Food Traceability

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Outline

- **Introduction to Traceability**
  - History, Definition, Why is it an issue?
- The Drivers
  - What is the Business Case? Why bother?
- Standards
- A Canadian Perspective
  - CLIA and Can-Trace
Traceability is not new!

- 1700 BC  Mesopotamian shepherds mark animals with different colors
- 7th Century  China tattoos breed horses
- 1556  Venice hires food inspectors
- 1714  France outlaws un-inspected meat
- 1750-90  UK pass variety of food safety laws
- 1875  Marking of U.S. livestock with tags
What is Traceability?

- Traceability: “the ability to trace the history, application or location of that which is under consideration” (ISO)
- Tracing: Looking back
- Tracking: Looking forward
What is Traceability?

- An information management tool
- Not an end in itself: supports other goals
- What do you need?
  - Compatible data elements [information]
  - Data capture and data transmission
  - Ability to recall from supply chain
Supply Chain Flow

Flow of Products through the Supply Chain

Primary Producer (Farmer) <-> Carrier <-> Processor/Packer/Abattoir <-> Carrier <-> Warehouse, Distributor <-> Carrier <-> Retail/Foodservice (Point of Sale)

Flow of Information through the Supply Chain
What is Traceability?

- A traceability system is driven by information and must answer these questions:
  - What is the product?
  - How much is there?
  - Where did it originate?
  - Where is it/Who has it now?
What Traceability is Not?

- Traceability ≠ safe food
- Traceability does *not* prevent animal disease
- Traceability is *not* a prerequisite for safe food or healthy plants and animals
- Traceability is *not* driven by technology
Steps on the Pathway to Traceability

- Discovery of pathogenic organisms
- Establishment of control mechanisms
- Spread of international rules and compliance
- Business efficiency and supply chain effectiveness
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Drivers: Why is Traceability Important?

- Media attention on food safety & quality issues
- Globalization of the Market
- Increasing liability and litigation
- Huge economic interests at stake
- Supply chains have become complex
Why do Companies Invest in Traceability?

- They Have to:
  - Regulatory Requirement
  - Customer Requirement
- They Want to:
  - Risk Mitigation
  - Market Access
  - Supply Chain Efficiency
Drivers: Regulatory Requirements

- Europe – EU Food Law
  - Adopted 2002 to ensure a high level of health protection

- U.S. – Bio-Terror regulations
  - 9/11 highlighted vulnerability of the food supply.
  - Final Rule on Establishment and Maintenance of Records
Drivers: Regulatory Requirements

- Japan – Beef traceability, BSE testing
- Canada – Livestock Identification Program
- Chile – National Beef/Salmon Traceability
- Australia – Integrated Market Development
Drivers: Market Access Issues

- Some large customers are saying: get traceability or we won’t do business
- Wal*Mart: “RFID will revolutionize the business…”
- McDonald's: “We know exactly which logistics path every single ingredient has taken…”
Drivers: Risk Mitigation

- Traceability systems produce information which can shield a company from costly legal claims.

- Traceability systems will reduce:
  - Recall Frequency
  - Recall Scope
Drivers: Improved Business Processes

- Improved Efficiency
  - Automotive parts sector enabled N/Am auto industry to regain control of its supply chain
  - Information can be used to improve processes, quality, transportation logistics and reduce costs
  - Requires more than automation
Pro and Cons of Mandating

- Should Food Traceability be Mandatory?
  - Depends on the objective and the risk
  - Voluntary systems support regulatory objectives
  - In Canada, governments regulate or “mandate” where public health or market access is at risk
    - Governments don’t want to regulate supply chains
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Standards Organizations

- Codex Alimentarius Commission
  - Codex was created to protect consumer health and ensure fair trade practices
- ISO
  - ISO 22005: Traceability in the feed and food chain – General principles and guidance for systems design and development
  - Objective: provide security by eliminating weak links in the food supply chain
Standards Organizations

- OIE
  - Working Group on Animal Production and Food Safety
- AIM International Livestock Traceability Standard
  - Technical Report: "RFID for Food Animal Identification in N/Am"
- GS 1 (formerly EAN.UCC)
  - GS1 Traceability Standard for all industry sectors
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- A Canadian Perspective: Two Initiatives
  - CLIA and Can-Trace
Situation in Canada

“Canadians are working together”

- The Agricultural Policy Framework (APF) set a goal of “making Canada a world leader in food safety and quality, innovation and environmentally responsible production”

- Governments have provided program funding to facilitate traceability.
Situation in Canada

- No national mandating of traceability on a *broad* basis
- Great interest in standardized approach
- Enterprise-wide hi-tech traceability systems still not that common
Initiatives Underway

- Can-Trace – Food Traceability Data Standard
- Canadian Livestock Identification Agency
- Canadian Cattle Identification Agency
- Agri-Traçabilité Québec – RFID traceability for livestock
- Canadian Pork Council – Hog identification strategy
- North American Traceability Best Practices for Produce
- Canadian Identity Preserved Recognition System (Canadian Seeds Institute and Canadian Grain Commission)
Canadian Livestock Identification Agency (CLIA)

- **Mandate:**
  - Develop “whole-life” (birth-to-slaughter) traceability system for Canada for livestock

- **Benefits:**
  - Minimize impact of a foreign animal disease outbreak
  - Reinforce export market access
  - Improve competitiveness of animal Agri-food sector
Canadian Livestock Identification Agency (CLIA)

- Moving from mandatory ID to full traceability for all species
- Phased approach
  - **Group 1:** – beef, dairy, bison, sheep
  - **Group 2:** – Species that have developed or are developing an ID-traceability strategy (pork, equine, goats)
  - **Group 3:** -- Other groups
Canadian Livestock Identification Agency (CLIA) – “CATS” System

Agents / Data providers
- Provincial Gov/Ind.
- ATQ
- CCIA
- Commodity Groups

CLIA Data Warehouse
- Premises data
  - Min Data Fields as specified by Premises WG.
- Movement data
  - Premises From
  - Premises To
  - Animal/group ID
  - Movement date

CCIA-System

Emergency Management
- CFIA
- Provincial EM
- Other EM

Emergency Management multi species trace out queries
Can-Trace

- A national, multi-sector, whole-chain collaborative initiative to establish minimum data requirements for traceability
- Scope: primary producer to back door of retail (grocery)/foodservice
- Voluntary initiative; Voluntary standard
- Industry-led but government funded
Initial Objective: An information standard

- *Voluntary* food traceability data standard with mandatory and optional data requirements
  - Generic in nature
  - Not technology dependent
- Establish a consistent approach to what information needs to exchanged
- Canadian Food Traceability Data Standard
Can-Trace: Why did we undertake it?

- Lack of a whole chain approach on the market
- Lack of consistent standards for sharing information between supply chain partners
- Proliferation of solutions and systems
- Desire for an industry approach rather than one imposed by government
- Clear signals from the marketplace
Can-Trace: Accomplishments to Date

- A community that spans the full supply chain and includes major food sectors
- Canadian Food Traceability Data Standard (CFTDS) v 2.0
  - Focus on “what” information to exchange, not “how” to implement
- Provided leadership at global level (GS1)
Industry and Government Participation

- AAFC – Agriculture and Agri-Food Canada
- CFIA – Canadian Food Inspection Agency
- CCIA – Canadian Cattle Identification Agency
- CLIA – Canadian Livestock Identification Agency
- COFFS – Canadian On-Farm Food Safety
- CPC – Canadian Pork Council
- Fisheries Council
- Canadian Grain Commission
- Canadian Grains Council
- FCPC – Food and Consumer Product of Canada
- OMAF – Ontario Ministry of Agriculture & Food
- FDTA - Fonds de développement de la transformation alimentaire
- CRFA – Canadian Restaurant and Foodservices Association
- CPMA – Canadian Produce Marketing Association
- CCGD – Canadian Council of Grocery Distributors
- CAIC – Canadian Aquaculture Industry Alliance
- CFIG – Canadian Federation of Independent Grocers
- GS1 Canada
- CMC – Canadian Meat Council
- Saskatchewan Herb & Spice Assoc.
- CPEPC – Canadian Poultry & Egg Processors Council
- MAPAQ – Ministère de l’Agriculture, des Pêcheries et de l’Alimentation
Can-Trace Beef Processor MANDATORY Data Requirements

**From PREVIOUS Trading Partner**
- Input Lot Number
- Input Product Identifier
- Product Description
- Quantity
- Sender Identifier
- Ship From Location Identifier
- Shipment Identifier
- Unit of Measure

**Input & Output Lot Number**
- *Input & Output Lot Number
- *Product Description
- *Quantity
- *Sender Identifier
- *Ship From Location Identifier
- *Shipment Identifier
- *Unit of Measure

**From NEXT Trading Partner**
- Receiver Identifier
- Ship To Location Identifier

**Input & Output Product Identifier**
- *Input & Output Product Identifier
- *Product Description
- *Quantity
- *Receiver Identifier
- *Sender Identifier
- *Ship From Location Identifier
- *Ship To Location Identifier
- *Shipment Identifier
- *Unit of Measure

**With PREVIOUS Trading Partner**
- Receiver Identifier
- Ship To Location Identifier

**With NEXT Trading Partner**
- Output Lot Number
- Output Product Identifier
- Product Description
- Quantity
- Sender Identifier
- Ship From Location Identifier
- Shipment Identifier
- Unit of Measure

**Legend**
- Red Text: Previous Trading Partner
- Blue Text: Both Trading Partners & Your Own
- Grey Text: Next Trading Partner
- Dashed line: Supply Chain Flow
Secretariat Role: GS1 Canada

- GS1 Canada Mission: provide leadership in establishing, promoting, and facilitating global collaborative commerce
- Standards, services and education
- Existing partnerships with food processors and retailers
Can-Trace: Published Materials

- Canadian Food Traceability Data Standard, v 2.0
- Pilot Projects

- Business Case “Decision Support Tool”
  - Self assessment excel tool (with drop-down menus)
  - Determines cost/benefit for traceability investments
Can-Trace: Published Materials

Technology Guidelines Report

- How should the data be transmitted?
- Range of technology approaches for product data capture and document exchange
- Identify how physical markings and documents (paper-based or electronic) can be used to capture and communicate data
- Capabilities of different applicable technologies
Continuum of Traceability Technology

- Tags, Tattoos, Handwritten Records & Logs
- Manual entry computer databases
- Bar codes, RFID & Automated Data Entry
- EDI & dedicated Supply Chain portals
- XML & Whole-chain data managing tools

- Manual Data Mgmt
- Computer Assisted Data Mgmt
- Automated Data Collection
- Electronic Data Interchange
- Global Data Synchronization

Benefits
- Basic asset tracking
- Manual search & recall
- One-to-one business information sharing
- Manual categorization of assets
- More rapid recall & search capacity
- Basic storage & reporting functions
- One-to-one business information sharing

Benefits
- Major reduction in data entry errors
- Faster recall search & reporting functions
- Faster one-to-one business information sharing
- Simplified itemization & categorization of assets
- Shared rapid recall search by outside authorities
- Reduced duplication of data & reporting
- One-to-many business information sharing with partners
- Item level & serialized identification of product

Benefits
- Rapid whole chain recall capability
- Substantially reduced data duplication & error
- 'Many-to-many' business information sharing with partners
- Supply chain consolidation

Increasing Value Chain Synchronization
Can-Trace: Published Materials

Multi Ingredient Products Report

- Food Manufacturers/Food Processors using most of the Can-Trace data elements, but not consistently
- No unique requirements; no modification to standard required
- The most successful companies were implementing EAN.UCC/GS1 best practices
- Breakdowns in traceability occur when suppliers not providing proper documentation
Can-Trace: Published Materials

Integration Guidelines Report

- How well does the Can-Trace Standard work “upstream”?  
- Were there gaps? What were they?  
- Gap Analysis: Can-Trace vs Other food safety/quality/HACCP programs;  
- Modifications were required: Can-Trace needed to be more generic
Can-Trace: Published Materials

- Reports available at www.can-trace.org
Lessons Learned

- When building a standard, be generic as possible

- Larger companies using most of the Can-Trace data elements but not in a consistent fashion

- Voluntary environment represents biggest challenge for wide adaptation of any standard
Lessons Learned

- Some controversy is inevitable!
- Small/Medium size enterprises [SME’s] have great interest in learning from those who have implemented successfully
- Communicate, Communicate, Communicate
The Future…

- Emphasis needs to be on implementation
  - “How” to trace; not just “what” to trace
- Consistency with Global Standards [GS1, ISO]
- Partnerships with service providers to educate, train and implement systems
- Initiative will be industry-funded
Thank you!

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