

Exploring the next generation of traceability

Study provides assessment of opportunities and constraints to help guide Canada's beef industry.

Canada's beef industry has built a solid pathway for a rapid and effective response to potential food safety issues, through key sectors of the supply chain, with a now well-established animal identification system that allows trace-back through the farm to slaughter stages.

But now it faces an increasingly complex and difficult question: Where to go from here?

Around the world, demands and innovations that require enhanced traceability and quality verification approaches are steadily increasing in the agriculture and food sector as a whole, including Canada's beef sector.

Food retailers are adopting traceability requirements for suppliers at a rapid pace. Supply chain alliances are building traceability into innovative product branding strategies. Producer organizations have introduced industry-wide animal identification and traceability initiatives. In addition, governments are getting involved by encouraging, supporting and in some cases even mandating traceability within their national food sectors.

A variety of models and approaches to traceability and quality verification are emerging, each with different advantages and challenges.

To help Canada's beef industry navigate this rapidly evolving and complicated area, the National Beef Industry Development Fund (NBIDF) supported a study by two leading researchers and analysts on the subject, Dr. Jill Hobbs and Kim Sanderson of the University of Saskatchewan, Department of Agricultural Economics.

"Our objective was to provide an assessment of opportunities and constraints for enhanced traceability and quality verification systems in the Canadian beef industry," says Hobbs. "The analysis provides the industry with a solid basis of information to help guide its decision-making processes over the next several years."

Thorough analysis

To perform the study, the researchers conducted a comprehensive scientific literature review and interviewed key industry stakeholders and experts in Canada and the US. The information obtained was then evaluated and formed the basis of an in-depth analysis.

An important consideration throughout the study was maintaining the distinction between traceability and quality verification, notes Hobbs.

"The two are often closely linked, but provide completely separate functions," she says. "With traceability, you're providing a system to traceback animals, to find out where they came from. That has great advantages for minimizing risk when a potential disease or other food safety concern has been identified, but it does little to actually ensure a particular quality standard.

"Quality verification on the other hand tells the consumer that a particular standard or practice has been verified. They know the product they're getting has been produced under certain standards, such as organic, enhanced food safety, animal care or others."

In the study, researchers examined a variety of models for each system, including those that piggyback quality verification on traceability systems and those that focus independently on one type of system.

Expanding the system

Among the study's key components, the researchers explored the feasibility and implications of extending the current cattle identification system to a full chain traceability system, from farm to retail.

They also examined the network effects and economic implications of combining traceability with more comprehensive information management systems for quality verification.

"The second question was the more difficult one," says Hobbs. "The motivation for having an industry-wide cattle ID and traceability system in place is fairly strong, in the sense that if one producer has a problem with an animal disease, you want to minimize the impact on other producers – what economists call an externality. Typically, we can make a strong case for policy involvement and industry-wide involvement when you get that type of spillover benefit for everyone.

"But when we move beyond that into saying, can this system be used to also collect other information on a voluntary basis for quality assurance information, the considerations and implications are far more complex, and there is a much greater diversity of opinion."

Canada on solid ground

In the current situation, Canada's beef industry already has a strong footing for addressing traceability and quality verification needs, says Hobbs.

The Canadian Cattle Identification Agency (CCIA) is in place as an industry-wide traceability initiative, designed primarily to facilitate the traceback of animals or food products in the event of a food safety or herd health problem. The Canadian Livestock Identification Agency (CLIA) provides a forum for multi-species traceability efforts.

"Our analysis found that the current cattle ID and traceability system is functioning well," says Hobbs. "The recent BSE cases we've dealt with are one example of how this system has greatly benefited the industry."

In this respect, Canada is well ahead of the U.S., which doesn't yet have a national cattle ID system in place, she notes. "The U.S. has approached traceback on more of a state by state basis. It appears Canada's approach has worked much better."

Potential next steps

There are a number of considerations when evaluating a potential next step for Canada to expand its ID and traceability system into a full chain system – one that extends beyond the slaughter level to the retail level.

Chief among these considerations is technology. "Our industry consultations revealed that the technology exists to extend traceability along the supply chain to the retail sector, and that is already happening on a small scale," says Hobbs. "However, the high speed of commerce within the broader industry creates a challenge for implementing complete farm to fork traceability on a large scale."

The current technology is better suited to lower cattle numbers and slower processing than exists in the industry right now, she explains. "As a result, developing and implementing effective technology is a critical hurdle to a more extensive industry-wide system."

Another constraint is integration at the regulatory level, she says. "The development of programs by different levels and jurisdictions of governments could make it difficult to establish a broader integrated national program for traceability."

Industry-wide vs. private

When evaluating the potential to use the existing system as a basis to add quality verification components, the researchers identified the role of public vs. private initiative as a key consideration.

"One way I like to look at the cattle traceability system now in place is that it's like having a rail line established," says Hobbs. "When you look at using that infrastructure for quality verification components, it's like asking if you can run additional cars on that rail line."

"We found that if producers want to provide quality information, there certainly seems to be some potential benefits from doing that. The downside is that if you move this option forward with the industry-wide system, you start moving into the realm where private entities have a role and you start competing with them."

In North America, it is the private sector supply chains and branded programs that have begun to address the quality verification function, the study observes. Numerous branded programs in the U.S. and, to a lesser extent Canada, undertake traceability for the purpose of production and process verification from farm to packer door.

"Private sector supply chain-based initiatives are obtaining premiums for products that address the demands of consumer market segments for specific food quality and safety attributes," says Hobbs. "Newer private sector investments have built traceability capabilities into the packing plant, although by-and-large individual animal ID is still not retained post-slaughter in most major packing plants."

Functional, reliable, credible

Whatever the approach, the study found there are several essential characteristics to any successful system.

"For traceability and quality verification systems to be effective and useful to the industry, they must be functional, reliable and credible," says Hobbs. "To accomplish this, the system must provide tangible and appropriate incentives for compliance to all parties involved."

Applying those characteristics to the Canadian context will be the ongoing challenge for Canada's beef industry, she says. "Right now, there is widespread recognition that the system could do more, but not universal agreement over whether it should do more or how it should do it. But there is little doubt traceability and quality verification will continue to increase in importance. It's up to Canada's beef industry to determine how it will meet the many challenges and opportunities that traceability and quality verification poses."

The National Beef Industry Development Fund (NBIDF) is a \$9.25 million fund created through the investments of the governments of Canada, Alberta and British Columbia. It contributed to more than 120 research and development projects from 2002 to 2006, to support the competitiveness of the Canadian beef industry.

Reprintable with permission. Reproduction of this article - in whole or in part, in print or electronic - requires direct permission from Meristem Information Resources, Ltd. Contact Meristem directly to request reprint permission.