EXECUTIVE SUMMARY

Beef Industry
E. coli Summit Meeting
January 7-8, 2003
In San Antonio in January 2003, a historic meeting took place. More than 200 beef industry leaders, representing all sectors of meat production from cow/calf and feedlot operations and fabrication and meat processing facilities to retail and foodservice companies, came together to connect the safety links in the beef supply chain.

Independently, each industry segment has worked for more than 10 years to reduce the incidence of E. coli O157:H7, and progress has been made. At this meeting, the industry experts who have been part of this progress compared and shared research, best practices and mutual expectations. They worked together to create a unified E. coli O157:H7 battle plan that ensures each sector in the production chain is employing proven production practices and technologies to best serve the next link in the chain, with the united goal of putting safe food on America’s tables.

It is in working together that we, as a total beef industry, will reduce and eventually eliminate the risk of E. coli O157:H7.

TERRY STOKES
CEO, National Cattlemen’s Beef Association
Host of the Beef Industry’s E. coli Summit
HISTORICAL BACKGROUND

Ten years after the first major outbreak of E. coli O157:H7 in late 1992 and early 1993, causing more than 700 illnesses and the deaths of four children, the beef industry continues its battle against this pathogen.

Despite the significant progress made since 1993 in the battle against E. coli O157:H7, the summer of 2002 provided evidence that the intensity of the battle must be elevated. With increased level of testing, and increased sensitivity in tests, the number of raw ground beef samples testing positive has been increasing. And in the summer of 2002, the number and tonnage of recalls increased significantly.

The leaders of all segments of the beef industry agree that solving the E. coli O157:H7 problem is critical to the industry’s success in providing consumers with safe and wholesome products. Solving the problem requires an aggressive and integrated effort at all points along the farm to table continuum.

1993 Blue Ribbon Task Force

In 1993 the beef industry launched the first major offensive against E. coli O157:H7. Following unanimous approval of a resolution in August 1993, a Blue Ribbon Task Force was appointed by The National Live Stock and Meat Board to address the E. coli O157:H7 issue. A group of industry and government scientists and executives was appointed to review all relevant public and private research and recommend the best course of action to manage E. coli O157:H7 in the meat system. The two specific objectives of the task force were:

“Identify areas of research/intervention systems and HACCP procedures that will result in a substantial reduction in the risk factors associated with the presence of E. coli O157:H7 in beef.”

“Identify voids in management practices from the farm to the table, which may be critical in the management of E. coli O157:H7 in the beef supply.”

Based on its analysis, the Blue Ribbon Task Force wrote in its 1994 final report a blueprint for beef industry action: a set of recommendations designed to make the beef delivered to consumers as safe as risk analysis, science and technology can possibly make it.

The blueprint has been useful. Some important parts of the industry food safety structure have been built but other parts remain either unfinished or still in the planning stage.

There have been important changes in the shape and scope of the E. coli O157:H7 issue since 1993. Ten years ago there were no regulations focused on this pathogen; in 2003 it is classified as an adulterant and as a hazard reasonably likely to occur. We have gone from no uniform food code to HACCP and minimum cooking standards. Retailers have instituted supplier controls, including microbial testing, along with Good Manufacturing Processes (GMPs) for in-store processing. Foodservice operators have instituted supplier controls and HACCP programs and microbiological monitoring in ground beef processing. Consumers recognize they are active participants in the process of ensuring food safety (and yet an expectation of food with zero risk remains).
Despite advances in knowledge and technology on all fronts, the E. coli O157:H7 problem remains significant. Indeed, the Food Safety and Inspection Service believes that the prevalence of the organism is greater than previously thought. Despite increased surveillance at the federal and state level, the Center for Disease Control's statistics show a 21 percent decrease in E. coli O157:H7 illnesses since 2000.

Still, the challenge posed by this pathogen has never been greater. This is due to some extent to the high visibility of recent major ground beef recalls and increased regulatory attention paid to E. coli O157:H7, and because it still poses a life-threatening risk to the public, especially children.

The National Cattlemen's Beef Association believes that the beef industry is at a critical point in regard to food safety. NCBA believes that the future of every segment along the beef farm to table continuum depends on our ability to come together as an industry to effectively address current food safety issues.

Clearly, this problem does not have a regulatory solution; the solution must be science-based. NCBA believes it is essential to develop an aggressive, integrated industry plan to take action and solve the E. coli O157:H7 problem, to assure a safer meat supply and regain consumer confidence in the safety of beef.

In response to this challenge, NCBA organized an industry summit to address the E. coli O157:H7 issue.

The objective of the Summit was to develop an aggressive battle plan for the beef industry in its fight against E. coli O157:H7. Summit attendees participated in breakout groups specific to the sector in which they do business. These breakout groups formulated plans that outline good manufacturing practices and interventions that are ready for implementation and that can be used on the specific products their sector produces, to reduce the incidence of E. coli O157:H7 and increase the safety of U.S. beef products.

In addition, tools that show promise in the near future or are in the development stage were discussed to strengthen the industry's long-term battle plan against E. coli. Finally, each breakout group identified needs for additional research that would strengthen the industry's effort to eradicate this pathogen.

The Beef Industry E. coli Summit was held January 7-8, 2003, in San Antonio, Texas. The approximately 200 participants in the Summit were leaders representing the beef cattle production, slaughter/fabrication, processing, foodservice and retail sectors of the industry. Representatives spent a day-and-a-half in intensive breakout groups by industry sector. The overall goal was to define and document industry practices to reduce and, ultimately to eliminate, the risk of E. coli O157:H7 in the beef supply.

To demonstrate that all sectors of the beef industry share a commitment to work together toward the goal of providing the safest possible beef, Summit participants signed a food safety pledge to consumers (see back page).
## Executive Summary of Industry Sector Reports

The five following summaries highlight the “Points of Focus” identified by each of the sectors in developing their contributions/commitments to the industry’s battle plan against *E. coli* O157:H7. Although beef products produced in the United States are already the safest in the world, these united commitments are designed to continue raising the standard for the safety of beef and beef products in this country.

### 1. Producer Sector

**Goal:** To reduce the prevalence of *E. coli* O157:H7 associated with market-ready cattle.

**Points of Focus**
- Maintain present good management practices of clean feed, clean water, clean pens and clean cattle
- Evaluate adoption of interventions or Good Management Practices (GMPs) that have been scientifically validated
- It is critical for the industry to maintain open communication and to share data regarding pre-harvest interventions and good management practices

**Research Needs**
- Feed additives (approvals for testing) - Promising feed and/or water additives to be investigated include Tasco-14®, sodium chlorate, neomycin and direct-fed microbials.
- Vaccines - Although this technology looks promising, no large-scale studies have been completed. Implementation of this technology will be longer term.
- Cattle cleaning systems (prior to transport or at the processing plant) - This is a short-term approach that shows promise in significantly reducing the microbial load on fed cattle entering the harvest plant.
- Research must focus on filling some critical information voids such as high pen-to-pen variation and inconsistent reductions of *E. coli* O157:H7 with pen cleaning, water tank washing, cattle segregation and diet changes.
- The industry must work with USDA to obtain fast-track approvals for “in-field” testing of promising interventions.
- Systems that use a combination of interventions should be evaluated.
- The use of interventions must be based on scientifically sound data, not on preliminary data; bad data is worse than no data because it can lead to bad decisions.

### 2. Slaughter/Fabrication Sector

**Goal:** To reduce the incidence level of *E. coli* O157:H7 associated with beef and beef products.

**Points of Focus**
- **Fundamental requirements:**
  - Facility design
  - Plant sanitation programs
  - Air quality/flow
  - Water quality
  - Cold chain management
  - Receiving: cattle/facility cleanliness

**Carrying out process critical tasks:**
- Measuring and managing incoming microbial loads
- All tasks related to hide removal (e.g., pattern marks; interventions)
- Evisceration procedures
- Proper management of carcasses with improper viscera removal
- Utilizing proper carcass chilling process (carcass spacing is critical)

**GMPs/Standard Operating Procedures (SOPs) for critical tasks:**
- Written SOPs for all critical tasks identified

**Microbial interventions:**
- Optimize the sequencing of interventions within slaughter operations
- Use of interventions proven to be effective
- Obtaining USDA approval for interventions

**Assuring standardized sampling and testing procedures (i.e. standardized collection units, sample size and analytical unit):**
- Hides
- Pre-evisceration
- Final rail
- Post-processing
- Chilled carcass
- Final product

Creating open communications and data sharing
Ensuring employees are provided with appropriate food safety education
**Research Needs**

Pre-harvest/Harvest Interface and Harvest floor & beyond:
- Interventions addressing evisceration defects (trim vs. rinse)
- Hock decontamination
- Pre-evisceration thermal application
- Alternative carcass chilling technologies
- Electronic energy as a processing aid
- Competitive inhibitor (product or environment)
- Cattle cleaning systems
- Work with USDA on fast tracking approval process for testing interventions

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3. **PROCESSING SECTOR**

**Goal:** To reduce the incidence of *E. coli* O157:H7 in ground beef and related products.

**Points of Focus**

**Raw material sourcing:**
- Establishment of raw material specifications; qualification of new suppliers

**Ongoing supplier performance criteria and ranking trend analysis:**
- *Salmonella*
- *E. coli* O157:H7
- Generic *E. coli* results
- Total plate count (APC)
- Foreign objects
- Defect criteria
- Plant audits

**Raw material receiving:**
- Trailer/container inspections at receipt
- Raw material inspection at receipt

**Raw material storage:**
- Temperatures/monitoring
- Conditions/monitoring
- Age, lot rotation/integrity

**Raw material processing:**
- Formulation documentation
- Ground meat temperature monitoring/control
- Defect inspection
- Rework control
- Lot minimization practices
- Intervention/decontamination strategies
- Microbial monitoring/process control evaluation
- Pre-shipment verification/release for inventory

**Product packaging/labeling/storage/shipping:**
- Food grade
- Protects product
- Traceability

**Product storage:**
- Temperature/monitoring
- Conditions/monitoring
- Age, identification, lot rotation/integrity

**Product Shipping:**
- Trailer/container inspection, temperature, reefer condition
- Product integrity, temperature, temp. monitoring to distribution receipt
- Lot minimization
- Load security

**Measuring/validating the effectiveness of the process:**
- Mock stock recovery drills
- Distribution center and customer communications
- Supplier communications

**Additional Points:**
- Cold chain management is a critical factor in safety
- There must be open communications and data sharing
- An industry microbiological database must be established
- Standardized sampling & testing procedures must be developed and implemented (i.e. standardized collection units, sample size and analytical unit)

**Research Needs**

- Interventions:
  - Post-cooler; Cetylpyridinium Chloride, Citric acid; others
- Intervention/decontamination strategies and technologies for trim
- Establishment of best sampling methods for trim
- Development of standardized/accepted plant audits for Standard Operating Procedures, GMPs, and food safety for entire chain

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4. **FOODSERVICE/DISTRIBUTION SECTOR**

**Goal:** To reduce the incidence level of *E. coli* O157:H7 associated with beef and beef products

**Points of Focus**

**In Facility:**
- Establish minimum cook times/temperatures
- Validate cooking equipment temperature/time
- Monitor/verify cooked product internal temperatures
- Ensure effective cold chain management
Define, implement and manage cross contamination control procedures (delivery, storage, raw product handling, preparation, employees, equipment/tables/utensils)

Institute HACCP-based food safety education/training/staff development programs (specific employee tasks, sanitation, hygiene, monitoring procedures, establish clear accountability for food safety)

Manage/monitor/validate safety programs

Food safety must be integrated into the company philosophy and culture

Supplier:

All suppliers should be preapproved/audited/monitored for compliance with USDA regulations, HACCP, GMPs and purchase specs

Science-based ground beef/beef microbial performance standards must be established

Slaughter plants must use at least two in-plant HACCP-based, validated pathogen interventions on full beef carcasses

A documented and effective recall program must be in place and tested

Documented food safety training programs for supplier employees must be established

Cold Chain Management systems must be established that can be documented and verified

Support should be provided to establish a farm-to-table trace back system

In Store:

Continue the use of Good Retail Practices (GRPs) and SOPs for temperature management at retail that meets/exceeds FDA Food Code safety requirements

Assure Cold Chain Management

Develop and use Grinding Standard Operating Procedures (SOPs)

Retailers will continue to exercise the option to grind store-generated trim, so interventions must be applied to all beef cuts destined for the retail sector

Microbial testing:

Request suppliers to implement a microbial test-and-hold program prior to distribution

Microbial testing at retail is too late in the food chain to take corrective action; product should be tested before it reaches retail

Consumer Education:

Significant opportunities in retail sector

Web site development

Industry support of “ThermY” with USDA involvement

Support the “FightBac” campaign

New technology with new style T-sticks

160 degree F stickers

Use of industry spokesperson

Development of new safety promotional campaign

Research Needs

A single information source on all intervention technologies and food safety opportunities for controlling E. coli O157:H7 is needed

The development of technology to facilitate uniform use of in-store grind logs for identification and traceability of beef is encouraged

5. Retail Sector

Goal: To eliminate E. coli O157:H7 from the food supply and provide consumers with the safest, freshest beef and beef products possible.
THE BEEF INDUSTRY’S PLEDGE TO CONSUMERS

As leaders in the beef industry, representing each link in the production chain, we reaffirm our commitment to further reduce the risks associated with E. coli O157:H7 utilizing scientifically proven production practices and technologies.

Our united goal is to produce, deliver and serve wholesome and safe beef for each and every family.

BEEF INDUSTRY OVERVIEW

The overall goal of the beef industry is to link all industry sectors in a proactive effort that employs research, interventions and good management/manufacturing practices to reduce the risk of, and ultimately eliminate, E. coli O157:H7 in the beef supply.

Based on the sector breakouts there are a number of points of focus that apply to all sectors. These include:

- Promote communications across industry sectors
- Develop and manage industry microbiological databases
- Establish food safety education programs
- Standardize sampling and testing procedures (i.e. standardize collection units, sample size and analytical unit)
- Establish optimal cold chain management systems
- Develop new and optimize existing interventions

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