

Introduction

Food safety is essential to protect consumers, maintain domestic and international customer confidence and support beef demand. Research has played an important role in developing improved food safety interventions that effectively combat multiple pathogens and methods to quantify the effectiveness of these interventions. The adoption of this research has led to significant improvements in the safety of Canadian beef.

While Canada's beef industry has achieved significant food safety gains, maintaining this performance and protecting market access requires continuous innovation in the face of evolving pathogens, regulatory expectations and trade dynamics.

See [page 33](#) of the 2026 Canadian Beef Research and Knowledge Mobilization Strategy for more food safety information.

Key Issues

- Biofilms – prevention and detection
- Cleaning for multiple pathogens simultaneously
- Maintaining food safety as pathogens change
- Maintaining food safety as regulations change
- Cost-benefit evaluations of recommended practices and research that is nearing commercialization or adoption



Research Outcomes

Outcome 1: Improved food safety in beef production and processing facilities

1. Develop and implement cost-effective technologies targeting multiple pathogens in cattle and beef production and processing facilities, including heat- and acid-resistant *E. coli* and biofilm-forming bacteria
2. Identify key management practices in processing facilities that help avoid or limit biofilm formation
3. Develop simple and cost-effective techniques and technologies that reliably detect biofilms in difficult-to-clean places in processing facilities
4. Design and implement ongoing surveillance to detect changes in pathogen prevalence in Canadian beef processing facilities

Outcome 2: Validated efficacy and safety of new technologies in support of the rational regulatory approval and adoption of improved food safety interventions throughout the supply chain

1. Develop methods to synthesize available in-plant and customer information as early signals that potential food safety issues may be developing
2. Develop technologies and identify practices to reduce odours associated with packing plants, rendering facilities and settling ponds
3. Conduct research to proactively resolve market access concerns for Canadian beef

Outcome 3: Improved air, water and soil outcomes associated with beef packing and processing

1. Develop cost-effective cleaning technologies and procedures that ensure food safety with less need for (hot) water, sanitizers and labour in large and small processing facilities

Outcome 4: Increased food safety research, teaching and extension capacity in Canada

Knowledge Mobilization Outcomes

Outcome 1: Increased adoption of best practices in small processors, food service and retail facilities

1. Develop simple, practical information and training opportunities that empower small processors, food service and retail facilities to develop and implement effective environmental, sanitation and food safety protocols
2. Encourage the consistent adoption of known best practices to minimize risks of pathogen contamination in beef processing plants related to the proper and thorough cleaning of conveyor belts, personal equipment, processing and grinding equipment, etc.

Outcome 2: Proactively identify likely regulatory barriers or concerns in key beef markets so they can be resolved before market access is impaired

