COMMITTEE ON FOOD AND FEED SAFETY
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The Committee met on October 2, 2011 at the Adam's Mark Hotel in Buffalo, New York, from 1:30-5:00 p.m. During the presentations there were from 40-60 attendees coming and going. At the 4:30 p.m. Committee meeting there were 9 members and 0 guests present.

Committee Mission Statement:

The purpose of the Committee on Food and Feed Safety is to serve as a focal point for consideration of food safety and feed safety issues within USAHA. The Committee should recommend food/feed safety policies to protect animal and human health and be active in all areas of food/feed safety concerning foods of animal origin. Further, the Committee should provide a national forum for debate on minimizing chemical, microbial and physical contamination in the feed of food producing animals and provide specific recommendations, using the latest available knowledge to enhance the safety of animal feeds.

There were no time specific presentations but all presentations were delivered according to the agenda. Dr. Ragan took lecture notes that are in this report in combination with excerpts from the presenters' power point slides that were provided to the Chair.

E. coli Vaccination Outcomes and Risk Analysis

H. Scott Hurd, DVM, PhD, College of Veterinary Medicine, Department of Production Animal Medicine
Former Deputy Undersecretary of Food Safety, USDA, Director of World Health Organization Collaborating Center for Risk Analysis and Hazard Surveillance and Intervention in Food Animals, Co-Director Collaboration for Comparative Outcomes Research and Evaluation (CCORE), Iowa State University

Summary: Packers implementing numerous antimicrobial interventions. FSIS considering more active role in pre-harvest food safety. Pre-harvest interventions work some of the time. Industry is concerned about E. coli and other foodborne agents because they do not wish to make people sick. Also, the economic impact of negative publicity, recalls and potential legal liability are all sources of concern. Pre-harvest interventions are generally less effective than carcass and product treatments. Review of Salmonella infection and reduction programs in Denmark suggests an early limit to human health improvement resulting from pre-harvest intervention. In-plant programs showed more positive change in public health. "Let's don't waste our time on pre-harvest efforts to reduce Salmonella exposure to humans from pork". Industry may be at the point of diminishing returns in controlling E. coli in beef. Need a special set of circumstances to gain major improvement through pre-harvest intervention. Vaccines may offer a breakthrough in this regard. Vaccine research looked at scenarios in which 80, 60, and 40 percent reduction in carcass contamination. Best case scenario could reduce human cases by 60 percent.

More likely scenario of reduced vaccine use could accomplish 36 percent reduction in human cases. In sum, the use of the vaccine researched could offer a major reduction in carcass contamination and human disease. Research is underway to determine if vaccine would affect other E. coli strains. Some common genes have been identified. Work on vaccine will be published in the near future.

Preharvest interventions work best when:

- The pathogen originates solely on the farm
- Food animal is the primary host
- Pathogen does not live well outside the host
- The % of positive farms is relatively low
- Post-harvest methods are "maxed-out"
- Dealing with outlier events

Dr. Hurd's research group developed a stochastic simulation model to evaluate the impact of O157:H7 vaccination on key epidemiological outcome measures. The model considered a reduction in the O157:H7 prevalence as well as concentration in cattle feces due to vaccination. The impact of this reduction on various risk outcomes was evaluated by simulating the relationships between the O157:H7 prevalence and concentration at various points in the ground beef supply chain. The uncertainty and variability associated with the O157:H7 contamination was explicitly modeled on a carcass-by-carcass basis.

The E coli 0157:H7 vaccine mathematical model focused on the goal of reducing "hot lot" losses ((hot lot = more than 1,000 *E. coli* O157:H7 contaminated ground beef servings from a single lot). Some findings:

- The number of events where multiple O157:H7 illnesses (outbreaks) might occur from a single production lot can be reduced by appropriate vaccination use. Industry test and hold may significantly mitigate this risk.
- All levels of efficacy and adoption reduce the risk to packer
- Full adoption of 80% effective vaccine virtually eliminates chance of Hot Lots (96% reduction)
- 40% adoption of an 80% effective vaccine results in 43% reduction in probability of Hot Lots
- 80% adoption of 60% effective vaccine results in 49% reduction in probability of detection by FSIS
- Analysis included impact of biological variation and uncertainty in parameters
- Modeled from "farm to fork" using best available scientific data
- Showed that vaccination reduces
    - Human 0157:H7 cases
    - Risk of FSIS regulatory detection
    - Chance of large outbreak from a lot
    - Frequency and magnitude of "event days"

Antimicrobial Drug Use and AMR in Food Animals

Bo Norby CVM, MPVM, PhD, Department of Large Animal Clinical Science, Michigan State University, College of Veterinary Medicine

Summary: Spoke about risk of antimicrobial resistance (AMR), the concerns of producers, consumers, veterinarians and regulators. Resistance to antimicrobials began to occur early in the use of antimicrobial products. FDA has proposed guidance or regulatory actions to reduce or control the use of antimicrobials in food animals. Sourcing of samples and methodology of testing for resistance to antimicrobials may result in major differences in findings. There is a need for the adoption of standardized methods for sampling and testing for AMR. Studies were conducted to define variation in AMR findings due to testing procedures. Used ceftiofur and E. coli in studies. Treatment status of animals may affect results of sampling and testing. The effect of using of antimicrobial drugs on steers included short-term reduction in E. coli in animals treated with ceftiofur and ceftiofur resistant E. coli went up to 40 percent. Multidrug resistance was observed in the steers treated, increasing with the dose and frequency of ceftiofur used.

Occurrence of AMR E. coli in one study was approximately twice as high in conventional dairy herds compared to organically managed dairies. Withdrawal of antibiotic treatment may be expected to reduce AMR. Treatment of small number of animals instead an entire pen may reduce the development of AMR. Consumer advocacy may result in regulatory actions to reduce or ban antimicrobial use in food animals. Risks of AMR may not be as high they have seemed to be. Communication among producers and consumers is an important need.

Long-term effects of antimicrobials on AMR:

- Exceedingly hard to assess
- Longitudinal very expensive
- Will what we found today be valid tomorrow?
- Which populations to focus on?
- Fitness of resistant bacteria

may abate by time
- Which animals, bacteria and drugs to focus on?

Comparing Organic versus Conventional farms
- Overall AMR prevalence lower in ORG/ABF versus CONV for some 'bug-drug' combinations
- The magnitude of the 'ORG/ABF effect' varies tremendously.
- Optimist/pessimist
- Single resistance and multi-drug resistance
- Comparisons of AMR across animal and bacterial species should not be attempted

Summary: Considerations regarding AMR outcomes in food animals
- Qualitative (R/S), semi quantitative (MIC), Quantitative (actual counts)
- We need to consider where the sample came from
- We should differentiate between 'immediate' and 'long-term' effects of antimicrobial drug use and AMR when discussing 'cause and effect'.
- Methods used for bacterial isolation, MIC determination, breakpoints, type of animals sampled, number of isolates used per animal, study and sampling designs etc. vary too much across studies

Responsible Antibiotic Use Practices in U.S. Pork Production

Jennifer Koeman, DVM, MPH, Director of Public Health, National Pork Board

Summary: U.S. pork producers are committed to produce safe food and contribute to public health. Appropriate use of antibiotics is an important part of this commitment. Pork Quality Assurance participation by producers includes the proper use of antimicrobials in its package of practices to produce safe food and provide for animal welfare.

Take Care Program: Following the launch in 2005, the program gained widespread acceptance. Today, more than 50 million pigs are marketed by producers who have signed an endorsement which pledges their commitment to protecting public health, animal health and well-being through the responsible use of antibiotics. With the incorporation of the Take Care principles and guidelines into the PQA Plus program, the program it is expected to become an industry standard observed by virtually all U.S. pork producers. During the development of the program, producer focus groups were used to help define the principles and guidelines, the scope of the program, delivery methods for the program and even the name. Following the launch of the program, the National Pork Board initiated and funded a pilot project study that is in process today. Ten veterinary clinics are involved, two each in five states: Minnesota, Iowa, Illinois, Missouri and Indiana. Each veterinary clinic is overseeing five producers with approximately 250,000 hogs involved. Three of the five producers have received training on the Take Care Program and two of the producers have not. The goal of the pilot project is to determine the effectiveness of the program in raising awareness and knowledge of the responsible use of antibiotics. The findings of the pilot project will be presented at upcoming industry meetings and through articles in scientific and agricultural publications. For more information or to request a manual, producers can call (800) 456-PORK or visit pork.org. Producers are also encouraged to work with their veterinarians to implement the program on their operations.

FDA-CVM Update on Food Safety Modernization Act, Salmonella and the Veterinary Feed Directive

Burt Pritchett, DVM, Food and Drug Administration

Summary: Spoke about the Food Safety Modernization Act (FSMA). Facilities which handle foods will be required to analyze and define the hazards that exist on their premises and develop a plan to reduce or eliminate them. FDA now has authority to mandate recalls, but intend to continue the collaborative, voluntary process except in cases where it does not work. Imported food products will be required to meet the same safety standards as domestic products. Federal, state and local partners will be used to accomplish the goals of FDA under FSMA. Requirements will apply to all human and animal foods except seafood, meat and poultry, and those foods already under mandatory HACCP. FDA is currently developing a package of rules to implement the Act.

FDA's Implementation Priorities for the FSMA: Based on public health impact, focus on:
- Prevention
  - Mandatory preventive controls for facilities (FR 18 months)

  - Produce safety standards (FR 2 years)
  - Intentional contamination (FR 18 months)
- Inspection, Compliance, and Response
  - Administrative detention (IFR 120 days)
  - Recall (Upon enactment)
  - Suspension of registration (180 days)
- Imports
  - Foreign supplier verification program (Guidance and FR 1 year)
  - Accredited third-party certification program (FR 2 years)
  - Mandatory certification for high risk foods (Upon enactment)

For more information on the FSMA: http://www.fda.gov/fsma or www.FDA.gov - link is in the box called Public Health Focus

Compliance Guide on Salmonella in Feed- Definition of Feed by Intended Use:

- Direct-Human-Contact feeds
  - pet foods, pet treats, petting zoos, agricultural fairs
- Feeds intended for use on farms
  - cattle ranches, dairy farms, poultry farms, swine farms

Salmonella Serotypes of Health Concern to Target Animals

Type of Feed	*S*. Serotype
Poultry feed	Pullorum/Gallinarum/Enteritidis
Swine feed	Choleraesuis
Sheep feed	Abortusovis
Horse feed	Abortusequi
Dairy and beef feed	Newport/Dublin
Milk replacer	Any serotypes

Draft Guidance: ‘‘The Judicious Use of Medically Important Antimicrobial Drugs in Food-Producing Animals’’

- Provide for the safe use of antimicrobials in food animals while ensuring that important human antimicrobial therapies are not compromised or lost.
- Discusses FDA’s concerns with the use of medically important drugs in food-producing animals and impact on antimicrobial resistance
- Two key principles outlined in draft guidance #209:
  - 1) Limit use of medically important antimicrobial drugs to uses considered necessary for assuring animal health (i.e., therapeutic purposes)
    - Production use is not a judicious use
  - 2) uses should include veterinary involvement or consultation

Veterinary Oversight:

- Currently, most feed and water use antimicrobials are available OTC
- Currently working with AVMA steering committee on practical implications for increasing veterinary oversight
- How to define “VCPR”?
- Advice on improving VFD process

Summary of Overall Strategy

- For medically important antimicrobial drugs:
  - *phase out* production uses and

- *phase in* greater veterinary oversight
- Phased in strategy important for assuring that animal health needs are met, veterinary practice issues are addressed, and impacts on industry are minimized

At this time, focus is on a voluntary approach for making changes to currently approved products

USDA-FSIS Food Safety Strategy Update and Regulatory Perspectives

Dan Engeljohn, BS, MS, PhD, Assistant Administrator, Office of Policy and Program Development, Food Safety and Inspection Service, U. S. Department of Agriculture Food Safety and Inspection Service

Summary: Daily inspection requirement in statute limits the inspection options of FSIS. Both Campylobacter and Salmonella continue to be difficult challenges to control, especially in poultry. Protecting public health remains the primary goal of the Agency. Described the Agency Strategic Plan designed to accomplish the goal of safe food under existing inspection mandates and limited budgets. Will publish major new poultry inspection regulation this Fall. Also will publish new egg products inspection rule. Will redefine what constitutes a repeat violative drug residue seller. Will consider petitions this fall with regard to slaughter of downer animals of any species and the slaughter of veal calves in poor state of health. Conference on on-farm beef safety is set for November 9, 2001 at the APHIS office in Riverdale, MD.

Three major themes with eight goals to engage FSIS employees in preventing foodborne illness and to be a more trusted and successful public health regulatory agency; budget and resources are directly tied

- Themes
  - Prevent foodborne illness
  - Understand and influence the farm-to-table continuum
  - Empower people and strengthen infrastructure
- Goals
  - Ensure that food safety inspections align with existing and emerging risks
  - Maximize domestic and international compliance with food safety practices
  - Enhance public education and outreach to improve food—handling practices
  - Strengthen collaboration among internal and external stakeholders to prevent foodborne illness
  - Effectively use science to understand foodborne illnesses and emerging trends
  - Implement effective policies to respond to existing and emerging risks
  - Empower employees with the training, resources, and tools to enable success in protecting public health
  - Based on defined agency business needs, develop, maintain, and use innovative methodologies, processes, and tools, including PHIS, to protect public health efficiently and effectively and to support defined public health needs and goals

USDA-FSIS Substantive Initiatives in 2012

- Prevention of contamination during slaughter/dressing proposed rule (beef)
- Poultry slaughter proposed rule
- Implementation of Campylobacter standard – poultry carcasses
- Processed egg product HACCP/SSOP proposed rule
- Validation
- Trace back
- Drug residues – targeted testing
- *Salmonella* multi drug-resistance (ground poultry and ground beef)
- Humane handling petitions – Farm Sanctuary (all), HSUS (veal)
- Non O157 STEC adulteration implementation
- Labeling: Enhanced; natural; nutrition labeling of single ingredient product (final rule implementation); mechanically tenderized beef
- Catfish
- Pre-harvest workshops – start with cattle (November)

Committee Business

Chair Dr. Buntain called the meeting to order at 4:45PM. Quorum was not present with 9 members attending. The Committee Charge was reviewed and there were no suggestion for revising the Charge.

Next, the process of resolution was mentioned. No resolutions were submitted by the members or another committee to this Committee. The Chair asked if there is any other business to bring forward and there was none. The Chair was complimented on the program content. She asked for suggestions for topics on the next meeting. Recommendations for next year's meeting included: Explore linking with AAVLD Food Safety Committee as suggested by Chair Buntain who attended that Committee; theme of MRSA (Multi-drug resistant staph aureus) which is a hot topic at infectious disease conferences; suggested rotating themes on foodborne pathogens such as overview of non E. coli O157:H7 STECS; and import food safety and international food safety issues. The meeting was adjourned at 5:00 PM.