



Control of *E. coli* O157:H7 in Beef Production

Randall Huffman, Ph.D.
Vice President, Scientific Affairs
American Meat Institute Foundation

FSIS Public Meeting on Control of *Salmonella* in
Poultry Products
Atlanta GA, February 24, 2006

Overview of Main Points

- *E. coli* O157:H7 zero tolerance policy initially stymied progress
- Industry initiatives to treat food safety as a non-competitive issue and share best practices led to improvement
- Regulatory policy modifications allowed industry to adapt and improve



Background on *E. coli* O157:H7 in Ground Beef

- Several large outbreaks associated with undercooked ground beef
- Zero tolerance for fecal contamination of beef carcass strictly enforced, 1993
- *E. coli* O157:H7 declared an adulterant in ground beef, 1994
- Initial industry reaction to onerous new regulatory policy was negative
- The zero tolerance policy created a 6 – 8 year window of reliance upon a faulty premise of end-of-line finished product testing

Did regulatory focus on zero tolerance result in lack of progress?

The Scientific Community Opinion on Zero Tolerance

“No feasible sampling plan can ensure complete absence of a pathogen... It cannot be guaranteed that the lot is completely free of the organism, no matter how large the number of sample units.”

International Commission on Microbiological Specification for Foods. Book 7, 2002

The Scientific Community Opinion on Zero Tolerance

“Declaration of a foodborne pathogen as an adulterant in raw products: discourages testing for that pathogen; leads to false sense of security among consumers; discourages evaluation of control measures; and, encourages inappropriate use of microbiological control measures.”

The Role of Microbiological Testing in Beef Food Safety Programs: The Scientific Perspective. AMSA, 1999

Data Leads to Understanding of the Problem

- FSIS zero tolerance policy established prevalence in ground product, assumed to be very low initially.
- Early focus of control was on carcass:
 - regulatory zero tolerance for fecal contamination,
 - trimming carcass to meet fecal zero tolerance,
 - testing carcass for generic *E. coli*,
 - carcass interventions were studied and implemented.

Industry Initiatives Led to Change and Improvement

- Food Safety determined a non-competitive issue
- Significant investments in research on *E. coli* O157
- Implementation of valid interventions
- Customer-Supplier audits
- Expanded and Robust *E. coli* O157 trim testing programs

Developed and Implemented Best Practices

- Sanitary practices continually improved and implemented
- Significant challenges to modify practices or physical processes:
 - Management commitment
 - Employee willingness
 - Likely capital expenditures
- Cooperation among all segments of value chain

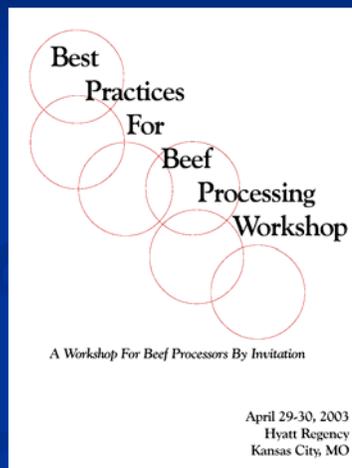
Beef Best Practice Efforts

- Developed by the Beef Industry Food Safety Council (BIFSCO)
 - Best Practices for Producer Resource Guide
 - Best Practices for Beef Slaughter
 - Best Practices for Processing Raw Ground Beef Products
 - Best Practices for Vacuum-packed Sub-primals
 - Best Practices for Pathogen Control During Tenderization/Enhancing of Whole Muscle Cuts
 - Food Service Best Practice
 - Best Practice for Retail Operations Producing Raw Ground Beef

www.bifSCO.org/bestpractice.aspx

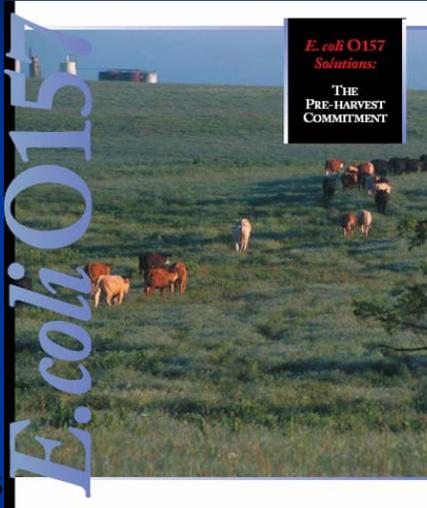
Post Harvest Technologies

- ❖ Sanitary slaughter practices
- ❖ Sanitary hide removal
- ❖ Spot cleaning
- ❖ Pre-visceration organic acid rinse
- ❖ Thermal carcass treatment
- ❖ Chilled carcass treatments
- ❖ Hide Washing



Pre-Harvest Actions

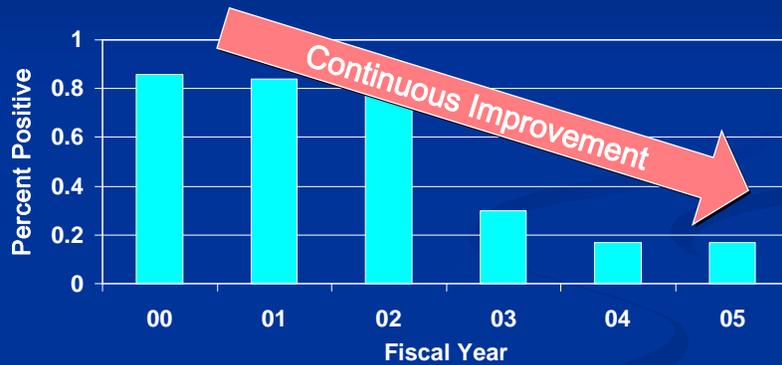
- AMIF, NCBA, USDA and others actively funding research
- BIFSCO *E. coli* Summit
- Basic info guide developed for producers
- Distributed through state BQA programs



Recent Regulatory Actions

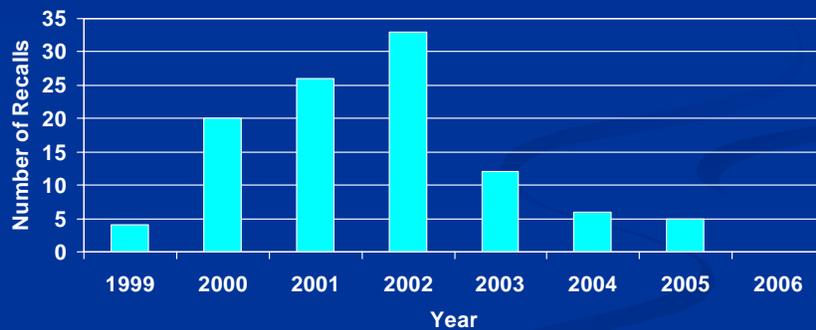
- Required HACCP reassessment by every beef processing company
- Recognition of “negative” test results for a lot
- Targeting of regulatory oversight to other ground beef components
- Targeted in-depth Food Safety Assessments (FSA’s)

Prevalence of *E. coli* O157:H7 in Ground Beef*



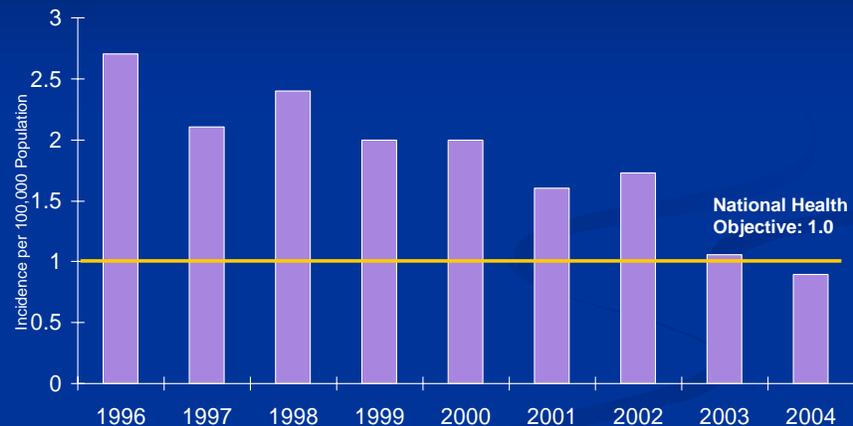
* Results of raw ground beef products analyzed for *E. coli* O157:H7 in federal plants.

Recalls for Ground Beef *E. coli* O157:H7*



*No recalls for 2006 as of 2/17/06.

Incidence of Foodborne Illness 1996-2004: *E. coli* O157*



*Preliminary FoodNet Data on the Incidence of Foodborne Illnesses --- Selected Sites, United States, 2004

Closing Questions

- Is the *E. coli* O157 problem in beef solved?
- Have improvements in the safety of beef been made in the last decade?
- Has zero tolerance for *E. coli* O157 caused change in the beef processing industry?
- Have the changes led to reduction in human *E. coli* O157-illnesses related to beef consumption?
- Has zero tolerance for *E. coli* O157 been good public policy?

Summary

- Begin with a rational and achievable regulatory policy, based upon a measurable public health goal
- Collect data to fully understand the process
- Use data to develop valid control strategies and best practices
- Share knowledge and best practices in a non-competitive fashion
- The industry's food safety record is good and getting better; however,
... there are *no Silver Bullets!*



Thank you.