture have been adopted to limit on farm antibiotic use, there has been little evidence of improvements in public health. There is global influence of Denmark on current thinking on antibiotic usage in food producing animals. Denmark’s DANMAP annual report summarizes antibiotic resistance and volumes data.

Key Words: Europe, DANMAP, antibiotic, resistance

89 Concerns regarding antibiotics and antibiotic resistant bacteria in the environment. R. S. Singer*, University of Minnesota, St. Paul.

Development of resistance to antimicrobials is well-documented for some bacteria. To solve the complex problem of reducing resistance, it is necessary to identify activities that are major contributors to the emergence of resistance. The alteration or elimination of these activities could then slow the loss of antibiotic efficacy. Antibiotic use is likely the major selection pressure influencing changes in antibiotic resistance. It must be emphasized, that resistant bacteria can be resistant for reasons entirely independent antibiotic use, including the fact that resistance mechanisms have existed in bacteria long before humans started using antibiotics. The discharge of wastewater from animal agricultural facilities, human sewage treatment plants, hospitals and pharmaceutical plants has been associated with increased levels of zoonotic pathogens as well as increasingly resistant and virulent organisms. Antibiotics are often discharged from these sites. Once in the environment these antibiotics can act as a selection pressure, further influencing the acquisition of resistance genes. All of these possibilities must be considered to identify the causes of resistance and to subsequently estimate the amount of risk attributable to animal antibiotic use. One uncertainty that emerges is the biological significance of the low concentrations of antibiotics found in the water supply. Some studies have found a correlation between increased concentrations of antibiotics and higher levels of antibiotic resistant bacteria and antibiotic resistance genes. However, in a recent study conducted by our laboratory, low levels of chlortetracycline did not appear to select for resistance. Because the pressures that can select for antibiotic resistance in the environment have considerable spatial and temporal heterogeneity, studies that want to investigate the emergence and spread of antibiotic resistance must be carefully designed. In conclusion, there are many factors that affect antibiotic resistance in the water supply. An ecosystem-based approach to antibiotic resistance is the only way in which the myriad of selection pressures and other determinants can be taken into account.