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Food safety: The changing world of pork producers and veterinarians

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Introduction

In recent years, food safety issues have received increased attention from industry groups, consumers, and governmental agencies in the US and throughout the world. Consumers are continuing to define their expectations for the safety of their food. Meeting these consumer expectations requires each segment of the food chain to work closely with the other segments. While the pork industry has been increasingly developing a "chain mentality," successfully addressing pork safety issues requires even closer coordination of efforts.

To develop this partnership and address the changing expectations of the industry, the National Pork Producers Council (NPPC) established a Pork Safety Task Force in 1994. All segments of the chain are represented on this Task Force. The Task Force provides oversight to the industry's food safety efforts.

Current activities

The food industry and governmental agencies have recognized that the application of Hazard Analysis and Critical Control Point (HACCP) principles is the best way to continue to enhance the safety of meat products. As discussed in an earlier presentation, the Food Safety and Inspection Service (FSIS) has implemented a final rule, "Pathogen Reduction: HACCP Systems," for plants which provide Salmonella performance standards, generic *E. coli* process control testing requirements, sanitation Standard Operating Procedures, and mandatory HACCP systems. In their HACCP plans, plants must address three hazards to meat safety: chemical and antimicrobial, physical, and microbial. Additional regulatory efforts are anticipated further up the chain.

NPPC has allocated significant resources to each segment of the chain in the areas of research, technology transfer, education, and policy development to develop a comprehensive Pork Industry Food Safety System. Efforts are concentrated in the following segments of the chain:

- Producers
- Packers and processors
- Retail

- Food service
- Consumers

Producers

Pork Quality AssuranceSM (PQA) program

The most significant way that US pork producers address their food safety responsibilities at the present time is through the PQA Program. Pork producers developed and implemented this voluntary education program beginning in 1989 to prevent antimicrobial residues and enhance herd health practices. Drug residue prevention is clearly a producer responsibility. Residues cannot be "fixed" later by someone else further down the chain.

The PQA Program is a proactive program based on HACCP concepts. There are three levels to the program. PQA Level ISM outlines to producers an on-farm avoidance program. PQA Level IISM is a self-directed review of the PQA Level I material. PQA Level IIISM is the highest level of the PQA program. The producer can only complete it after discussions with a third party verifier. Approved verifiers are veterinarians, agricultural education instructors, and extension program personnel.

In 1997, NPPC released a new version of the PQA Program which includes all three levels in one booklet. This revision is based on the Food and Drug Administration's (FDA) Compliance Policy Guide (CPG) 7125.37 "Proper Drug Use and Residue Avoidance by Non-veterinarians." It consists of "Ten Good Production Practices" (GPP) with the first six related to antimicrobial residue avoidance (food safety) and the last four addressing management to help minimize the use of animal health products (efficient, quality production). These Good Production Practices are listed in **Table 1**.

This revision more clearly emphasizes producers' food safety responsibilities with regard to antimicrobial residue avoidance and is designed to blend with packer HACCP plans. Considerable discussion has taken place with FSIS, FDA, and packers to ensure this revision meets packer and government expectations of producer responsibilities. Although mandatory HACCP does not directly reach the farm level, the assurances packers need to make about their animal suppliers has resulted in an increased interest in on-farm production practices.

TABLE 1: Proper drug use and residue avoidance by non-veterinarians: Ten Good Production Practices

Food Safety	
GPP#1:	Identify and Track All Treated Animals
GPP#2:	Maintain Medication and Treatment Records
GPP#3:	Properly Store, Label and Account for All Drug Products and Medicated Feeds
GPP#4:	Obtain and Use Veterinary Prescription Drugs Only Based on a Valid Veterinarian/Client/Patient Relationship
GPP#5:	Educate All Employees and Family Members on Proper Administration Techniques and Withdrawal Times
GPP#6:	Use Drug Residue Tests When Appropriate
Efficient, Quality Production	
GPP#7:	Establish an Efficient and Effective Herd Health Management Plan
GPP#8:	Provide Proper Swine Care
GPP#9:	Follow Appropriate On-Farm Processing and Commercial Feed Processor Procedures
GPP#10	Complete Quality Assurance Checklist Annually, and
:	Recertify Every Two Years

Several packers have set dates after which the producers supplying their plants will be required to have completed the PQA Program. It is expected that this trend will continue and the NPPC delegate body at the 1998 Pork Forum supported this action by packers. To help educate producers about how the implementation of HACCP in packing plants affects them, an informational brochure and an educational video have been developed.

Antimicrobial usage

Recently, there has been heightened interest by the public health community, media, consumers, and industry in the potential for antimicrobial usage in animals to result in the transfer of resistant bacteria to humans. NPPC is committed to assessing the scientific basis of this issue. In 1997, in cooperation with the American Association of Swine Practitioners, a Pharmaceutical Issues Task Force was formed. This Task Force is reviewing the current science with regard to antimicrobial usage in animal agriculture and will be recommending a sustainable position for the pork industry. Research projects, education programs for producers and veterinarians, and policy positions are currently being developed.

On-farm food safety certification programs

In addition to the PQA Program, NPPC has been developing the framework for additional on-farm food safety certification programs. The first one to be implemented will be certification for the absence of the risk factors for trichinae infection. Though the prevalence of trichinae in US swine is extremely low and the number of human cases due to the consumption of pork is small, it continues to be a perception concern for the US pork industry. Since 1995, NPPC, in cooperation with the Agricultural Re-

search Service, the Animal and Plant Health Inspection Service, and FSIS, has been involved in developing the tools and the framework to allow the industry to address trichinae and the stigma it has for pork.

The certification will be based on an on-farm audit conducted by specially trained veterinarians with USDA program oversight. Implementation of this program is planned to take place in 1999. It is expected that on-farm certification for the control of *Toxoplasma gondii* infection of swine will soon follow.

Pathogens

With performance standards being phased in for processing plants, there is more interest in what can be done at the farm to reduce levels of potentially harmful bacteria. While mandatory HACCP systems for meat and poultry establishments are appropriate at the present time, additional research is needed on the ecology and epidemiology of microorganisms of public health significance before realistic expectations for on-farm control can be determined. Since 1994, NPPC has had a very aggressive on-farm food safety research program focused on the feasibility of HACCP-like systems at the farm level for control of potential human pathogens. Research results from many of these projects were presented at the July 1998 Pork Quality and Safety Summit sponsored by NPPC. Good Production Practices for the control of Salmonella are currently under development based on research findings.

Packers and processors

In 1996, NPPC added a food microbiologist to its staff to develop food safety programs for the plant to consumer

segment of the chain. NPPC has been funding research to assist plants as they develop and implement HACCP systems. In addition, producer checkoff dollars have been invested in the development of educational materials for smaller plants. A Post-harvest Food Safety Technical Advisory Group composed of plant food safety personnel, academics, and researchers provides direction on research, education, and policy to the NPPC Pork Safety Task Force. NPPC has representation on USDA's Meat and Poultry Inspection Advisory Committee and the National Advisory Committee on Microbiological Criteria for Foods.

In conjunction with the American Meat Science Association, fact sheets on food safety issues such as irradiation, HACCP implementation, and meat inspection have been developed. NPPC provides a quarterly publication, *Tech Talk*, to the scientific community and abattoir quality assurance personnel, which contains the latest research results. In addition, research reports from producer funded research are posted on the NPPC web site (<http://www.nppc.org/>) as they are received.

Retail

At the retail level, research is being conducted to survey temperatures in meat cases to better inform the retail sector about the importance of temperature control for shelf life and food safety. HACCP programs for retail are being developed.

Food service

At the food service end, NPPC has sponsored ServSafe, a food service safety certification course for in-house and field staff and for food service companies. The NPPC field staff is providing food safety information in their regular visits to stores, restaurants, and delicatessens.

Consumers

For consumers, a food safety kit with a variety of educational messages including pork-specific information has been developed. Thousands of these kits have been distributed. Food safety information is also included with requests for pork recipes. Additional food safety information is available on the NPPC web site.

Looking ahead

In the near future, all segments of the chain are going to require additional food safety assurances from their suppliers. Certification programs in each segment of the chain will become commonplace. Packers requiring participation in the PQA Program should be viewed as a first step. Future enhancements to the PQA Program will need to embrace a more auditable format. Parasite certification programs will be implemented by the majority of producers.

As the technology is developed that allows producers to address additional food safety issues such as bacterial pathogens at the farm level, the rest of the chain will require that producers make the appropriate effort. This effort may be necessary to ensure market access in the future and may not provide opportunities for premiums.

Veterinarians will have a role in providing the education to producers to enable producers to meet certification standards. In addition, veterinarians may be verifiers or auditors of on-farm food safety certification processes or standards. This will involve the development of new skills for many veterinarians. Veterinarians looking ahead should be acquiring auditing skills. In addition to auditing skills, special training by the government or other parties may be required for veterinarians desiring to participate in certification programs. This training may be linked to the veterinary accreditation process. The veterinarian's role in the protection of public health will continue to expand.

With regard to on-farm use of antimicrobials, it is feasible that there will be some changes to current practices for access to animal health products, increased involvement of veterinarians in usage decisions, and additional on-farm oversight of product usage and antimicrobial resistance monitoring. Certain types of products may only be made available to either producers or veterinarians receiving additional educational information or certification in their usage.

Other segments of the chain will develop seamless food safety linkages and assurances including good transportation practices, good slaughter and processing practices, good distribution practices, and good food service and retail practices. The increase in branded products and product liability concerns will drive the need for these assurances. There have been several recent examples of the dissolution of businesses when these linkages were absent and food safety incidents resulted.

Effectively addressing food safety issues requires coordination of efforts throughout the food chain. Comprehensive food safety education, research, and programs "from the farm to the table" are needed. Because we operate in a global market, the US system for food safety must be acknowledged by current and potential customers as providing the highest quality, safest pork in the world.

