



# MANY VOICES, ONE VISION

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## Pre-harvest Food Safety AFBF Policy Development May 2012

### Issue:

Pre-harvest food safety has become a topic of increasing focus, particularly in the beef industry. USDA's Food Safety and Inspection Service (FSIS) announced at the 2011 AFBF annual meeting that their next step in reducing *E. coli* is through pre-harvest intervention, and they have repeatedly re-stated their intentions. Farm Bureau participated in a pre-harvest food safety meeting for cattle hosted by USDA on November 9, 2011.

Research on pre-harvest interventions is ongoing. Pre-harvest interventions that can eliminate fecal shedding of enteric pathogens have yet to be discovered; however, current research suggests that at least two pre-harvest interventions, certain probiotics and vaccines, have the potential to be effective in reducing fecal shedding in cattle. FSIS encourages slaughter establishments to share this information with their suppliers and to use it in designing their food safety systems. The National Institute of Food and Agriculture also plays a key part on the pre-harvest initiative, making competitive grants available to universities and labs conducting cutting-edge food safety research, some of which looks at pre-harvest. From 2005 to 2010, the National Institute of Food and Agriculture provided approximately \$26 million to fund research projects and a broad variety of topics.

### Questions:

What should the role of the producer be in pre-harvest food safety? What role should government play?

Are there specific *E. coli* tools that producers would be willing to use? Should Farm Bureau push for USDA approval of *E. coli* management tools?

How can cattle producers and processors work together to ensure that cattle arrive at the processing facility with lower presence of *E. coli*?

### Background:

FSIS is responsible for examining and inspecting the carcasses and parts of cattle at slaughter plants and meat processing plants that will be used for human consumption. FSIS has the authority to prescribe rules and regulations concerning the sanitation at slaughter plants and meat-processing plants. FSIS's inspection authority is limited to the processing plant and meat products and does not extend to the live animal prior to its delivery at the harvest facility. However, the agency encourages beef producers to use pre-slaughter interventions. FSIS has stated that such interventions offer a significant opportunity to improve food safety because they may reduce the level of **Shiga toxin-producing *Escherichia coli* (STEC)** entering the slaughter plant.

During the 1990s, research programs conducted by ARS on pre-harvest efforts to reduce pathogens included projects to evaluate technology and management methods to help producers achieve lower contamination levels in animals presented for slaughter. In 1994, FSIS named STEC O157:H7 an adulterant. The Federal Meat Inspection Act prohibits the sale of adulterated meat or meat products—products bearing or containing a poisonous or deleterious substance that may render them injurious to human health, among other things.

In 2008, FSIS began to promote cattle pre-harvest interventions to prevent foodborne illness and improve food safety throughout the farm-to-table continuum. The condition of the animals entering plants, and at slaughter, and the contamination rates on their hides and elsewhere, affect the ability to mitigate risk at slaughter and through the rest of the food system.

In May 2010, FSIS issued informational guidance to beef slaughter establishments on pre-harvest management controls for reducing *E. coli* O157:H7 shedding in beef cattle. The guidance described several pre-harvest interventions and

management practices. It encouraged pre-harvest interventions as the first control steps in an integrated beef products safety system.

In September 2010, and again in September 2011, FSIS solicited input from the National Advisory Committee on Meat and Poultry Inspection (NACMPI) on pre-harvest Hazard Analysis and Critical Control Point (HACCP) controls for *Salmonella* Enteritidis, *Escherichia coli* O157:H7, antimicrobial-resistant pathogens, and chemical residues. Further, in September 2011, USDA determined that six other STEC strains, known as O26, O45, O103, O111, O121, and O145, were adulterants in raw ground beef and beef trim. USDA has tests for these six strains and plans to use them in slaughter plants starting in June 2012. However, it may be difficult and time-consuming to confirm positive test results because certain test components are either not commercially available for all strains or do not always provide clear results. USDA is working to improve the tests and to find a commercial supplier of the tests.

U.S. Department of Agriculture (USDA) and university researchers identified several treatments administered before cattle are slaughtered, or pre-slaughter interventions, that could reduce STEC in cattle. Such pre-slaughter interventions include bacteriophages (viruses that infect and kill bacteria), probiotics (live bacteria that can benefit the digestive system), vaccines, and sodium chlorate (chemical that kills the STEC O157:H7 strain). However, few manufacturers have submitted applications for pre-slaughter intervention products to target STEC according to officials from USDA and the Food and Drug Administration.

One exception is for vaccines to reduce STEC O157:H7. For pre-slaughter interventions, USDA exercises responsibilities for licensing and regulating STEC vaccines. However, USDA's approval requirements for these vaccines are unclear, according to some industry representatives. Specifically, USDA's general guidance does not address some of the unique challenges faced by manufacturers of animal health products seeking STEC vaccine approval. For example, the guidance does not explain that, if studies conducted in the laboratory are insufficient to demonstrate efficacy, the manufacturer would also need to demonstrate that the vaccine is effective in a field setting such as a feedlot. Without guidance that gives manufacturers clear and more specific information they need to submit for an acceptable application, the approval process for STEC vaccines could face potential delays.

Since 2006, the U.S. beef industry has recalled over 23 million pounds of beef because of contamination from pathogenic strains of STEC. These bacterial STEC strains can live in the intestines or on the hide of cattle without harming them, but they may contaminate meat during the slaughter process.

The Centers for Disease Control and Prevention (CDC) does not have estimates specific to beef or poultry, but it estimates that STEC contamination of food consumed domestically causes approximately 176,000 illnesses, 2,400 hospitalizations, and 20 deaths annually. Illnesses caused by STEC O157:H7, the most common STEC strain in the United States, cost those infected \$489 million annually, in 2010 dollars, according to a USDA estimate.

### **Farm Bureau Policy:**

Farm Bureau does not currently have specific policy on the role of pre-harvest steps or treatments in meat safety.

358 - Inspection and Grading of Meat, Poultry and Seafood Products Lines 5-7 contain general language regarding pathogen reduction:

"We urge USDA to adopt a program taking advantage of new techniques proven by research to be effective in reducing bacterial contamination."