

pathogens in raw meat or poultry with the risk of cross-contamination and consequent illness. Whether experimentally derived or acquired through correlation of community disease rates and pathogen levels in meat or poultry, FSIS would be interested in reviewing any available data. At the same time, recognizing the key nature of such data, FSIS is committed to working with the CDC and the research community to obtain the necessary information.

Finally, quantitative risk assessment for pathogenic microorganisms is complicated by the wide variability in susceptibility to particular pathogens among individuals and groups of individuals in the population. It is well known, for example, that the young and the elderly are at significantly greater risk of serious illness or death from consumption of *E. coli* 0157:H7 than the general population. Any person with a weakened or compromised immune system, whether due to age or illness, is generally more vulnerable to foodborne illness associated with pathogenic microorganisms. Thus, in developing the scientific basis for risk assessment, attention must be paid to these subpopulations so that any resulting health-based standard will be adequately protective of the population as a whole.

#### Future Activities

FSIS intends to work closely with the Centers for Disease Control and Prevention, the Food and Drug Administration, other public health agencies, academic scientists, and the industry and consumer communities to develop the scientific basis for microbial risk assessment and the creation of health-based performance standards for pathogenic microorganisms. FSIS recognizes that the scientific issues are difficult and that it may not be possible in the near term to establish health-based standards for all pathogens. It is important to begin this effort, however, because, as progress is made in the near term toward pathogen reduction on the basis of available technology, it will be increasingly important to know what constitutes an acceptable level of food safety performance from a public health perspective. Health-based performance standards can provide an incentive for further improvement and progress in reducing pathogenic microorganisms and an indication of the point beyond which further reduction would be unlikely to yield a public health gain.

FSIS will seek to stimulate—and to a limited extent conduct and support—the scientific research needed to develop quantitative risk assessment

methods and databases for pathogenic microorganisms. This will likely include laboratory research, in-plant studies and community-based epidemiological studies to evaluate health outcome in meat and poultry inspection. FSIS intends to use the public meetings mentioned above to canvass the current state of knowledge in this area and encourage development of a coherent research agenda that can contribute to progress in this important area.

#### *E. FSIS Technology Strategy*

##### Overview

FSIS has a longstanding interest in the technologies used in meat and poultry establishments. The facilities, equipment, and processes used during slaughter and processing of meat and poultry can significantly affect the safety, quality and wholesomeness of the finished product. The safety of the product can be affected adversely by the wrong technology, such as equipment whose food contact surfaces cannot be adequately cleaned, or by misuse of a technology, such as a chemical sanitizer or preservative that is used above established safe limits.

There are also many technologies that can be used in meat and poultry establishments to help protect product from physical, chemical, and biological, especially microbiological, hazards. These include laboratory and in-plant methods to test for chemicals, animal drugs and bacteria; technologies for preventing harmful contamination by pathogenic microorganisms; chemicals or physical treatments that can be applied to carcasses to reduce pathogens; and equipment to verify pathology diagnoses.

FSIS currently regulates virtually all substances, processes, and pieces of equipment found in meat and poultry establishments that might affect the safety, quality, or wholesomeness of the product, through either prior approval on a plant-by-plant basis or publication of generic approvals or lists of approved items. The principle objectives FSIS pursues with these mechanisms are to ensure that the technology does what it is claimed to do (especially if the claim is safety related) but does not jeopardize the safety or wholesomeness of the product, cause or contribute to economic adulteration, interfere with FSIS inspection, or jeopardize the safety of inspectors.

Recently, members of the regulated industry have complained that the Agency's control mechanisms, especially its prior approval processes, stifle innovation and may retard

technological progress that can improve food safety in such important areas as pathogen reduction. At the same time, representatives of consumer groups have expressed concern that technologies claimed to be effective for pathogen reduction and other important food safety purposes be proven effective for that purpose and that the scientific processes used by FSIS to evaluate technologies be more open to public scrutiny and participation.

FSIS believes that the development and proper use of technology can contribute significantly to improving the safety of the food supply, especially with regard to reducing the threat posed by pathogenic microorganisms; and can, in general, improve the Agency's ability to carry out its mission. The FSIS food safety strategy depends heavily on establishing food safety objectives for the meat and poultry industry, which in turn provide an incentive for industry to innovate to meet those objectives. To make this strategy work, FSIS must not be an obstacle to beneficial innovation.

Therefore, FSIS is reviewing its current policies and procedures governing review and approval of in-plant technologies with the intention of simplifying them to the maximum extent possible, while ensuring that important safety and efficacy issues are considered. FSIS invites comment on its technology strategy, including the issues and activities outlined below. FSIS also intends to convene one or more public meetings to gain further input on how it can improve its role in fostering and overseeing the implementation of new technologies to improve the safety of meat and poultry products. Some of the Agency's current perspectives and activities in the area of technology development and evaluation are outlined below.

#### Current Perspectives and Activities

As a general rule, the development of technologies required to produce safe and wholesome products is a responsibility of the meat and poultry industry and allied enterprises, such as equipment designers and manufacturers, pharmaceutical companies, analytical laboratories, manufacturers of non-food compounds, and many others. Innovative technologies are continually developed by these entities to enhance productivity and profitability in the meat and poultry industry. FSIS believes that industry innovation can also be directed to improving food safety if the right incentives exist. FSIS intends as part of its long-term food safety strategy to increase the incentive for such innovation by establishing