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Dealing with Emerging Risks Related to the Environment and New Technologies

(Prepared by the United States of America)

Background:

The environment has traditionally been thought of as the origin of many chemical food hazards, such as heavy metals and persistent organic pollutants. However, it is becoming increasingly apparent that new pathogenic microorganisms are emerging due to environmental stressors from food production practices. Increased risk of pathogenic microorganisms may also be attributed to contamination of the agricultural water supply caused by human and animal waste, use of manure as fertilizer, health and hygienic practices of agricultural workers, and global movement of foods. As fresh produce is exported from farms all over the world to the tables of importing countries, the responsibility of domestic public health agencies is changing to adapt to our global market. There is increasing demand from the developing countries for technical assistance on new farm production and management practices, good manufacturing and processing technologies. Developed Country Members of the World Trade Organization have been asked to deliver more sanitary/phytosanitary (SPS) training as food safety has become critical to successful trade.

Discussion:

One example of an emerging risk is foodborne illness associated with consumption of fresh produce. Produce is an important component of a healthy diet and can play a vital role in weight management, which is a high priority for public health. Because most produce is grown in the natural environment, it is vulnerable to contamination with pathogens. Moreover, produce is often consumed raw without any type of intervention to control or eliminate pathogens..

The Food and Drug Administration within the Department of Health and Human Services (HHS/FDA) has proposed an Action Plan to minimize foodborne illness associated with fresh produce consumption. The four objectives of the Action Plan are: prevent contamination of fresh produce; minimize public health impact when contamination of produce occurs; improve communication with producers, preparers and consumers; and facilitate research relevant to fresh produce.

To help prevent contamination of produce, HHS/FDA has published a voluntary Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables and a number of other guidance materials, and has created a Good Agricultural Practices Train-the-Trainer Program in collaboration

with its partner, the Joint Institute for Food Safety and Applied Nutrition (JIFSAN) at the University of Maryland.

To minimize public health impact of contaminated produce, HHS/FDA is expanding surveillance for the presence of foodborne pathogens in fresh produce (especially “high risk” produce associated with previous outbreaks), improving methods to detect pathogens in produce items, increasing speed and accuracy of trace-backs, and monitoring all parts of the fresh produce production chain. HHS/FDA, the Centers for Disease Control and Prevention, also within the Department of Health and Human Services (HHS/CDC), and the U. S. Department of Agriculture (USDA), have developed closer ties with all domestic agencies conducting epidemiological investigations of foodborne illness to enhance reporting and response. Public health surveillance is greatly enhanced by the national network for molecular subtyping of foodborne bacterial pathogens, called PulseNet, which is developed and coordinated by HHS/CDC. Data are generated in public health and regulatory laboratories using state-of-the-art laboratory technologies, and collected into the PulseNet system which expedites comparison of pathogens to quickly spot clusters of infections that may be related. Other countries and international organizations, such as the World Health Organization and the Pan American Health Organization, are developing and sustaining PulseNet capacity around the world. .

New foodborne pathogens and the appearance of established foodborne pathogens in new food vehicles can be rapidly identified by investigation of foodborne outbreaks. Careful investigation of an outbreak, including tracing the food from farm to table and reconstructing the means of contamination, is critical to move the food safety agenda forward when new hazards emerge. HHS/CDC routinely consults with the state health departments, launches emergency field investigations to assist them in large, complex or unusual outbreaks, and coordinates efforts to improve outbreak detection and investigation methods.

To improve communication, HHS/FDA has established a protocol for ensuring that consumers are informed quickly of large outbreaks in which they need to take action. There is also a mechanism for prompt communication among federal, state, and local food safety agencies, foreign governments and the private sector. Consumers are becoming more aware of risks and safe handling methods through media campaigns such as Fight BAC!, conducted by HHS/FDA, HHS/CDC and FSIS, and through development of consumer-friendly websites. Commodity-specific handling advice is provided to food service operations and retail stores.

To facilitate research, HHS/FDA has clarified specific areas of concern for fresh produce and mechanisms of contamination to focus research where it will make the most significant contribution to reducing public health risks. HHS/FDA’s scientists are developing sampling protocols and analytical methods for rapid detection and decision-making. Finally, HHS/FDA is leveraging research resources through cooperative efforts between federal agencies, state and local offices, academic institutions and the private sector.

Conclusions

One of the greatest immediate risks to public health arises from foodborne illnesses caused by pathogens in the fresh food production environment. Reducing foodborne illness associated with fresh produce consumption requires a collaborative effort by federal public health regulators like the U.S. Food and Drug Administration and federal food safety partners such as the Centers for Disease Control, both within the Department of Health and Human Services; the Food Safety and Inspection Service and Animal and Plant Health Inspection Service, both within the U.S. Department of Agriculture; counterparts in other countries, states and cities; the food industry; academia; and consumers.

