THE U.S. BEEF INDUSTRY'S COMMITMENT TO

BEEF SAFETY

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Introduction

Food safety is nothing new to the beef industry. What is new is the collaborative effort of every segment from farm to table to develop and find new ways to bring each consumer the safest product available. Beef safety is more than an expectation, more than the effort of one single entity — it is the sum of the entire beef production system, from farm to table.

Beef safety has been and will continue to be a dominant feature of the beef industry. But food safety cannot be addressed without considering the route that beef makes to the consumer’s table. This food chain begins on the farm and extends through processors, distributors and ends with retail and food service establishments having direct contact with consumers. While important food safety trends are impacting the entire beef production system, the final dimension in meeting beef safety usually takes the form of optimizing the use of interventions and control points not only within individual segments but within the entire system as well.

For these reasons, the entire beef industry is serious about developing an effective science-based industry-wide approach. Every segment of the beef industry must unite behind effective programs aimed immediately at solving the problem of *E. coli* O157:H7 in the beef supply, and aimed longer-term at solving the problems presented by other hazards already existing or that may evolve in the future. The industry must also strive to align the programs and policies of the government to support and enhance these efforts. This effort requires everyone involved to rethink their current approaches to beef safety and adopt new measures and collaborative efforts designed to support a comprehensive system spanning from farm-to-table.

Statement of Principle

The Beef Industry Food Safety Council is committed to developing industry-wide, science-based strategies to solve the problem of *E. coli* O157:H7 and other foodborne pathogens in beef. The Council will accomplish this by identifying, funding and prioritizing research priorities from farm to table; developing programs to help industry segments operate in today's business environment; speaking with one voice in seeking regulatory and legislative solutions; developing consumer education programs; and developing and implementing industry education programs to assist in the transfer of technology into the market place.
Overview

The U.S. beef industry is committed to producing safe food. Food safety issues will continue to generate the need for change, both to respond to public concerns and to provide policy makers with scientific data as a basis for sound, reasoned judgments. As new and creative foods become more common, continuing efforts will need a strong foundation to assess the complexity of interactions of food components as they relate to food safety.

To this end, the industry and the scientific community realize that further improvements can be made through a collaborative effort based upon:

- The use of science-based pathogen intervention strategies to enhance sanitary processes that include effective Hazard Analysis and Critical Control Points (HACCP) which are based on microbiological testing protocols to verify process control.
- The principles of prevention and risk reduction from farm to table that include effective monitoring and intervention strategies.
- The understanding by each segment of the beef food chain of the risks involved and the steps needed to ensure a safe beef experience.

The beef industry believes that the optimal system will have a food safety net extending from farm to consumer. To this end, the Council was formed, made up of industry executives, beef producers, university and government scientists, industry association executives and experts that represent each segment in the beef food chain. This cooperative effort clearly displays a deep commitment for further action to enhance the safety of the beef supply.

Strategy

The Beef Industry Food Safety Council provides input from producers, packers, processors, distributors, restaurants and food retailers to form a coordinated frame of reference for action. The strategy of implementing a food safety plan must be responsive to the competitive and customer-driven dynamics of each segment. By matching the right objective with each segment, the beef industry builds on current safety efforts through an industry-wide strategy. Through these cooperative efforts, the industry gains access to enthusiasm, expertise and needed resources for strategy execution and implementation.

Today, the beef industry is challenged to recognize and address an expanding and increasingly complex food safety agenda that must serve an even more complex food delivery system. Meeting these new and complex needs requires both interdisciplinary and multidisciplinary efforts.

To address beef safety, the strategic plan divides the industry’s initiatives into five critical areas, which reflects not only the span of the industry from farm to table, but the multidimensional nature of beef safety that includes the action of regulatory agencies and policy makers. The five critical areas are:
Initially, however, more fundamental studies are required as a necessary prerequisite for directing efforts towards pre-harvest strategies to reduce the incidence of \textit{E. coli} O157:H7. The priorities for pre-harvest research are:

- Gain a better understanding of the host/pathogen relationship to aid in the identification of potential pre-harvest critical control points and intervention strategies.
- Identify production and management practices that influence growth, shedding and spread of \textit{E. coli} O157:H7.
- Gain a better understanding of the ecology of \textit{E. coli} O157:H7.

Listed below are the priorities established by the Beef Industry Food Safety Council to address beef safety issues throughout the industry. The overall focus of this collective effort is based on prevention and emphasizes information exchange among all segments of the food chain.

**Research/Science**

Research is essential to improve monitoring, to identify intervention strategies and to evaluate process effectiveness for every critical step within the food safety net from farm to table. However, more data are needed to effectively implement a farm-to-table prevention system.

Seven key segments in the farm-to-table continuum need to be considered with regard to research accomplishments and voids: pre-harvest, beef carcass conversion, beef carcass break-up and trim generation, ground beef processing, food service/retail and pathogen intervention strategies. Of these, the Council identified pre-harvest, beef carcass break-up and trim generation, ground beef processing, and food service/retail as high priority areas needing further research.

**Pre-harvest**

The presence of \textit{E. coli} O157:H7 in the general cattle population suggests that preventative strategies prior to harvest may potentially reduce the incidence of \textit{E. coli} O157:H7. Efforts to establish points critical for incidence reduction are needed to address the efficacy of pre-harvest interventions and strategies.

Initially, however, more fundamental studies are required as a necessary prerequisite for directing efforts towards pre-harvest strategies to reduce the incidence of \textit{E. coli} O157:H7. The priorities for pre-harvest research are:
Develop a “white paper” for the industry on current knowledge of *E. coli* O157:H7 in the preharvest segment of the beef chain. (short term priority)

**Beef Carcass Break-up/Trim Generation**

Beef carcass fabrication and trim generation provide important avenues for strategically improving present measures for preventing contamination/recontamination and minimizing the growth of existing contamination. The importance of focusing on this process stems from the increase the surface area as carcasses are fabricated into a diverse array of beef products along with the concomitant generation of beef trim.

There is a tremendous need to refine preventive strategies to reduce the incidence of *E. coli* O157:H7 that takes into account the resources utilized in this process. These include employees, incoming raw materials, equipment, temperature and protocols for sanitation of equipment and facilities. The diversity of resources at this stage of beef processing present challenges to microbial monitoring systems, and preventive and intervention procedures that provide effective HACCP strategies to reduce the impact of bacterial pathogens. The priorities for this research area are:

- Develop microbial verification systems/guidelines for key critical control points. (short term priority)
- Evaluate and develop intervention options for beef trim.

**Ground Beef**

The production of ground beef presents an important opportunity to the industry for reducing the incidence of *E. coli* O157:H7. The diversity in raw materials sources and the complexity in the points of production, whether packer, retail or foodservice, offers a challenging opportunity to the industry.

Ground beef is processed at a multitude of production points that include packer, grinder/purveyor, distributor and even foodservice/retail establishments. The sources of raw materials for ground beef processing can also originate from within the facility, from outside sources or a combination of both. Thus the overall scheme for ground beef production is complicated.

The complicated nature of ground beef production, however, can be addressed through appropriate HACCP and intervention strategies. Key research is needed to develop and refine interventions and monitoring protocols. The research priorities needed are:

- Microbial testing is integral to the verification process steps prior to the grinding of trim into ground beef. (short term priority)
- Develop testing protocol for *E. coli* O157:H7 to enhance definition of lot sizes. (short term priority)
- Develop irradiation guidelines for ground beef products (dose/usage/dose per micro-load/packaging types, etc).
• Enumeration of micro loads in ground beef products for *E. coli* O157:H7 and Salmonella. (short term priority)

**Food Service/Retail**

There are no other points of delivery that are closer to the consumer than foodservice or retail establishments. The process of making, transporting and serving prepared beef meals, as in a restaurant or commissary, or though the sale of individual beef cuts or products, are important points for monitoring and establishing prescribed actions to reduce the incidence of *E. coli* O157:H7.

Industry education efforts have established programs for these points of delivery. Additional research is needed however to provide further opportunities for pathogen risk reduction. The research priorities are:

• Develop a “white paper” for the industry on thermal death-time curves for *E. coli* O157:H7. (short term priority)

• Develop microbial profile for needle/mechanical tenderized/injected beef products (retail and food service). (short term priority)

• Develop a microbial profile for all types of retail ground beef products. (short term priority)

**Crisis Communications**

Crisis communications to ensure consumer safety establishes a clear plan for the beef industry to communicate rapidly between affected companies, organizations, regulatory agencies, public health officials and health-care professionals. Recent outbreaks emphasize the role and responsibilities for ensuring consumer safety through fair, accurate and timely information from all segments of the industry.

Clear lines of communication between regulatory agencies, companies and their immediate customers provide the consumer a clear portrayal of the situation and a choice of preventive measures. Health care professionals and public health officials may further these efforts through their communication endeavors. However, the multitude of communication points necessitates the need for a clear plan of action to protect the consuming public.

The Council determined the following priorities be investigated for eventual funding and implementation:

• Establish a comprehensive communication plan to implement during a crisis that ensures a rapid and coordinated response by the affected company, their customers, industry organizations and regulatory agencies to uphold consumer safety as the overarching priority for action.
Utilize the educational activities of Consumer and Industry Education to facilitate a collaborative effort between industry segments in reassuring consumers of the safety of the beef supply.

Public Policy

The implementation of HACCP bolsters a meat and poultry inspection system that has served the consumer and industry with an increasingly safe beef supply. But new pathogens, such as *E. coli* O157:H7, create new challenges not only for present systems of producing, processing and handling, but for the regulatory approach for monitoring the entire process as well.

The current regulatory approach should be a science-based industry-encompassing effort to meet the ever-changing needs and products that consumers demand. The regulatory effort will be preventative in nature and further assist the industry in transferring and implementing pertinent technologies, monitoring procedures and intervention strategies to protect the consuming public.

The Beef Industry Food Safety Council established that the industry will speak with one voice in seeking regulatory and legislative solutions to address food safety policies and regulations that provide an environment for enhancing food safety. The following priorities were identified for consideration and implementation:

- Microbiological sampling and testing procedures should be done at the points in the production process where they will provide the most useful information in controlling product quality and safety.

- Food Safety Inspection Service procedures for handling recalls need to be clearly defined and predictable.

- If HACCP is to succeed as a prevention-based food safety program, it needs to be based on a common understanding among industry and inspectors of HACCP principles.

Industry Education

Industry educational programs assist in transferring technologies and establishing strategies that result in safer products and in expanding the good manufacturing procedures utilized by food handlers and producers. To this end, current industry educational programs need to be expanded and coordinated to encompass a prevention-based system that can effectively meet the needs and diversity of beef producing segments from farm to table.

As industry education efforts are considered, effective strategies must factor in the behavior of a network of related segments, each having somewhat different motivations, communications and management models. Despite their differences,
these segments share a set of broad-based principles and goals. Previous beef safety efforts have shown a strong consensus on the demands of the marketplace. To capture the complexity of beef safety, the beef industry must provide a multidimensional industry-wide educational effort.

New expectations, new opportunities and problems, new linkages, changing resources and origins are all features of an educational program that would facilitate the reduction in foodborne illness. The Council identified the following priorities for further study and eventual funding:

- The beef industry desires to have a body or organization that enhances dialogue and exchange of food safety information among all segments from farm to table.
- Utilize educational activities for all segments from preharvest to postharvest to expand and enhance the safety of the beef supply using allied associations and organizations.
- All industry communication efforts should deliver a clear and substantive message that is consistent between consumer and industry efforts.

**Consumer Education**

Consumers’ food handling/consumption is the final critical control point in the food safety process. Existing industry and government education programs, and identified information voids lead to a strategy for effectively implementing a two-prong communication effort that creates greater awareness of proper food handling and preparation techniques, and informs consumers of the industry’s efforts in addressing food safety at each segment.

The Council supports a coordinated, proactive, industry-wide food-safety education effort for consumers. The effort should focus on all safe food handling practices in conjunction with beef-specific preparation/handling information as a part of that total message. Communication efforts should emphasize the benefits derived by changing food safety behaviors rather than avoiding risk: it is important for efforts to be positive and not to create concern.

The feelings of consumers are paramount to the industry. Yet a comprehensive effort to inform the consumer of the industry’s interest in providing a safe beef experience has never been conducted to communicate the food safety changes taking place in the beef industry in route to the consumer’s table.

The Council recommended the following priorities for further consideration and eventual funding:

- Support government and industry-wide, collaborative food safety efforts in consumer education and communications.
• Communicate about the industry-led farm-to-table efforts and their results to facilitate a positive change in consumer attitudes about the safety of beef.

• Conduct a campaign for consumers on their role as the “last critical control point” to change food handling/consumption behavior.

**Immediate Industry Priorities**

The Beef Industry Food Safety Council identified areas that deserve immediate industry attention. Near term priorities, those to be implemented as soon as possible, were clearly identified for research. Every working area had priorities that should be implemented as soon as possible to rapidly move the industry toward improving the safety of the beef supply and enhance efforts to communicate with the industry’s consumers.

These priorities will be further considered by the steering committee of the Beef Industry Food Safety Council in order to consider appropriate actions for a rapid and coordinated implementation plan. The identified priorities and implementation plan will be discussed by the Council in March, 1998, to consider industry-wide execution of a strategic plan, its budget and funding strategies.